CITY OF PINOLE

GENERAL PLAN UPDATE

DRAFT ENVIRONMENTAL IMPACT REPORT

SCH #2009022057

Prepared for:
CITY OF PINOLE
2131 PEAR STREET
PINOLE, CA 94564

Prepared by:
PMC®

2729 PROSPECT PARK DRIVE, SUITE 220
RANCHO CORDOVA, CA 95670

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1.0 Introduction

This Draft Environmental Impact Report (Draft EIR; DEIR) was prepared in accordance with and in fulfillment of the California Environmental Quality Act (CEQA) (California Public Resources Code Sections 21000, et seq.) and the CEQA Guidelines (14 California Code of Regulations, Section 15000, et seq.). As described in the CEQA Guidelines Section 15121(a), an environmental impact report (EIR) is a public informational document that assesses the potentially significant environmental impacts of a project. CEQA requires that an EIR be prepared by the agency with primary responsibility over the approval of a project (the lead agency). The City of Pinole (City) is the lead agency for the City of Pinole General Plan Update (project; proposed project; GPU; GP Update; Plan; Pinole General Plan), which includes an update to the City's current General Plan (1995), an update to the City's Zoning Code, and the development of the Specific Plan for the transportation corridors of Appian Way, Pinole Valley Road, and San Pablo Avenue (also known as the Three Corridors Specific Plan). Public agencies are charged with the duty to consider and minimize environmental impacts of proposed development where feasible and have the obligation to balance economic, environmental, and social factors.

This DEIR utilizes technical information and analyses from previous studies which are supported by State CEQA Guidelines (Section 15148 [Citation] and 15159 [Incorporation by Reference]). By utilizing these provisions of the CEQA Guidelines, the City, in preparing this DEIR, has been able to make maximum feasible and appropriate use of the available technical information.

1.1 PURPOSE OF THE EIR

The City, as the lead agency, has prepared this Draft EIR to provide the public and responsible trustee agencies with information about the probable effects of adoption and implementation of the comprehensive updates of the City of Pinole General Plan and the City of Pinole Zoning Code Update, and the development of the Three Corridors Specific Plan. The current General Plan for the City of Pinole was adopted in 1995, with the exception of the Housing Element which was last updated in 2003 and is in the process of another update in 2010. Since that time, Pinole has experienced many physical, demographic, and economic changes, resulting in new opportunities and challenges for the City. The existing General Plan is being updated in order to reflect current community sentiment and changes in land use, growth patterns, and demographic and economic conditions. State law does not specify rigid requirements or timing for updating a general plan (other than for the housing element). However, it does establish that the responsibility for determining whether a general plan is up to date and accurate rests with each jurisdiction.

CEQA requires the preparation of an EIR prior to approving any project that may have a significant effect on the environment. The adoption and implementation of a General Plan Update and its project components (the General Plan Update, the Zoning Code Update, and the Three Corridors Specific Plan) constitutes a project for the purposes of CEQA and the State CEQA Guidelines. For the purposes of CEQA, the term "project" refers to the whole of an action which has the potential to result in a direct physical change or a reasonably foreseeable indirect physical change in the environment (CEQA Guidelines Section 15378[a]). The City has determined that the proposed City of Pinole General Plan Update and its project components, the City is a project under CEQA.

The City of Pinole determined that preparation of an EIR was appropriate due to potentially significant environmental impacts that could be caused by implementing the proposed City of Pinole General Plan Update, the Zoning Code Update and the development of the Three Corridors Specific Plan. In order to be compatible with the General Plan, the Zoning Code Update and the Three Corridors Specific Plan is being prepared concurrently with the GPU. This Draft EIR evaluates the existing environmental resources in the vicinity of the city, analyzes

potential impacts on those resources due to the proposed project, and identifies mitigation measures that could avoid or reduce the magnitude of those impacts. This EIR provides a general review of the environmental effects of infill and/or redevelopment of the city based on proposed land use designations and estimated public service demands. This EIR will be used to evaluate the direct and indirect environmental effects of subsequent development under the General Plan (i.e., residential development, rezones, commercial structures, park sites, recreation facility development, and infrastructure improvements).

1.2 KNOWN RESPONSIBLE AND TRUSTEE AGENCIES

For the purposes of CEQA, the term "responsible agency" includes all public agencies other than the lead agency that have discretionary approval power over the project or an aspect of the project. The term "trustee agency" means a state agency having jurisdiction by law over natural resources affected by a project which are held in trust for the people of the State of California. The following agencies are identified as potential responsible agencies:

- Contra Costa County
- Contra Costa County Local Agency Formation Commission Contra Costa LAFCo)
- Bay Area Air Quality Management District (BAAQMD)
- West Contra Costa Unified School District (WCCUSD)
- Contra Costa Transportation Authority (CCTA)
- West Contra Costa Transportation Advisory Commission (WWTAC)
- East Bay Regional Park District (EBPRD)
- San Francisco Bay Conservation and Development Commission (BCDC)
- Caltrans District 4
- West County Wastewater District (WCWD)
- East Bay Municipal Utility District (EBMUD)
- Richmond Sanitary Service (RSS)
- Metropolitan Transportation Commission (MTC)
- California Environmental Protection Agency (CAL-EPA)
- California Highway Patrol (CHP)
- Native American Heritage Commission (NAHC)
- State Office of Emergency Services (OES)
- State Water Resources Control Board (SWRCB)
- Occupational Safety and Health Administration (OSHA)
- United States Army Corps of Engineers (USACE)
- United States Environmental Protection Agency (USEPA)
- United States Fish and Wildlife Service (USFWS)
- Federal Emergency Management Agency (FEMA)
- Water Emergency Transportation Authority (WETA)

The following agencies are identified as potential trustee agencies:

- California Department of Fish and Game (CDFG)
- California Department of Conservation (DOC)

1.3 TYPE OF DOCUMENT

The CEQA Guidelines identify several types of EIRs, each applicable to different project circumstances. This EIR serves as a "Program EIR." Program EIRs are defined by the CEQA Guidelines (Section 15168) as "a series of actions that may be characterized as one large project and may be related either:

1) Geographically;

2) As logical parts in the chain of contemplated actions;

3) In connection with the issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program; or

4) As individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects which may be mitigated in similar ways."

The program-level analysis contained in this EIR will serve to evaluate broad-scale impacts, is general in scope, and will typically discuss broad environmental issues that affect a large geographic area. This EIR is not project-specific and does not evaluate the impacts of specific projects that may be proposed under the General Plan Update and its project components.

This EIR will be used to evaluate subsequent projects and activities within the planning horizon as proposed under the General Plan. Additional environmental review under CEQA may be required and would be generally based on the subsequent projects' consistency with the updated General Plan and the analysis in this EIR, as required under CEQA. When individual projects or activities under the General Plan are proposed, the City would be required to examine the projects or activities to determine whether their effects were adequately analyzed in the program EIR (CEQA Guidelines Section 15168). If such subsequent projects or activities are found to have no effects beyond those analyzed in this EIR, no further CEQA compliance would be required.

In addition, the program-level General Plan EIR analysis addresses the cumulative impacts of development of the proposed General Plan, and analyzes a reasonable range of alternative land use maps, at an equal level of detail.

1.4 INTENDED USE OF THE EIR

This EIR will serve as a source of information in the preparation of initial studies for subsequent planning and development proposals, including subsequent environmental review, for infrastructure provision and individual development proposals, and for public facilities to serve new development. Moreover, the EIR will be useful in the preparation of subsequent amendments to the City's Zoning Code, Capital Improvement Program, and other development projects that are consistent with the General Plan and the Specific Plans for Appian Way, Pinole Valley Road, and San Pablo Avenue.

Information contained in this EIR is also intended to assist the Contra Costa County Local Agency Formation Commission (LAFCo) in making decisions about future changes to Pinole's city limits and Sphere of Influence (SOI). The Draft General Plan and EIR have been prepared concurrently; policies in the Plan take into account the EIR's discussion of impacts and mitigation measures, so that the Plan effectively becomes self-mitigating.

1.5 ORGANIZATION AND SCOPE

Sections 15122 through 15132 of the CEQA Guidelines identify content requirements for Draft and Final EIRs. An EIR must include a description of the environmental setting, an environmental impact analysis, mitigation measures, alternatives, significant irreversible environmental changes, growth-inducing impacts, and cumulative impacts. Discussion of the environmental issues

addressed in the Draft EIR was established through review of environmental and planning documents developed for the project, environmental and planning documentation prepared for recent projects located within the City of Pinole General Plan Planning Area (Planning Area), environmental documentation developed for the County of Contra Costa and cities and counties adjacent to the Planning Area, and public agency responses to the Notice of Preparation (NOP). For purposes of this EIR, the General Plan Planning Area includes the current city limits, and a larger study area including unincorporated areas extending just beyond the city limit line, yet within the SOI, as described in Section 3.0, Project Description. Pinole is largely surrounded by urban uses. Though San Pablo Bay flanks the city to the northwest, Pinole is bound by the City of Hercules to the northeast and east and by the City of Richmond and unincorporated areas of Contra Costa County to the west and south. Interstate 80 (I-80) bisects the city limits and connects Pinole with the metropolitan areas of San Francisco and Oakland to the west and south and with Sacramento to the east.

This Draft EIR is organized in the following sections:

SECTION 1.0 – INTRODUCTION

Section 1.0 provides an introduction and overview describing the purpose, type, and intended use of the EIR, responsible agencies, organization and scope of the EIR, the review and certification process, and a summary of comments received on the NOP.

SECTION 2.0 – EXECUTIVE SUMMARY

This section summarizes the characteristics of the proposed project and known areas of controversy and issues to be resolved. The section also provides a concise summary matrix of the project's environmental impacts, General Plan policies, and possible mitigation measures and identifies alternatives that reduce or avoid at least one environmental effect of the proposed General Plan update and its project components.

SECTION 3.0 – PROJECT DESCRIPTION

This section provides a detailed description of the proposed project, including the location, intended objectives, background information, the physical and technical characteristics including the decisions subject to CEQA, and a list of related environmental review and consultation requirements.

SECTION 4.0 – ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION MEASURES

Section 4.0 contains an analysis of environmental topic areas as identified below. Each subsection contains a description of the existing setting of the project area, identifies project-related impacts, and recommends appropriate General Plan policies and mitigation measures.

This section also includes an introduction to the environmental analysis that describes the general assumptions used to evaluate project-specific and cumulative environmental impacts. However, specific analyses are provided in each environmental issue area section.

The following major environmental topics are addressed in this section:

- Land Use
- Population/Housing/Employment

- Air Quality and Climate Change
- Transportation and Circulation
- Noise
- Human Health/Risk of Upset
- Biological Resources
- Geology and Soils
- Hydrology and Water Quality
- Cultural and Paleontological Resources
- Visual Resources/Light and Glare
- Public Services and Utilities

SECTION 5.0 – CUMULATIVE IMPACTS SUMMARY

This section summarizes all identified cumulative impacts associated with the proposed project. As required by State CEQA Guidelines Section 15130, an EIR shall discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable.

SECTION 6.0 – ALTERNATIVES TO THE PROJECT

State CEQA Guidelines Section 15126.6 requires that an EIR describe a range of reasonable alternatives to the project which could feasibly attain the basic objectives of the project and avoid and/or lessen any significant environmental effects of the project. This alternatives analysis provides a comparative analysis between the merits of the project and the selected alternatives.

SECTION 7.0 – LONG-TERM IMPLICATIONS OF THE PROJECT

This section contains discussions and analysis of various topical issues mandated by CEQA. These include significant environmental effects that cannot be avoided if the project is implemented, significant irreversible environmental changes, and growth-inducing impacts.

SECTION 8.0 – REPORT PREPARERS

This section lists all authors and agencies that assisted in the preparation of the EIR, by name, title, and company or agency affiliation.

APPENDICES

This section, located on a CD and placed at the back of this EIR, includes all notices and other procedural documents pertinent to the EIR, as well as all technical material prepared to support the analysis.

1.6 ENVIRONMENTAL REVIEW PROCESS

The General Plan Update was initiated in October 2006, with a cooperative effort between the City's planning consultants and various City staff. The process began with the collection of available information on the existing conditions of the city. Evaluation and documentation of the existing environmental conditions led to the preparation of analyses for economic development, community enhancement, and development alternatives. A Background Report was prepared in July 2009 generating the specific information necessary for elements of the draft General Plan.

The review and certification process for the EIR will involve the following general procedural steps.

NOTICE OF PREPARATION

In accordance with Section 15082 of the CEQA Guidelines, the City had prepared a Notice of Preparation (NOP) of an EIR for the project on December 18, 2006. The City was identified as the lead agency for the proposed project. The notice was circulated to the public, to local, state, and federal agencies, and to other interested parties to solicit comments on the proposed project. Two scoping meetings were held on January 10, 2007, to receive additional comments. Due to delays in the project and with the addition of the development of the Three Corridors Specific Plan, the City subsequently re-circulated the NOP on February 17, 2009. Issues raised in response to both the NOPs were considered during preparation of the Draft EIR. The NOP and responses by interested parties are presented in **Appendix 1.0.**

DRAFT EIR

This document constitutes the Draft EIR. The Draft EIR contains a description of the project, description of the environmental setting, identification of project impacts, and mitigation measures for impacts found to be significant, as well as an analysis of project alternatives. Upon completion of the Draft EIR, the City will file the Notice of Completion (NOC) with the Governor's Office of Planning and Research to begin the public review period (Public Resources Code, Section 21161).

PUBLIC NOTICE/PUBLIC REVIEW

Concurrent with the NOC, the City will provide public notice of the availability of the Draft EIR for public review and invite comment from the general public, agencies, organizations, and other interested parties. The review period in this case is forty-five (45) days (CEQA Guidelines Section 15105). Public comment on the Draft EIR will be accepted both in written form and orally at public hearings. Notice of the time and location of the hearing will be published prior to the hearing. All comments or questions regarding the Draft EIR should be addressed to:

Winston Rhodes
City of Pinole
Planning Manager
Community Development Department
2131 Pear Street
Pinole, CA 94564

RESPONSE TO COMMENTS/FINAL EIR

Following the public review period for this EIR, a Final EIR will be prepared. The Final EIR will include a written response to comments received during the public review period and to oral comments made at a public hearing.

CERTIFICATION OF THE EIR/PROJECT CONSIDERATION

The City will review and consider the Final EIR. If the City finds that the Final EIR is "adequate and complete," the City Council will certify the Final EIR. Upon review and consideration of the Final EIR, the City Council may take action to approve, revise, or reject the project. The decision to

approve the General Plan can only be made if accompanied by written findings in accordance with State CEQA Guidelines Section 15091 and Section 15093.

MITIGATION MONITORING

CEQA Section 21081.6(a) requires lead agencies to adopt a reporting and mitigation monitoring program to describe measures that have been adopted or made a condition of project approval in order to mitigate or avoid significant effects on the environment. The specific reporting or monitoring program required by CEQA is not required to be included in the EIR; however it will be presented to the City Council for adoption. Throughout the EIR, however, mitigation measures have been clearly identified and presented in language that will facilitate establishment of a monitoring and reporting program. The mitigation monitoring and reporting program (MMRP) for the proposed project will identify timing and implementation for each mitigation measure to ensure the measures are implemented. As this project is a General Plan, the mitigation measures take the form of goals, policies, and actions and are incorporated directly into the General Plan. As such, development consistent with the General Plan would also implement the mitigation measures discussed in this EIR.

1.7 SCOPE OF THE EIR

Pursuant to CEQA and the CEQA Guidelines, the scope of this DEIR includes specific issues and concerns identified as potentially significant physical effects on the environment. Environmental issue areas identified for study in this EIR include:

- Land Use (Section 4.1)
- Population, Housing, and Employment (Section 4.2)
- Transportation and Circulation (Section 4.4)
- Air Quality (Section 4.3)
- Noise (Section 4.5)
- Human Health/Risk of Upset (Section 4.6)
- Biological Resources (Section 4.7)
- Geology and Soils (Section 4.8)
- Hydrology and Water Quality (Section 4.9)
- Cultural and Paleontological Resources (Section 4.10)
- Visual Resources (Section 4.11)
- Public Services and Utilities (Section 4.12)
- Climate Change (Section 4.13)
- Cumulative Impacts (Section 5.0)
- Alternatives (Section 6.0)
- Growth Inducement (Section 7.0)

Effects Not Found to Be Potentially Significant

Typically, an EIR evaluates project or program effects on environmental issues listed in the Environmental Checklist Form, which is in Appendix G of the CEQA Guidelines. The NOP for the DEIR identified potential environmental issues that were generally consistent with those found in the Environmental Checklist. Based on preliminary evaluation associated with preparation of the NOP, the City determined that the proposed General Plan Update would have potentially significant effects on all environmental issues mentioned in the Environmental Checklist. However, Pinole is largely built out and there are no agricultural operations in existence within the General Plan Planning Area. Therefore, impacts to agricultural resources are not analyzed in this EIR.

1.8 COMMENTS RECEIVED ON THE NOTICE OF PREPARATION

The City received several comment letters on the Notice of Preparation for the City of Pinole General Plan DEIR (see **Table 1.0-1**). A copy of each letter is provided in **Appendix 1.0** of this DEIR. The City received letters from the following agencies and interested parties.

TABLE 1.0-1
LIST OF NOP COMMENT LETTERS

Interested Party/Agency	Date	Comment
California Emergency Management Agency	3-2-2009	• Examine sections of state planning law that involve potential hazards to city. • Create a table in EIR identifying specific hazards issues under state laws, how the city complies with law, and mitigation for laws that have not been met. • State planning law requires consultation with state agencies for information related to hazards.
State of California Department of Transportation (Caltrans), District 4	3-4-2009	• Project responsibilities and lead agency monitoring need a full discussion for all proposed mitigation and presented in MMRP. • Complete roadway improvements prior to issuance of Certificate of Occupancy. • Work with applicant and Caltrans to ensure that Caltrans' concerns are resolved prior to submittal of permit application. • Include information detailed in letter in the traffic study. • Encourage multi-modal transport through planning of housing and facilities to be walkable, bikeable, and with easy access to transit. • Include a discussion describing secondary impacts to pedestrians resulting from traffic impact mitigation. • Identify traffic impact fees. • List scheduling and costs associated with planned improvements on departmental ROW. • Work or traffic control that encroaches onto state ROW requires an encroachment permit.
Contra Costa County Health Services Department, Environmental Health Division	3-5-2009	• Provide public sewer and water. • Abandoned wells need to meet Contra Costa Environmental Health requirement and obtain appropriate permits. • Well destruction guidelines should be followed. • Septic Tank Destruction Guidelines should be followed.
Contra Costa County Flood Control and Water Conservation District	3-10-2009	• Analyze the drainage-related impacts associated with higher densities in the San Pablo Avenue, Appian Way, and Pinole Valley Road corridors.
Contra Costa County Health Services Department, Environmental Health Division	3-13-2009	• Include the Contra Costa County Environmental Health Division in the recycling facilities planning process. • Proposed recycling facilities that do not meet California Code of Regulations requirements are required to obtain a full solid waste facility permit as a transfer station/operation.

Interested Party/Agency	Date	Comment
San Francisco Baykeeper	3-15-2010	• Low Impact Development is the best strategy to manage stormwater in the urban environment. • Continue working to incorporate Low Impact Development in Pinole by examining stormwater in the EIR. • Consider impacts to hydrology, water quality, and biological resources that may be caused by excessive stormwater runoff and how these impacts may be mitigated by Low Impact Development.

1.9 IMPACT TERMINOLOGY

Identified below are common terms used throughout this document. A complete list of acronyms is also provided.

CEQA TERMINOLOGY

Effects: Same as Impacts (see below).

Cumulatively Considerable Impact: A cumulative significant impact would result when the project would contribute considerably to a significant physical impact on the environment expected under cumulative conditions.

Less Than Cumulatively Considerable Impact: A less than cumulatively considerable impact would result when the project would not contribute considerably to a significant physical impact on the environment expected under cumulative conditions.

Less Than Significant Impact: A less than significant impact would cause no substantial change in the environment (no mitigation required).

Less Than Significant Impact With Mitigation Incorporated: An impact that is reduced to a level less than the established threshold by the implementation of a modification or measure.

No Impact: No adverse change to the environment would occur.

Potentially Significant Impact: A potentially significant impact is one that may or may not occur and where a definite determination cannot be made. Feasible mitigation measures and/or project alternatives are identified to avoid or reduce the project's effects on the environment to a less than significant level.

Significant Impact: A significant impact would cause (or would potentially cause) a substantial adverse change in the physical conditions of the environment. Significant impacts are identified by the evaluation of project effects using specified standards of significance. Mitigation measures and/or project alternatives are identified to reduce project effects on the environment.

Significant and Unavoidable Impact: A significant and unavoidable impact would result in a substantial change in the environment that cannot be avoided or mitigated to a less than significant level if the project is implemented.

Standards of Significance: A set of criteria used by the lead agency to determine at what level or "threshold" an impact would be considered significant. Significance criteria used in this EIR

include the State CEQA Guidelines; factual or scientific information; regulatory performance standards of local, state, and federal agencies; and City goals, objectives, and policies.

GENERAL TERMINOLOGY

City: City of Pinole

County: Contra Costa County

General Plan: City of Pinole General Plan

Existing City Limits: The existing city limits include 7,438 (3,490 acres of land and 3.948 acres of open water) (**Figure 3.0-2**).

Existing Sphere of Influence: The existing SOI is approximately 1,105 acres (**Figure 3.0-2**).

General Plan Planning Area or "Planning Area": The Planning Area is contiguous with the City's municipal boundaries plus its Sphere of Influence. The Planning Area includes a total of approximately 8,543 acres.

Proposed Project: The proposed project is the 2010 update of the 1995 General Plan. The proposed General Plan provides policy direction for land uses within the current city limits, the City's existing SOI, and Planning Area outside of the city limits within the unincorporated area of the county.

Subsequent Projects/Activities: Anticipated development projects (e.g., residential, commercial, park, recreational) that would occur under the General Plan Update, Three Corridors Specific Plan, and Zoning Code Update. This would include public and utility extension projects including, but not limited to, roadway widenings and extensions, intersection improvements, water distribution improvements, and trail extensions.

ACRONYMS

AB	Assembly Bill
ABAG	Association of Bay Area Governments
AC Transit	Alameda Contra Costa Transit Authority
ACBM	Asbestos-Containing Building Materials
ADWF	Average Dry Weather Flow
AF	Acre-Feet
af/y	Acre-Feet Per Year
ALS	Advanced Life Support
ALUCP	Airport Land Use Compatibility Plan
amsl	Above Mean Sea Level
APN	Assessed Parcel Number
APS	Alternative Planning Strategy
AQP	Air Quality Plan
ASPIS	Abandoned Sites Information System
AST	Aboveground Storage Tank
AWWA	American Water Works Association
BAAQMD	Bay Area Air Quality Management District
BAE	Bay Area Economics
BART	Bay Area Regional Transit

BAT	Best Available Technology
BCDC	San Francisco Bay Conservation and Development Commission
BCT	Best Conventional Pollutant Control Technology
BMP	Best Management Practices
BNSF	Burlington Northern Santa Fe
BOD	Biochemical Oxygen Demand
CAAA	Clean Air Act Ammendments
Cal EMA	California Emergency Management Agency
Cal-FIRE	California Department of Forestry
CalARP	California Accidental Release Prevention
CAL-EPA	California Environmental Protection Agency
Cal-OSHA	California Occupational Safety and Health Administration
Caltrans	California Department of Transportation
CAP	Clean Air Plan
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CAT	Climate Action Team
CBC	California Building Code
CBSC	California Building Standards Commission
CCAA	California Clean Air Act
CCAR	California Climate Action Registry
CCCCD	Contra Costa Community College District
CCCDCD	Contra Costa County, Department of Conservation and Development
CCFPD	Contra Costa Fire Protection District
CCP	Cities for Climate Protection
CCR	California Code of Regulations
CCSD	Contra Costa Sheriff's Department
CCTA	Contra Costa Transportation Authority
CDBG	Community Development Block Grant
CDFG	California Department of Fish and Game
CDOE	California Department of Education
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, & Liability Act
CESA	California Endangered Species Act
CFC	California Fire Code
CFCs	Chlorofluorocarbons
CFR	Code of Federal Regulations
CGS	California Geological Survey
CH_4	Methane
CHP	California Highway Patrol
CII	Commercial, Industrial, and Institutional
CIP	Capital Improvements Program
CIWQS	California Integrated Water Quality System
CMP	Congestion Management Program
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
CPUC	California Public Utilities Commission

CPTED	Crime Prevention Through Environmental Design
CRHR	California Register of Historical Resources
CSQA	California Stormwater Quality Association
CTTP	Census Transportation Planning Package
CUPA	Certified Unified Program Agency
CUWCC	California Urban Water Conservation Council
CUWMPA	California Urban Water Management Planning Act
CWA	Clean Water Act
CWHR	California Wildlife Habitat Relationship
CWRTF	California's Water Recycling Task Force
CZMA	Coastal Zone Management Act
CZMP	Coastal Zone Management Plan
dB	Decibels
dBA	A-weighted decibels
DC	Downtown Commercial
DEIR	Draft Environmental Impact Report
DMP	Drought Management Program
DNL	Day-Night Average Noise Level
DOC	California Department of Conservation
DOE	United States Department of Energy
DOF	Department of Finance
DPH	California Department of Public Health
DPM	Diesel Particulate Matter
DTSC	Department of Toxic Substances
DWR	California Department of Water Resources
E	Elementary
EBMUD	East Bay Municipal Utility District
EBRPD	East Bay Regional Park District
ECDMS	California Energy Consumption Data Management System
EDP	Education Data Partnership
EIR	Environmental Impact Report
EMF	Electromagnetic Field
EMS	Emergency Medical Service
EOP	Emergency Operations Plan
ERP	Emergency Response Plan
ES	Elementary School
ESA	Endangered Species Act
°F	Degrees Fahrenheit
FAR	Floor Area Ratio
FCC	Federal Communications Commission
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FGC	Fish and Game Code
FMP	Facilities Master Plan
FTA	Federal Transit Administration
GEIMS	Geographic Environmental Information Management System
GHG	Greenhouse Gas
GIS	Geographic Information System
GP	General Plan
gpm	Gallons Per Minute
GPU	General Plan Update
HAPs	Hazardous Air Pollutants

HCD	Housing and Community Development
HCM	Highway Capacity Manual
HDR	High Density Residential
HMIS	Hazardous Materials Inventory Statement
HMMP	Hazardous Materials Management Plans
HMRRP	Hazardous Materials Release Response Plans and Inventory
HOV	High Occupancy Vehicle
HS	High School
HSWA	Hazardous and Solid Waste Amendments of 1984
HUD	Housing and Urban Development
HWG	Hazardous Waste Generator
HWMP	Hazardous Waste Management Plan
Hz	Hertz
I-	Interstate
I-OP	Industrial Office Park
IBC	International Building Code
ICLEI	Local Governments for Sustainability
IEPR	Integrated Energy Policy Report
In/Sec	Inches per Second
IPCC	Intergovernmental Panel on Climate Change
IRCUP	Inter-Regional Conjunctive Use Project
IRF	Intermediate Regional Flood
IRRF	Integrated Resource Recovery Facility
ISO	Insurance Services Office
JPA	Joint Powers Agreement
kWhr	Kilowatt Hours
L_{dn}	Day-Night Average Noise Level
L_{eq}	Energy-Equivalent Noise Level
L_{max}	Maximum Noise Level
L_{min}	Minimum Noise Level
L_n	Percent Exceeded Noise Level
LAFCo	Local Area Formation Commission
LDR	Low Density Residential
LID	Low Impact Development
LISC	Light Industrial Service Commercial
LOS	Level of Service
LUFT	Leaking Underground Fuel Tank
LUST	Leaking Underground Storage Tank
MACT	Maximum Achievable Control Technologies
MBTA	Migratory Bird Treaty Act
MDR	Medium Density Residential
MEP	Maximum Extent Practicable
µg	Micrograms
mgd	Million Gallons per Day
MI-M	Major Institution/Medical
MM	Modified Mercalli Intensity Scale
MMRP	Mitigation Monitoring and Reporting Program
MMT	Million Metric Tons
MMT CO_2e	million gross metric tons of carbon dioxide equivalent
MOU	Memorandum of Understanding
mpg	Miles per Gallon
mph	Miles per Hour

MPO	Metropolitan Planning Organization
MRP	Municipal Regional Permit
MS	Middle School
MS4	Municipal Separate Storm Sewer System
MSDS	Material Safety Data Sheets
MSL	Mean Sea Level
MT	Metric Tons
MTC	Metropolitan Transportation Commission
$MTCO_2e$	Metric Tons Carbon Dioxide Equivalent
MTSO	Multimodal Traffic Service Objectives
MU-HDR-DC	Mixed Use High Density Residential/Downtown Commercial
MU-HDR-LISC	Mixed Use High Density Residential/Neighborhood Commercial
MU-LDR-DC	Mixed Use Low Density Residential/Downtown Commercial
MU-MDR-LI	Mixed Use Medium Density Residential/Light Industrial
MU-MDR-NC	Mixed Use Medium Density Residential/Neighborhood Commercial
MW	Maximum Magnitude
N_2O	Nitrous Oxide
NAHC	Native American Heritage Commission
NASA	National Aeronautical and Space Administration
NC	Neighborhood Commercial
NCP	National Contingency Plan
NEPA	National Environmental Policy Act
NESHAPs	National Emissions Standards for Hazardous Air Pollutants
NFIP	National Flood Insurance Program
NFPA	National Fire Protection Association
NHPA	National Historic Preservation Act
NIH	National Institutes of Health
NIOSH	National Institute for Occupational Safety & Health
NO	Nitric Oxide
NO_2	Nitrogen Dioxide
NO_X	Nitrogen Oxide
NOA	Naturally-Occurring Asbestos
NOC	Notice of Completion
NOP	Notice of Preparation
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
NRWRP	North Richmond Water Reclamation Facility
NSHP	New Solar Homes Partnership
NTIA	National Telecommunications & Information Administration
O_3	Ozone
OAP	Ozone Attainment Plan
OES	State Office of Emergency Services
OPR	Governor's Office of Planning and Research
OS	Open Space
OSHA	Occupational Safety and Health Administration
PADS	PCB Activity Database
PCB	Polychlorinated Biphenyls
pCi/l	pico-curies per liter
PDA	Priority Development Area
PDM	Preferred Development Area

PF	Public Facilities
PFD	Pinole Fire Department
PG&E	Pacific Gas and Electric
PHEV	Plug-In Hybrid Electric Vehicle
PM	Particulate Matter
$PM_{2.5}$	Fine Particles
PM_{10}	Coarse Particles
POTW	Publicly Owned Treatment Works
PPD	Pinole Police Department
PPM	Parts Per Million
PPV	Peak-Particle Velocity
PR	Parks and Recreation
PRD	Pinole Recreation Department
PUC	Public Utilities Commission
PWWF	Peak Wet Weather Flow
RC	Regional Commercial
RCRA	Resource Conservation and Recovery Act
RHFD	Rodeo-Hercules Fire District
RHNA	Regional Housing Needs Assessment
RMSD	Richmond Municipal Sewer District
ROG	Reactive Organic Gas
RPS	Renewable Portfolio Standard
RSD	Rodeo Sanitary District
RSS	Richmond Sanitary Service
RTIP	Regional Transportation Improvement Program
RTP	Regional Transportation Plan
RTPC	Regional Transportation Planning Committee
RWQCB	Regional Water Quality Control Board
S	Secondary
SARA	Superfund Amendments and Reauthorization Act
SB	Senate Bill
SCGWA	Sacramento County Groundwater Authority
SCS	Sustainable Communities Strategy
SCWA	Sacramento County Water Agency
SDWA	Safe Drinking Water Act
SEL	Sound Exposure Level
SEMS	Standard Emergency Management System
SENEL	Single-Event Noise Exposure Level
SF	Square Feet
SFBAAB	San Francisco Bay Area Air Basin
SFEI	San Francisco Estuary Institute
SFBRWQCB	San Francisco Bay Area Regional Water Quality Control Board
SFPD	School Facilities Planning Division
SHMA	Seismic Hazards Mapping Act of 1990
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
SOI	Sphere of Influence
SP	Service Population
SPBCA	San Pablo Bay Conservation Area
SR	State Route
SRR	Suburban/Rural Residential
SRRE	Solid Reduction and Recycling Element

SSSMP	Sewer System Management Plan
SSO	Sanitary Sewer Overflow
SULEV	Super Ultra-low Emission Vehicle
SWIS	Solid Waste Information System
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	Toxic Air Contaminant
TAF	Thousand Acre Feet
TAZ	Traffic Analysis Zone
TBACT	Toxic Best Available Control Technology
TCSA	Toxic Substances Control Act
TDM	Travel Demand Model
TDM	Transportation Demand Management
TMA	Transportation Management Association
TMDLs	Total Maximum Daily Loads
TPY	Tons Per Year
TRUs	Transport Refrigeration Units
TSCA	Toxic Substances Control Act
TSS	Total Suspended Solids
UCMP	University of California Museum of Paleontology
UDAG	Urban Development Action Grant
UHI	Urban Heat Island
UNEP	United Nations Environment Program
UPRR	Union Pacific Railroad
USACE	U.S. Army Corps of Engineers
USDE	United States Department of Energy
USDOT	United States Department of Transportation
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geologic Survey
UST	Underground Storage Tank
UWPM	Urban Water Management Plan
V/C	Volume-to-Capacity Ratio
VHVHSZ	Very High Fire Hazard Severity Zone
VMT	Vehicle Miles Travelled
VT	Vehicle Trips
WCCTAC	West Contra Costa Transportation Advisory Committee
WCCUSD	West Contra Costa Unified School District
WCCIWMA	West Contra Costa Integrated Waste Management Authority
WCCSL	West Contra Costa County Sanitary Landfill
WCWD	West County Wastewater District
WDR	Waste Discharge Requirements
WestCAT	Western Contra Costa Transit Authority
WestNET	West Contra Costa Narcotics Enforcement Team
WETA	Water Emergency Transportation Authority
WGO2	Pinole/Hercules Water Pollution Control Plant
WMO	World Meteorological Organization
WPCP	Working Group of California Earthquake Probabilities
WRCC	Western Regional Climate Center
WSMP	Water Supply Management Program
WTTIP	Water Treatment and Transmission Improvements Program
WWII	World War II

WTP	Water Treatment Plant
ZEV	Zero Emission Vehicle
ZORI	Zones of Required Investigation

2.0 Executive Summary

This section provides an overview of the environmental analysis of the proposed project. For additional detail regarding specific issues, please consult the appropriate chapter of Sections 4.1 through 4.13 (Environmental Setting, Impacts, and Mitigation Measures).

2.1 PURPOSE AND SCOPE OF THE ENVIRONMENTAL IMPACT REPORT

This Environmental Impact Report (EIR) will provide, to the greatest extent possible, an analysis of the potential environmental effects associated with the implementation of the project, pursuant to the California Environmental Quality Act (CEQA).

This EIR analysis focuses upon potential environmental impacts that could arise from implementation of the project through development of the land uses within the General Plan Planning Area (Planning Area) as regulated and guided by General Plan policies and action items, through updates to the Zoning Ordinance, and through implementation of the Three Corridor Specific Plan. The EIR adopts this approach in order to provide a credible worst-case scenario of the impacts resulting from project implementation.

2.2 PROJECT CHARACTERISTICS

General Plan Update

The City of Pinole General Plan was adopted in 1995, with the exception of the Housing Element which had been last updated in 2003. Since 1995, Pinole has experienced many physical, demographic, and economic changes, resulting in new opportunities and challenges for the City. The existing General Plan is being updated in order to reflect current community sentiment and changes in land use, growth patterns, and demographic and economic conditions. State law does not specify rigid requirements or timing for updating a general plan (other than for the housing element). The currently proposed General Plan update project includes updates to the existing General Plan, an update to the city's Zoning Code and development of the Three Corridors Specific Plan.

Outside of the already updated Housing Element, the proposed General Plan update involves all seven mandatory elements: Land Use, Circulation, Conservation, Noise, Open Space, and Safety. Noise and Safety have been combined into one element as have Conservation (or Natural Resources) and Open Space. In addition, the City has included two additional elements: a Community Services and Facilities Element and a Growth Management Element under its General Plan Update. The General Plan Update (GPU) Planning Area boundary includes the area within the city limits as well as the existing SOI. The GPU Planning Area encompasses a total of approximately 13.3 (11.6 square miles in the city + 1.7 square miles in the SOI = 13.3) square miles, or 8, 543 acres (3,490 acres of land + 3,948 acres of water within the city limits + 1,105 acres within the SOI = 8,543 acres). The scope (planning horizon) of the General Plan was identified as 20 years, with adoption expected in 2010. It is anticipated that the proposed General Plan will build out to full development capacity by 2030. The proposed General Plan has capacity for 2,576 residential units and a total population of 23,875 within the Planning Area by 2030.

The proposed General Plan Update consists of the following Elements

Land Use and Economic Development

The Land Use and Economic Development Element provides the central framework for the General Plan and serves as a compass to guide planners, the general public, and decision makers on the desired pattern of development in the city. The element describes both existing

and future land use activity, the latter of which is designed to achieve the City's long-range goals for physical development. The element provides land use designations for all of the land within the GPU Planning Area based on the expected type of development. While some of the land use designations are individual, others encourage a mix of land use types (e.g. commercial and residential) and allow an increase in densities to support infill or redevelopment. The land use designations also specify maximum density and intensity of development that can occur.

Land Use Map

The proposed General Plan includes the updated Land Use Map which is a detailed land use plan for the City of Pinole, and assigns land use designations to all lands within the Planning Area. Those areas located within the City's Sphere of Influence (SOI) but outside the City limits are also assigned land use designations by the updated General Plan, and are pre-zoned accordingly.

Land use designations proposed under the updated General Plan Land Use Map are shown in Table 3.0-3 and include:

- Regional Commercial;
- High Density Residential;
- Medium Density Residential;
- Low Density Residential;
- Suburban Residential;
- Rural Residential;
- Public Facilities,
- Parks and Recreation;
- Open Space;
- San Pablo Bay Conservation Area;
- Old Town Sub-Area;
- Service Area Sub-Area;
- Mixed Use Sub-Area;
- Transportation; and
- Open Water (San Pablo Bay).

Community Services and Facilities

The Community Services and Facilities Element is an optional Element and is included in this General Plan to address important issues related to how new development will affect the City's ability to provide community services and facilities. This Element concerns the public infrastructure and facilities. While this Element also addressed operational and programmatic issues are considered, it is primarily concerned with the provision of capital facilities.

Circulation

This Element includes policies and actions addressing a broad range of topics related to infrastructure, and the physical systems of roads, trails, walkways, etc., that access to the land uses within the GPU Planning Area. Key to this element is the map that illustrates the existing and proposed circulation network. The reader is referred to the Circulation Element in the proposed General Plan for further details on this Element and the map of the existing and proposed circulation network. The Circulation Map identifies roadways (existing and proposed) by their classification type: state highway, arterial (major and minor), and collector. The Circulation Element contains specific goals and policies pertaining to the classification system. Modifications

proposed to the main corridors addressed in the Specific Plan are included for: San Pablo Avenue, Pinole Valley Road, and Appian Way.

Housing Element

The Housing Element is the only Element that must be updated every five years and is also subject to review and approval by the State of California Department of Housing and Community Development. Approval by the state is important to enable the city to receive some state grants. The housing element was prepared and is scheduled to be adopted separately by the City of Pinole in August 2010. The housing element covers a period that began on January 1, 2009 and ends on June 30, 2014.

Natural Resources and Open Space Element

This Element addresses resource conservation, including enhancement of the environment through protection of resources, preservation of biological resources, and water and energy conservation. This Element also identifies the need to protect and preserve existing open space and natural recreational areas, as well as the need to maintain those areas and create additional areas for the enjoyment of residents and the protection of the environment. This element also addresses resource issues such as water supply and quality, soils, biology, air, visual impacts and energy.

Health and Safety Element

This Element includes goals, policies, and actions intended to minimize the potential risk of death, injuries, property damage, and economic hardship and social displacement resulting from fires, floods, earthquakes, landslides, and other hazards. Additionally, this Element addresses safety and hazards related to groundwater contamination, noise, air quality, water quality, the potential release of hazardous materials into the community, and general issues related to healthcare, police and fire protection services.

Growth Management Element

The purpose of the Growth Management Element of the Pinole General Plan is to establish policies and level of service standards for growth management and traffic, and performance standards for fire, police, parks, sanitary facilities, water and flood control in order to ensure generally that public facilities are provided consistent with the adopted standards for roadways, response time objectives for fire and police, acreage requirements of recreational land uses (at one acre per 1,000 persons), and policies related to water use, wastewater disposal, and flood control. In addition, the Growth Management Element meets all the requirements of Measure J, a Growth Management Program approved by the Contra Costa County voters in 2004, and effective April 1, 2009.

Sustainability Element

This element establishes policies and action items that promote sustainability for the environment and the local economy and help establish equity for all people. The Sustainability Element also addresses the emission of greenhouse gases resulting from General Plan implementation and its impact on climate change.

Community Character Element

The Community Character Element of the General Plan is best defined as an element that will preserve and enhance, and strengthen Pinole's feel of "sense of place" and unique identity. This element intends to incorporate that feel in existing facilities, buildings and features as well as in new growth and development in Pinole; influence the future physical form of the community by guiding the quality and character of future development; and protect the existing natural and built environment that define the City of Pinole's character.

Zoning Code Update

Adoption of the updated General Plan would require amendments to the Zoning Code for consistency with the General Plan land use designations and various General Plan policies. The City plans to update its Zoning Code as part of the proposed General Plan Update project. These updates would involve the deletion, addition, and modification of certain zoning districts and development standards in order to make the Zoning Code consistent with the updated General Plan. These updates would not result in any development activities beyond those analyzed for the proposed GPU. Key issues addressed in the update include:

- Administration and Permit Procedures: streamline/simplify permit procedures, permit extensions, review administrative use permit procedures, local agency applicability
- Land Use Districts and Corresponding Uses and Standards: update allowed uses, simplify allowed use tables, eliminate unused/underutilized districts, clarify purpose, add mixed use districts from specific plans
- General Site Planning and Development Regulations: parking regulations, sign regulations
- Special Use Regulations: accessory buildings/structures
- Definitions: add new definitions, amend existing definitions
- Legal Issues: consistency with state and federal law, add required uses to certain zoning districts, density bonus provisions

Three Corridors Specific Plan

The proposed Three Corridors Specific Plan would consist of the revitalization of the San Pablo Avenue, Pinole Valley Road, and Appian Way corridors, which could include new development and/or redevelopment of various urban uses. The Three Corridors Specific Plan is intended to establish more housing choices and job opportunities within the city's commercial corridors. Due to the city's small supply of developable land, the updated General Plan and the Three Corridors Specific Plan direct the majority of the city's future growth to sites designated for mixed and multiple-family use in the San Pablo Avenue, Pinole Valley Road, and Appian Way corridors. The Three Corridors Specific Plan also identifies opportunity sites for infill mixed-use development along the city's commercial corridors in close proximity to transit and other amenities. Land uses within these three Corridors are described in the Specific Plan, with specific policies and directives established for each corridor.

- **San Pablo Avenue** – The Specific Plan establishes seven land use districts for this area. These districts will facilitate San Pablo Avenue's transformation from its current land use

configuration to the one described by the Specific Plan's vision of a narrowed, pedestrian-oriented corridor.

- **Pinole Valley Road** – The Specific Plan establishes five land use districts for this project area. The Specific Plan establishes policies that seek to focus commercial activities in combination with office and residential uses to make Pinole Valley Road into a pedestrian-oriented corridor.

- **Appian Way** – The Specific Plan established five land use districts for this project area. The Plan seeks to focus commercial, office, and residential uses to make Appian Way into a regional service and commercial corridor. The Specific Plan also establishes policies to give preference to replacing vacated and underutilized commercial areas with new office professional and commercial developments and increasing the density of a few existing residential areas along the corridor.

PROJECT OBJECTIVES

The objectives of the proposed project, which also serve as the goals of the proposed General Plan Land Use Element, are as follows:

- Preserve and enhance the natural resource, high-quality residential neighborhoods and commercial areas, and small-town (semi-rural) character of Pinole.

- Assure the City takes an active leadership role coordinating planning with neighboring jurisdictions and other public agencies.

- Preserve historic resources and ensure high-quality site planning and design.

- Preserve and strengthen the identity and quality of life of Pinole's residential neighborhood.

- Assure any development of environmentally sensitive sites protects important natural resources and recognizes hazard constraints.

- Protect and enhance the natural resources of the San Pablo Bay waterfront for the enjoyment of Pinole residents.

- Balance housing and employment opportunities to reduce trips in and out of the region and encourage commercial development which maintains and enhances the quality of the city's commercial areas, provides services for residents and broadens the tax base of the community to provide needed revenues for public services.

- Concentrate commercial development and mixed-use activity areas within the three main transportation corridors so as to provide needed services and tax revenues while enhancing the overall character of the community.

2.3 PROJECT ALTERNATIVES SUMMARY

State CEQA Guidelines Section 15126.6 requires that an EIR describe a range of reasonable alternatives to the project, which could feasibly attain the basic objectives of the project and avoid and/or lessen the environmental effects of the project. Further, the CEQA Guidelines Section 15126.6(e) requires that a "no project" alternative be evaluated in an EIR. The

alternatives analysis provides a comparative analysis between the project and the selected alternatives. In conjunction with the proposed project, the EIR qualitatively evaluates the following other land use alternatives, which include:

- Alternative 1 – No Project Alternative
- Alternative 2 – Commercial Focus/Expanded Roadways
- Alternative 3 – Residential Focus/Expanded Transit

2.4 AREAS OF CONTROVERSY

The City of Pinole was identified as the Lead Agency for the proposed project. In accordance with Section 15082 of the CEQA Guidelines, the City had prepared a Notice of Preparation (NOP) of an EIR for the project on December 18, 2006. The City was identified as the lead agency for the proposed project. The notice was circulated to the public, to local, state, and federal agencies, and to other interested parties to solicit comments on the proposed project. Two scoping meetings were held on January 10, 2007, to receive additional comments. Due to delays in the project and with the addition of the development of the Three Corridors Specific Plan, the City subsequently re-circulated the NOP on February 17, 2009. Issues raised in response to both the NOPs were considered during preparation of the Draft EIR. The complete text of the NOP and NOP comments are included as **Appendix A** to this EIR. The issues raised included:

- Compliance with Hazards Laws
- Transportation Impacts;
- Impacts Related to Septic Tanks and Abandoned Wells
- Drainage Impacts
- Impacts Related to Recycling Facilities
- Stormwater and Hydrology Impacts
- Incorporation of Low Impact Development Mitigation

2.5 SUMMARY OF ENVIRONMENTAL IMPACTS

Table 2.0-1 displays a summary of impacts for the proposed General Plan Land Use Policy Map, City of Pinole General Plan policies and action items, and proposed mitigation measures that would avoid or minimize potential impacts. In the table, the level of significance is indicated both before and after the implementation of each mitigation measure.

For detailed discussions of all mitigation measures and of proposed General Plan policies and action items that would provide mitigation for each type of environmental impact addressed in this EIR, refer to the appropriate environmental topic section (i.e., Sections 4.1 through 4.13.)

TABLE 2.0-1
GENERAL PLAN UPDATE IMPACTS AND PROPOSED MITIGATION MEASURES

Impact		General Plan Policies and Action Items	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
4.1 Land Use					
Impact 4.1.1	Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would not physically divide an established community.	None applicable.	N	None required.	LS
Impact 4.1.2	Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would not result in conflicts with relevant land use planning documents within and adjacent to the City of Pinole.	Policy LU.2.2, and LU.2.3, Action LU.2.3.1, Policy LU.2.4, Action GM.1.1.1, Policy OS.6.3	LS	None required.	LS
Impact 4.1.3	Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could create incompatibilities between existing and future land uses within the City of Pinole.	Policy LU.1.1, Action LU.1.1.1, Policy LU.1.2, Action LU.1.2.1,Policy LU.1.6, LU.2.4, and LU.3.2, Action LU.3.2.1, Policy LU.3.3, Action LU.3.3.1, and LU.3.3.2, Policy LU.3.4, and LU.4.1, Action LU.4.1.1, Policy LU.4.2, Action LU.4.2.1, Policy LU.4.3, Action LU.5.1.2, LU.5.3.1, and LU.5.3.2, Policy LU.6.1, Action LU.6.1.1, Policy LU.8.1, Action LU.8.1.1, Policy OS1.7,	LS	None required.	LS

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Impact		General Plan Policies and Action Items	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
		OS.3.2, OS.3.3, OS.3.5, and OS.3.6.			
Impact 4.1.4	When considered with existing, proposed, approved, and reasonably foreseeable development in the region, implementation of the proposed project has the potential to contribute to cumulative land use conditions, resulting in significant impacts to the physical environment.	Action GM.1.1.1, Policy LU.1.1, Action LU.1.1.1, Policy LU.1.2, Action LU.1.2.1, Policy LU.1.6, LU.2.1, LU.2.2, and LU.2.3, Action LU.2.3.1, Policy LU.2.4, and LU.3.2, Action LU.3.2.1, Policy LU.3.3, Action LU.3.3.1, and LU.3.3.2, Policy LU.3.4, and LU.4.1, Action LU.4.1.1, Policy LU.4.2, Action LU.4.2.1, Policy LU.4.3, Action LU.5.1.2, LU.5.3.1, and LU.5.3.2, Policy LU.6.1, Action LU.6.1.1, Policy LU.8.1, Action LU.8.1.1, Policy OS1.7, OS.3.2, OS.3.3, OS.3.5, OS.3.6, and OS.6.3.	LCC	None required.	LCC
4.2	**Population and Housing**				
Impact 4.2.1	Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would result in slight population, housing, and employment increases within the Planning Area.	Policy LU.1.1, LU.1.6 and LU.2.3, Action LU.2.3.1, Policy LU.4.3 and LU.7.3, Action LU.7.3.1, Policy LU.7.4, LU.8.3 and GM.4.2, Action GM.4.2.1	LS	None required.	LS
Impact 4.2.2	Subsequent land use activities	None applicable.	LS	None required.	LS

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Impact		General Plan Policies and Action Items	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
	associated with implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would not result in the displacement of substantial numbers of housing units and/or persons.				
Impact 4.2.3	Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would not result in substantial population, housing, and employment increases in Contra Costa County and the Bay Area.	Policy LU.1.1, LU.1.6 and LU.2.3, Action LU.2.3.1, Policy LU.4.3 and LU.7.3, Action LU.7.3.1, Policy LU.7.4, LU.8.3 and GM.4.2, Action GM.4.2.1	LCC	None required.	LCC
4.3 Air Quality					
Impact 4.3.1	Subsequent land use activities associated with implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would result in increased population and vehicle miles traveled that would exceed assumptions used to create the BAAQMD's Clean Air Plan.	Policy SE.1.2 and SE.1.3, Action SE.1.3.1, SE.1.3.2, SE.1.3.3 and SE.1.3.4, Policy SE.1.4, Action SE.1.4.1, Policy SE.2.1, Action SE.2.1.1, SE.2.1.2, SE.2.1.3, SE.2.1.4 and SE.2.1.5, Policy SE.2.2, Action SE.2.2.1, SE.2.2.2 and SE.2.2.3, Policy SE.3.3, Action SE.3.3.1, SE.3.3.2, SE.3.3.3, SE.3.3.4, SE.3.3.5 and SE.3.3.6, Policy SE.4.1, Action SE.4.1.1, SE.4.1.2, SE.4.1.3 and SE.4.1.4, Policy SE.4.2, Action SE. 4.2.1,	PS	None available.	SU

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Impact	General Plan Policies and Action Items	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
	SE.4.2.2, SE.4.2.3 and SE.4.2.4, Policy SE.4.3, Action SE. 4.3.1, Policy 4.4, Action SE.4.4.1, SE.4.4.2, SE.4.4.3, SE.4.4.4, and SE.4.4.5, Policy SE.4.5, SE.4.5.1, SE.4.5.3 and SE.4.5.4, Policy SE.4.6, Action SE.4.6.1, SE.4.6.2 and SE.4.6.3, Policy SE.4.7, Action SE.4.7.1, Policy SE.6.1, Action SE.6.1.1 and SE.6.1.2, Policy SE.6.2, Action SE.6.2.1, Policy SE.6.6, SE.6.7, SE.7.1, and SE.7.2, Action SE.7.2.1, SE.7.2.2, SE.7.2.3 and SE.7.2.4, Policy SE.7.3, SE.7.4, SE.7.5, SE.7.6, SE.7.7 and SE.7.8, Action SE.7.8.1, Policy SE.7.9, SE.7.10, and SE.8.1, Action SE.8.1.1, SE.8.1.2, SE.8.1.3, SE.8.1.4, SE.8.1.5, SE.8.1.6, SE.8.1.7 and SE.8.1.8, Policy SE.8.2, Action SE.8.2.1 and SE.8.2.2, Policy SE.8.3, SE.8.4 and SE.8.6, Action SE.8.6.1, SE.8.6.2, SE.8.6.3, SE.8.6.4, and SE.8.6.5, Policy SE.8.7, Action			

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Impact	General Plan Policies and Action Items	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
	SE.8.7.1, SE.8.7.2, SE.8.7.3, SE.8.7.4, SE.8.7.5 and SE.8.7.6, Policy SE.8.9 and SE.8.10, Action SE.8.10.1, SE.8.10.2 and SE.8.10.3, Policy CE.1.1, Action CE.1.1.1, CE.1.1.2 and CE.1.1.2, Policy CE.1.2, Action CE.1.2.1, CE.1.2.2 and CE.1.2.3 Policy CE.1.3, Action CE.1.3.1 and CE.1.3.2, Policy CE.1.4, Action CE.1.4.1, CE.1.4.2, CE.1.4.3 and CE.1.4.4, Policy CE.1.5, Action CE.1.5.1, Policy CE.1.6, Action CE.1.6.1 and CE.1.6.2, Policy CE.5.1, Action CE.5.1.1 and CE.5.1.2, Policy CE.5.3 and CE.5.4, Action CE.5.4.1 and CE.5.4.2, Policy CE.6.1, Action CE.6.1.1 and CE.6.1.2, Policy CE.6.2, Action CE.6.2.1, CE.6.2.2, CE.6.2.3, CE.6.2.4, CE.6.2.5 and CE.6.2.6, Policy CE.6.3, Action CE.6.3.1, CE.6.3.2, CE.6.3.3, CE.6.3.4, CE.6.3.5, CE.6.3.6 and CE.6.3.7, Policy CE.7.1, Action			

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Impact		General Plan Policies and Action Items	Level of Significance Without Mitigation	Mitigation Measure		Resulting Level of Significance
		CE.7.1.1, CE.7.1.2 and CE.7.1.3, Policy CE.7.2, Action CE.7.2.1, CE.7.2.2, CE.7.2.3 and CE.7.2.4, Policy CE.7.3, Action CE.7.3.1, CE.7.3.2, CE.7.3.3 and CE.7.3.4, Policy CE.7.4, Action CE.7.4.1, Policy CE.8.1, Action CE.8.1.1 and CE.8.1.2, Policy CE.8.2 and CE.8.3, Action CE.8.3.1, CE.8.3.2 and CE.8.3.3, Policy CE.8.4, Action CE.8.4.1.				
Impact 4.3.2	Subsequent land use activities associated with implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could result in short-term construction emissions that could violate or substantially contribute to violations of federal and state ambient air quality standards.	None applicable.	PS	**MM 4.3.2**	The proposed General Plan Update shall include a policy that would require the use of BAAQMD-approved criteria air pollutant reducing *Basic Construction Mitigation Measures* to all future construction projects within the GPU Planning Area where feasible whether or not construction-related emissions exceed applicable *Thresholds of Significance*. These best management practices include the following: 1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access	LS

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Impact	General Plan Policies and Action Items	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
			roads) shall be watered two times per day. 2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered. 3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited. 4. All vehicle speeds on unpaved roads shall be limited to 15 mph. 5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used. 6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section	

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Impact	General Plan Policies and Action Items	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
			2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points. 7. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation. 8. Post a publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations (BAAQMD, 2010).	
Impact 4.3.3 Subsequent land use activities associated with implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update)	(see policies and actions listed under Impact 4.3.1)	PS	None available.	SU

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Impact		General Plan Policies and Action Items	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
	could result in long-term, operational emissions that could violate or substantially contribute to violations of federal and state ambient air quality standards.				
Impact 4.3.4	Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would result in increased population and employment that would result in level of service operations that would be inconsistent with the region's congestion management program	Action CE.3.1.1	PS	mitigation measure **MM 4.4.2**	LS
Impact 4.3.5	Subsequent land use activities associated with implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could result in projects that would include sources of toxic air contaminants which could affect surrounding land use. Subsequent land use activities could also place sensitive land uses near existing sources of toxic air contaminants. These factors could result in the exposure of sensitive receptors to substantial concentrations of toxic air contaminants and/or fine particulate matter.	Policy SE.7.1, SE.7.9 and LU.3.3	PS	None available.	SU
Impact 4.3.6	Subsequent land use activities associated with implementation of	Policy SE.7.1, SE.7.9 and LU.3.3	PS	**MM 4.3.6a** The proposed General Plan Update shall include an action	LS

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Impact	General Plan Policies and Action Items	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could include sources that could create objectionable odors affecting a substantial number of people or expose new residents to existing sources of odor.			item that shall require the city to update the Zoning Code to require the City to identify the location of existing odor sources in the city. **MM 4.3.6b** The following policy shall be incorporated into the Sustainability Element of the General Plan: • When new development that would be a source of odors is proposed near residences or sensitive receptors, either adequate buffer distances shall be provided (based on recommendations and requirements of the BAAQMD CEQA Air Quality Guidelines) or filters or other equipment/solutions shall be provided to reduce the potential exposure to acceptable levels. Potential mitigation associated with this policy requirement will be coordinated with any required permit conditions from BAAQMD. • When new residential or other sensitive receptors are proposed near existing sources of odors, either adequate buffer distances	

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Impact		General Plan Policies and Action Items	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
				shall be provided (based on recommendations and requirements of the BAAQMD CEQA Air Quality Guidelines) or filters or other equipment/solutions shall be provided to the source to reduce the potential exposure to acceptable levels.	
Impact 4.3.7	Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update), in combination with cumulative development in the SFBAAB, would result in a cumulatively considerable net increase of ozone and coarse and fine particulate matter.	(see policies and actions listed under Impact 4.3.1)		None available.	CC
4.4 Traffic and Circulation					
Impact 4.4.1	Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would result in an increase in freeway mainline volumes during the AM and PM peak hours.	Policy CE.1.2, Action CE.1.2.1 , and CE.1.2.2, Policy CE.1.6, Action CE.1.6.1, and CE.1.6.2, Policy CE.2.2, Action CE.2.2.1 and CE.2.2.2, Policy CE.3.3, Action CE.3.3.1, and CE.3.3.2, Policy CE.6.1.		None feasible.	SU
Impact 4.4.2	Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning	Policy CE.1.2, Action CE.1.2.1 , CE.1.2.2, and CE.1.2.3, Policy CE.1.6,	S	Widening of the intersection of Pinole Valley Road and I-80 eastbound ramps would be required to reduce the v/c to meet the LOS standard. However, since this	LS

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Impact		General Plan Policies and Action Items	Level of Significance Without Mitigation	Mitigation Measure		Resulting Level of Significance
	Code Update) would result in an increase in volume-to-capacity (v/c) ratios and a decrease in LOS on study intersections during the AM and PM peak hours.	Action CE.1.6.1, and CE.1.6.2, Policy CE.3.1, Action CE.3.1.1, CE.3.1.2, and CE.3.1.3, Policy CE.3.2, and CE.3.3, Action CE.3.3.1, and CE.3.3.2, Policy CE.3.4, Action CE.3.4.1.		intersection is at the freeway ramps, an alternative analysis was performed using the Highway Capacity Manual methodology required by Caltrans. This methodology takes into considerations the signal timing and operations of the intersection and establishes the LOS based on delays at the intersection. With this methodology the intersection would operate at LOS D with a delay of 48.4 seconds during the PM peak hour. This LOS D would be similar to that for the No Project and proposed project without the narrowing when using the HCM methodology. The proposed project exceeds the adopted LOS standards for the intersections on portions of San Pablo Avenue in Old Town. Maintaining the intersections with the additional travel lane to accommodate automobiles and trucks would address only one facet of transportation within the GPU Planning Area. The proposed project seeks to amend the LOS established by policy to a less restrictive standard. Because about 75 percent of the traffic on this roadway originates from outside of the GPU Planning Area and uses the roadway as a convenient by-pass for the freeway, the City would prefer a more balanced transportation corridor and seeks to redirect inter-regional traffic back to the freeway, or to alternative modes of transportation such as bicycles, buses, and rail. This modification to the policy would eliminate the need to construct certain improvements at the intersections and result in a **less than significant** impact. Note that the impacts to the mainline freeway are only marginally worsened as a result of this approach. See Table 4.4-9.		
Impact 4.4.3	Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would conflict with	Action CE.3.1.1	S	**MM 4.4.3**	Action CE.3.1.1 of the Circulation Element of the General Plan shall be revised to read: Work with WCCTAC and CCTA to revise the Action Plan	SU

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Impact		General Plan Policies and Action Items	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
	the multimodal transportation service objectives (MTSOs) identified in the West County Action Plan.			level of service standard for San Pablo Avenue within Old Town to LOS F and for Appian Way between Mann Drive and I-80 to LOS E as well as new MTSO's that reflect non-motorized LOS.	
Impact 4.4.4	Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would result in changes to the circulation network. However, the changes would not increase hazards due to a design feature or incompatible uses.	Action CE.2.1.3, Action CE.4.4.2 and CE.7.3.4, Policy CE.7.4, Action CE.7.4.1 and CE.8.1.1, Policy CE.8.3, Action LU.8.1.1, LU.8.2.1, and LU.8.3.1.	LS	None required.	LS
Impact 4.4.5	Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would result in an increase in vehicular traffic and changes to the roadway network, which may potentially increase emergency access conflicts.	Action CE.2.1.3 and CS.2.5.5	LS	None required.	LS
Impact 4.4.6	Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would support continued and expanded transit use, bicycling, and walking throughout the city, although changes to the roadway network may potentially affect bus operations.	Policy CE.1.3, Action CE.1.3.1 and, CE.1.3.2, Policy CE.1.4, Action CE.1.4.1, CE.1.4.2, CE.1.4.3 and CE.1.4.4, Policy CE.1.5, Action CE.1.5.1, Policy CE.1.6, Action CE.1.6.1 and CE.1.6.2.	LS	None required.	LS
Impact 4.4.7	Implementation of the proposed project (General Plan Update, Three	Policy CE.1.2, Action CE.1.2.1 , CE.1.2.2, and	CC	mitigation measure **MM 4.4.3**	LCC

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Impact		General Plan Policies and Action Items	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
	Corridors Specific Plan, and Zoning Code Update) would result in cumulative transportation impacts.	CE.1.2.3, Policy CE.1.6, Action CE.1.6.1, and CE.1.6.2, Policy CE.3.1, Action CE.3.1.1, CE.3.1.2, and CE.3.1.3, Policy CE.3.2, and CE.3.3, Action CE.3.3.1, and CE.3.3.2, Policy CE.3.4, Action CE.3.4.1.			
Impact 4.4.8	Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would conflict with the multimodal transportation service objectives (MTSOs) identified in the West County Action Plan.	Action CE.3.1.1	CC	mitigation measure **MM 4.4.3**	CC
Impact 4.4.9	Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update), in combination with pending or approved major projects within the city as well as consideration of regional activities, would result in changes to the circulation network. The changes are not anticipated to increase hazards due to a design feature or incompatible uses.	Action CE.2.1.3, CE4.4.2 and CE.7.3.4, Policy CE.7.4, Action CE.7.4.1 and CE.8.1.1, Policy CE.8.3, Action LU.8.1.1, LU.8.2.1 and LU.8.3.1	LCC	None required.	LCC

Impact		General Plan Policies and Action Items	Level of Significance Without Mitigation	Mitigation Measure		Resulting Level of Significance
Impact 4.4.10	Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update), in combination with pending or approved major projects within the city as well as consideration of regional activities, would result in an increase in vehicular traffic and changes to the roadway network, which may potentially increase emergency access conflicts.	Action CE.2.1.3 and CS.2.5.5	LCC	None required.		LCC
Impact 4.4.11	Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) in combination with pending or approved major projects within the city as well as consideration of regional activities, would support continued and expanded transit use, bicycling, and walking throughout the city, although changes to the roadway network may potentially affect bus operations.	Policy CE.1.3, Action CE.1.3.1 and, CE.1.3.2, Policy CE.1.4, Action CE.1.4.1, CE.1.4.2, CE.1.4.3 and CE.1.4.4, Policy CE.1.5, Action CE.1.5.1, Policy CE.1.6, Action CE.1.6.1 and CE.1.6.2.	CC	**MM 4.4.11**	Work with WestCAT and AC Transit to construct additional bus turnouts along the following Pinole Roadways: San Pablo Avenue, Pinole Valley Road, Appian Way & Fitzgerald Drive.	LCC
4.5 Noise						
Impact 4.5.1	The proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance or of applicable standards	Policy HS.8.1, Action HS.8.1.1, HS.8.1.2 and HS.8.1.3, Policy HS.8.2, Action HS.8.2.1, HS.8.2.2 and HS.8.2.3, Policy HS.8.3 and HS.9.1, Action	LS	None required.		LS

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Impact		General Plan Policies and Action Items	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
	of other agencies. However, the proposed Pinole General Plan Update's mitigating policies and actions ensure the impact will be less than significant.	HS.9.1.1.			
Impact 4.5.2	Construction activities associated with the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project and could result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance or of applicable standards of other agencies.	Policy HS.8.1, Action HS.8.1.1 and HS.8.1.2.	LS	None required.	LS

Impact		General Plan Policies and Action Items	Level of Significance Without Mitigation	Mitigation Measure		Resulting Level of Significance
Impact 4.5.3	The proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project and could result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan, as a result of increased traffic on the roadway network. In addition, future development of noise-sensitive land uses could be exposed to roadway and/or railroad noise levels in excess of the City's noise standards.	Policy HS.8.1, Action HS.8.1.2 and HS.8.1.3, Policy HS.8.3.	PS	**MM 4.5.3a**	The following policy shall be incorporated into the Health and Safety Element under Goal HS.8: New development of noise-sensitive land uses will not be permitted in areas exposed to existing or planned transportation noise sources that exceed the levels specified in Policy HS.8.1 of the proposed General Plan Update, unless the project design includes measures to reduce exterior and interior noise levels to those specified in Policy HS.8.1 of the proposed General Plan Update.	LS
				MM 4.5.3b	The following policy shall be incorporated into the Health and Safety Element under Goal HS.8: Require site-specific noise studies for noise-sensitive projects which may be affected by railroad noise, and incorporate noise attenuation measures into the project design to reduce any impacts.	
Impact 4.5.4	Sensitive land uses would not be exposed to aircraft noise in excess of applicable noise standards for land use compatibility.	None applicable.	LS	None required.		LS

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Impact		General Plan Policies and Action Items	Level of Significance Without Mitigation	Mitigation Measure		Resulting Level of Significance
Impact 4.5.5	Subsequent development associated with the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could result in new noise-sensitive land uses encroaching upon existing or proposed stationary noise sources or new stationary noise sources encroaching upon existing or proposed noise-sensitive land uses. This could result in a substantial permanent increase in ambient noise levels in the project vicinity above existing levels or could result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance or of applicable standards of other agencies.	Policy HS.8.1, Action HS.8.1.1, HS.8.1.2 and HS.8.1.3, Policy HS.8.2, Action HS.8.2.1, HS.8.2.2 and HS.8.2.3, Policy HS.8.3 and HS.9.1, Action HS.9.1.1.	PS	Implementation of mitigation measures **MM 4.5.3a** and **MM 4.5.3b**		LS
Impact 4.5.6	The proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could result in exposure of persons to or generation of excessive groundborne vibration levels.	None applicable.	PS	**MM 4.5.6**	The following mitigation shall be implemented as an action under Policy HS 8.1: Require the use of temporary construction noise control measures including the use of temporary noise barriers, temporary relocation of noise-sensitive land uses, or other appropriate measures as mitigation for noise generated during construction of public and/or private projects.	LS
Impact 4.5.7	Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning	Policy HS.8.1, Action HS.8.1.2 and HS.8.1.3, Policy HS.8.3.	CC	None available.		CC

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Impact		General Plan Policies and Action Items	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
	Code Update), in combination with other development in nearby areas in Contra Costa County, would increase transportation noise along area roadways.				
4.6 Hazards and Human Health					
Impact 4.6.1	Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could include the routine transportation, use, or disposal of hazardous materials on the Planning Area transportation network.	Policy HS.3.6	LS	None required.	LS
Impact 4.6.2	Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could include land uses that have the potential to result in an increased risk of release of hazardous materials.	Policy CS.2.1, Action CS.2.3.1, CS.2.3.5, and CS. 2.3.6, Policy HS.3.5, Action HS.3.5.1, HS.3.5.3 and HS.3.5.4	LS	None required.	LS
Impact 4.6.3	Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could consist of land uses having the potential to result in an increased risk of release of hazardous materials.	Policy CS.2.1, Action CS.2.3.1, CS.2.3.5, and CS.2.3.6, Policy HS.3.5, Action HS.3.5.1, HS.3.5.3 and HS.3.5.4	LS	None required.	LS
Impact 4.6.4	Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could impair implementation of or physically	Action HS.4.1.1, HS.4.1.2, HS.4.1.3, HS.4.1.4 HS.4.2.2 and CD.2.1.3	LS	None required.	LS

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Impact		General Plan Policies and Action Items	Level of Significance Without Mitigation	Mitigation Measure		Resulting Level of Significance
	interfere with the City's Emergency Operations Plan (EOP).					
Impact 4.6.5	Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would not cumulatively contribute to regional hazards.	Policy CS.2.1, Action CS.2.3.1, CS.2.3.5 and CS.2.3.6,Policy HS.3.5, Action HS.3.5.1, HS.3.5.3, and HS.3.5.4, Policy HS.3.6, Action HS.4.1.1, HS.4.1.2, HS.4.1.3, HS.4.1.4, and HS.4.2.2	LCC	None required.		LCC
4.7 Biological Resources						
Impact 4.7.1	Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would result in direct and indirect loss of habitat and individuals of endangered, threatened, rare, proposed, and candidate plant and wildlife species, plant species identified by the California Native Plant Society with a rating of List 1A or 1B (i.e., rare, threatened, or endangered plants) as well as animal and plant species of concern and other non-listed special-status species.	Policy OS.1.1, OS.1.2, OS.1.4, OS.1.5, OS.1.8, OS.2.1, OS.2.2, OS.2.3, OS.2.5, OS.2.6, OS.2.8, OS.2.9, OS.3.1, OS.3.2, OS.3.3, OS.3.5, OS.3.6, OS.3.8, OS.3.9, and OS.3.10	LS	None required.		LS
Impact 4.7.2	Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would result in disturbance, degradation, and removal of riparian habitat, coastal	Policy OS.1.1, OS.1.4, OS.1.5, OS.1.8, OS.2.1, OS.2.2, OS.2.3, OS.2.5, OS.2.6, OS.3.1, OS.3.3, OS.3.5, OS.3.6, OS.3.7, OS.3.9, OS.8.6 and	PS	**MM 4.7.2a**	The following mitigation shall be incorporated as an action under proposed General Plan Update Policy OS.1.1: Require a minimum 100-foot setback from the top of creek banks	LS

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Impact	General Plan Policies and Action Items	Level of Significance Without Mitigation	Mitigation Measure		Resulting Level of Significance
oak woodland, and wetland habitats.	OS.8.7			(Pinole Creek, Catty Creek, Duncan Canyon/Cole Creek, Shady Draw, Faria Creek, and Roble Creek) for development and associated above-ground infrastructure. Analyze the adequacy of a 100-foot setback as a part of project and environmental review, and require a larger setback where necessary to mitigate project impacts.	
			MM 4.7.2b	The following mitigation shall be incorporated as an action under proposed General Plan Update Policy OS.1.1: The City shall require biological resources evaluation for discretionary projects in areas identified to contain or possibly contain plant and/or wildlife species designated by state and federal agencies as rare, threatened, or endangered. This evaluation shall be conducted prior to the authorization of any ground disturbance. For proposed projects in which plant and/or wildlife species designated by state and federal agencies as rare, threatened, or endangered are found, the City shall require feasible mitigation of impacts to those species that ensure that the project does not	

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Impact		General Plan Policies and Action Items	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
				contribute to the decline of the affected species such that their decline would impact the viability of the species. Such mitigation measures may include providing and permanently maintaining similar quality and quantity of replacement habitat, enhancing existing habitat areas, or paying fees towards to an approved habitat mitigation bank. Replacement habitat may occur either on-site or at approved off-site locations. Feasible mitigation shall be determined by the City after the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Game (CDFG) are provided an opportunity to comment. Mitigation shall emphasize a multi-species approach to the maximum extent feasible. This may include development or participation in a habitat conservation plan.	
Impact 4.7.3	Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would result in substantial adverse impacts to and the potential loss of jurisdictional waters of the U.S.	Policy OS.1.1, OS.1.2, OS.1.4, OS.1.5, OS.1.8, OS.2.1, OS.2.2, OS.2.3, OS.2.5, OS.2.6, OS.3.3, OS.3.5, OS.3.6, OS.3.7, OS.8.6, OS.8.7 and OS.8.8	LS	None required.	LS

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Impact		General Plan Policies and Action Items	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
Impact 4.7.4	Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could interfere substantially with the movement of native resident or migratory fish or wildlife species.	Policy OS.1.1, OS.1.4, OS.1.5, OS.1.8, OS.2.1, OS.2.2, OS.2.3, OS.2.5, OS.2.6, OS.2.8, OS.2.9, OS.3.1, OS.3.3, OS.3.5 and OS.3.7,	PS	None required.	LS
Impact 4.7.5	Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or any adopted biological resources recovery or conservation plan of any federal or state agency.	None applicable.	N	None required.	N
Impact 4.7.6	Implementation of the proposed General Plan and associated project components (Three Corridors Specific Plan and Zoning Code Update), together with past, present, and probable future projects in the Planning Area and larger regional context, would result in a cumulatively significant loss of biological resources in the region.	Policy OS.1.1, OS.1.2, OS.1.4, OS.1.5, OS.1.8, OS.2.1, OS.2.2, OS.2.3, OS.2.5, OS.2.6, OS.2.8, OS.2.9, OS.3.1, OS.3.2, OS.3.3, OS.3.5, OS.3.6, OS.3.7, OS.3.8, OS.3.9, OS.3.10, OS.8.6, OS.8.7 and OS.8.8	LCC	**MM 4.7.2a** and **MM 4.7.2b**	LCC
4.8 Geology and Soils					
Impact 4.8.1	Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would result in the construction of projects over a	Policy HS.3.1, Action HS.3.1.1, Policy HS.3.2, HS.3.3, and HS.3.4, Action HS.3.4.1, and HS.3.4.2	LS	None required.	LS

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Impact		General Plan Policies and Action Items	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
	seismically hazardous area.				
Impact 4.8.2	Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would result in increased soil, wind, and water erosion and loss of topsoil, due to grading activities within the Planning Area.	Policy HS.3.1, Action HS.3.1.1, Policy HS.3.2, HS.3.3, and HS.3.7, Action HS.3.7.2, and HS.7.1.2	LS	None required.	LS
Impact 4.8.3	Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) may result in construction in areas subject to landslide.	Policy HS.3.1, Action HS.3.1.1, Policy HS.3.2, HS.3.3, and Action HS.3.7.2	LS	None required.	LS
Impact 4.8.4	Implementation of the proposed (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would expose buildings, pavements, and utilities to significant damage as a result of underlying expansive or unstable soil properties.	Policy HS.3.1, Action HS.3.1.1, Policy HS.3.2, HS.3.3, and Action HS.3.7.2	LS	None required.	LS
Impact 4.8.5	Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update), in combination with existing, planned, proposed, and reasonably foreseeable development, would not contribute to cumulative geologic, seismic, and soil impacts, as the impacts would be site-specific and not	Policy HS.3.1, Action HS.3.1.1, Policy HS.3.2, HS.3.3, and HS.3.4, Action HS.3.4.1, and HS.3.4.2, Policy HS.3.7, Action HS.3.7.2, and HS.7.1.2	LCC	None required.	LCC

Impact		General Plan Policies and Action Items	Level of Significance Without Mitigation	Mitigation Measure		Resulting Level of Significance
	additive in character.					
4.9	**Hydrology and Water Quality**					
Impact 4.9.1	Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could result in the discharge of polluted runoff during construction and operation of future urban development potentially violating water quality standards or otherwise substantially degrading surface water quality.	Action HS.2.1.3, HS.5.3.5 and HS.7.2.2, Policy HS.7.3, Action HS.7.3.1 and HS.7.3.2, Policy HS.7.4, Action HS.7.4.1 and HS.7.4.2, Policy HS.7.5, Action HS.7.5.1 and HS.7.5.2, Policy OS.1.7, Action OS.1.7.1, Policy OS.1.8, Action OS.1.8.2, Policy OS.2.4, Action OS.2.4.1 and OS.2.4.2, Policy OS.2.7, Action OS.3.6.1 and OS.3.6.2, Policy OS.8.2, OS.8.5 and OS.8.8, Action OS.8.8.1, OS.8.8.2, OS.8.8.3, OS.8.8.4, OS.8.8.5, OS.8.8.6, OS.8.8.7. SE.9.1.4, SE.9.1.5, SE.9.1.7 and SE.9.1.8.	PS	**MM 4.9.1**	General Plan Action HS.2.1.3 shall be revised as follows: Establish land use controls for properties that abut Pinole Creek in order to minimize potential conflicts between flood, resource protection and recreational goals. Adopt new development regulations that <u>require applications for new development projects to adhere to pertinent local, state, and federal agency requirements. City Development regulation for properties that abut the Creek shall specify appropriate land uses and ensure that new projects will take into account issues including flow velocity, sediment load, and volume within Pinole Creek</u>.	LS
Impact 4.9.2	Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could result in the degradation of groundwater quality resulting from construction and operation of	Policy OS.8.4, Action OS.8.4.1, Policy OS.8.5, Action OS.8.8.1, OS.8.8.2, OS.8.8.6, OS.8.8.7and SE.9.1.8.	LS	None required.		LS

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Impact		General Plan Policies and Action Items	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
	future urban development.				
Impact 4.9.3	Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would not require the use of any groundwater supplies.	Action HS.7.2.1, Policy OS.1.7, Action OS.1.7.1, Policy OS.1.8, Action OS.1.8.2, Policy OS.2.4, Action OS.2.4.1 and OS.2.4.2, Policy OS.2.7, Action OS.3.6.1 and OS.3.6.2, Policy OS.8.2 and OS.8.3, Action OS.8.8.5, OS.8.8.6, SE.9.1.4, and SE.9.1.8.	N	None required.	N
Impact 4.9.4	Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would increase impervious surfaces and alter drainage conditions and rates in the Planning Area, which could result in increased runoff and potential flooding impacts.	Policy CS.7.1, CS.7.2 and CS.7.3, Action CS.7.3.1, Policy CS.7.4, Action HS.2.1.3, Policy HS.2.2, Action HS.2.2.1, Policy HS.2.3, Action HS.2.5.1, HS.2.5.2, OS.8.8.3, OS.8.8.5, OS.8.8.6, SE.9.1.4 and SE.9.1.7.	LS	None required.	LS
Impact 4.9.5	Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) and its associated project components could create or contribute stormwater runoff water which would exceed the capacity of the City's stormwater drainage system.	Policy CS.7.1 and CS.7.2, Action SE.9.1.4, SE.9.1.7, and SE.9.1.8.	LS	None required.	LS

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Impact 4.9.6	Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could result in the development of urban uses within areas subject to flooding, dam failure inundation, and/or sea level rise.	Action LU.5.3.1 and LU.5.3.2, Policy LU.6.1, Action LU.6.1.1, Policy CS.7.1, CS.7.2 and CS.7.3, Action CS.7.3.1, Policy CS.7.4, Action CS.7.4.1 and HS.2.1.3, Policy HS.2.2, Action HS.2.2.1, Policy HS.2.4, Action HS.2.4.1, Policy HS.4.1, Action HS.4.1.1, HS.4.1.2, HS.4.1.3, HS.4.1.4 and HS.4.1.5, Policy HS.4.2, Action HS.4.2.1, HS.4.2.2 and HS.4.2.3, Policy HS.4.3, Action HS.4.3.1, HS.7.2.1 and OS.2.4.12, Policy OS.1.8 and OS.8.2.	PS	**MM 4.9.6a** **MM 4.9.6b** **MM 4.9.6c**	The City of Pinole shall work with the Bay Conservation and Development Commission (BCDC) to implement strategies to adapt to Bay-related impacts of climate change. The City shall work with BCDC to develop a vulnerability analyses for its shoreline and to address shoreline management issues that cross jurisdictional boundaries. The City will continue to implement the Municipal Code flood protection standards for development within a FEMA-designated Special Flood Hazard Area and will coordinate with FEMA and other agencies in the evaluation and mitigation of future flooding hazards that may occur as a result of sea level rise. The City shall pursue funding for adequate protection from sea level rise and continued subsidence and construction in areas threatened by sea level rise and/or settlement.	LS
Impact 4.9.7	Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update), in combination with other development activities within	Action HS.2.1.3, HS.5.3.5 and HS.7.2.2, Policy HS.7.3, Action HS.7.3.1 and HS.7.3.2, Policy HS.7.4, Action	PCC	MM 4.9.1		LCC

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Impact		General Plan Policies and Action Items	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
	the watershed, would contribute to a cumulative degradation of water quality from construction activities and increased urban runoff.	HS.7.4.1 and HS.7.4.2, Policy HS.7.5, Action HS.7.5.1 and HS.7.5.2, Policy OS.1.7, Action OS.1.7.1, Policy OS.1.8, Action OS.1.8.2, Policy OS.2.4, Action OS.2.4.1 and OS.2.4.2, Policy OS.2.7, Action OS.3.6.1 and OS.3.6.2, Policy OS.8.2 and OS.8.4, Action OS.8.4.1, Policy OS.8.5 and OS.8.8, Action OS.8.8.1, OS.8.8.2, OS.8.8.3, OS.8.8.4, OS.8.8.5, OS.8.8.6, OS.8.8.7. SE.9.1.4, SE.9.1.5, SE.9.1.7 and SE.9.1.8.			
Impact 4.9.8	Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could increase impervious surfaces and alter drainage conditions and rates in the Planning Area, which could contribute to cumulative flood conditions in the Pinole Creek watershed and San Pablo Bay.	Action LU.5.3.1 and LU.5.3.2, Policy LU.6.1, Action LU.6.1.1, Policy CS.7.1, CS.7.2 and CS.7.3, Action CS.7.3.1, Policy CS.7.4, Action CS.7.4.1 and HS.2.1.3, Policy HS.2.2, Action HS.2.2.1, Policy HS.2.4, Action HS.2.4.1, Policy HS.4.1, Action HS.4.1.1, HS.4.1.2, HS.4.1.3, HS.4.1.4 and HS.4.1.5, Policy HS.4.2, Action HS.4.2.1,	CC	MM 4.9.1, MM 4.9.6a, MM 4.9.6b, and MM 4.9.6c	LCC

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Impact		General Plan Policies and Action Items	Level of Significance Without Mitigation	Mitigation Measure		Resulting Level of Significance
		HS.4.2.2 and HS.4.2.3, Policy HS.4.3, Action HS.4.3.1, HS.7.2.1 and OS.2.4.12, Policy OS.1.8 and OS.8.2, Action SE.9.1.4, SE.9.1.7, and SE.9.1.8.				
4.10 Cultural and Paleontological Resources						
Impact 4.10.1	Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could result in the potential disturbance of cultural resources (i.e., prehistoric sites, historic sites, and isolated artifacts and features) and human remains.	Policy CC.1.4 and CC.4.2, Action CC.4.2.1, CC.4.2.2 and CC.4.2.3, Policy CC.4.3, Action CC.4.3.1 and CC.4.3.2, Policy LU.3.4, Action LU.3.4.1.	PS	**MM 4.10.1a**	The City shall include the following as an action in the Community Character Element of the General Plan Update. Cultural resources studies (i.e., archaeological and historical investigations) shall be required for all applicable discretionary projects, in accordance with CEQA regulations, for areas not previously surveyed and/or that are sensitive for cultural resources. The studies should identify cultural resources (i.e., prehistoric sites, historic sites, and historic buildings/structures) in the project area, determine their eligibility for inclusion in the California Register of Historical Resources, and provide feasible and appropriate measures for the protection of any historical resources or unique archaeological resources to maximum extent feasible.	LS

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Impact	General Plan Policies and Action Items	Level of Significance Without Mitigation	Mitigation Measure		Resulting Level of Significance
				Cultural resources studies should be completed by a professional archaeologist or architectural historian that meets the Secretary of the Interior's Professional Qualifications Standards in archaeology.	
			MM 4.10.1b	The City shall include the following as an action in the Community Character Element of the General Plan Update. Should any cultural resources such as structural features, unusual amounts of bone or shell, artifacts, or architectural remains be encountered during development activities, work shall be suspended within 50 feet of the discovery and the City of Pinole Community Development Department shall be immediately notified. At that time, the City will coordinate any necessary investigation of the discovery with an appropriate specialist (e.g., archaeologist or architectural historian). The project proponent shall be required to implement any mitigation necessary for the protection of cultural resources. The City of Pinole and the project applicant shall consider	

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Impact	General Plan Policies and Action Items	Level of Significance Without Mitigation	Mitigation Measure		Resulting Level of Significance
				mitigation recommendations presented by a qualified archaeologist or other appropriate technical specialist for any unanticipated discoveries. The City and the project applicant shall consult and agree upon implementation of a measure or measures that the City and project applicant deem feasible and appropriate. Such measures may include avoidance, preservation in place, excavation, documentation, curation, data recovery, or other appropriate measures.	
			MM 4.10.1c	The City shall include the following as an action in the Community Character Element of the General Plan Update. If human remains are discovered, all work must halt within 50 feet of the find, the City of Pinole Community Development Department shall be notified, and the County Coroner must be notified according to Section 5097.98 of the California Public Resources Code and Section 7050.5 of California's Health and Safety Code. If the remains are determined to be Native American, the coroner will	

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Impact		General Plan Policies and Action Items	Level of Significance Without Mitigation	Mitigation Measure		Resulting Level of Significance
					notify the Native American Heritage Commission and the procedures outlined in CEQA Section 15064.5(d) and (e) shall be followed.	
Impact 4.10.2	Adoption of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could result in the potential damage or destruction of undiscovered paleontological resources.	Policy CC.4.3	PS	**MM 4.10.2**	The City shall include the following as an action in the Community Character Element of the General Plan Update. Should any potentially unique paleontological resources (fossils) be encountered during development activities, work shall be suspended within 50 feet of the discovery and the City of Pinole Planning Department shall be immediately notified. At that time, the City will coordinate any necessary investigation of the discovery with a qualified paleontologist. The project proponent shall be required to implement any mitigation necessary for the protection of paleontological resources. The City and the project applicant shall consider the mitigation recommendations of the qualified paleontologist for any unanticipated discoveries. The City and the project applicant shall consult and agree upon implementation of a measure or measures that the	LS

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Impact		General Plan Policies and Action Items	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
				City and project applicant deem feasible and appropriate. Such measures may include avoidance, preservation in place, excavation, documentation, curation, data recovery, or other appropriate measures.	
Impact 4.10.3	Adoption of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update,) along with foreseeable development in the region, could result in the disturbance of cultural resources (i.e., prehistoric sites, historic sites, and isolated artifacts and features) and human remains.	Policy CC.1.4 and CC.4.2, Action CC.4.2.1, CC.4.2.2 and CC.4.2.3, Policy CC.4.3, Action CC.4.3.1 and CC.4.3.2, Policy LU.3.4, Action LU.3.4.1.	CC	Implementation of mitigation measures **MM 4.10.1a**, **4.10.1b, 4.10.1c,** and **4.10.2**	LCC
Impact 4.10.4	Adoption of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update), along with any foreseeable development in the region, could result in the potential disturbance of paleontological resources (i.e., fossils and fossil formations).	Policy CC.4.3	CC	Implementation of mitigation measure **MM 4.10.2**	LCC
4.11 Visual Resources					
Impact 4.11.1	Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would encourage new development and	Action LU.4.2.1, Policy LU.4.3, Action LU.4.3.1, Policy LU.5.1, Action LU.5.1.1, Policy LU.5.2.	LS	None required.	LS

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Impact		General Plan Policies and Action Items	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
	redevelopment activities that could potentially degrade existing scenic vistas.				
Impact 4.11.2	Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could result in the alteration of visual character.	Policy LU.1.3, Action LU.1.3.1, and LU.1.3.2, Policy LU.1.4, Action LU.1.4.1, and LU.1.4.2, Policy LU.1.5, Action LU.1.5.1, Policy LU.1.6, Action LU.1.6.1, Policy LU.3.1, Action LU.3.1.1, Policy LU.3.2, Action LU.3.2.1, Policy LU.3.3, Action LU.3.3.1, and LU.3.3.2, Policy LU.3.4, Action LU.3.4.1, Policy LU.4.1, Action LU.4.1.1 and LU.4.1.2, Policy LU.4.2, Action LU.4.2.1, Policy LU.4.3, Action LU.4.3.1, Policy LU.5.1, Action LU.5.1.1, Policy LU.5.2, and CC.1.1, Action CC.1.1.1, CC.1.1.2, CC.1.1.3, and CC.1.1.4, Policy CC.1.2, Action CC.1.2.1, and CC.1.2.2, Policy CC.1.3, Action CC.1.3.1, and CC.1.3.2, Policy CC.1.4, Action CC.1.4.1, and CC.1.4.2, Policy CC.1.5, Action CC.1.5.1, CC.1.5.2, and	LS	None required.	LS

Impact		General Plan Policies and Action Items	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
		CC.1.5.3, Policy CC.2.1, Action CC.2.1.1, CC.2.1.3, and CC.2.1.5, Policy CC.2.2, Action CC.2.2.1, CC.2.2.2, CC.2.2.3, CC.2.2.4, CC.2.2.5, and CC.2.2.6, Policy CC.4.2, and CC.5.1, Action CC.5.1.2, Policy CC.5.3, Action CC.5.3.1, and CC.5.3.2, Policy OS.3.3, OS.3.6, OS.3.14, and OS.6.1, Action OS.6.1.1, and OS.6.1.2, Policy OS6.2, Action OS.6.2.1, Policy OS.6.4, and OS.6.5.			
Impact 4.11.3	Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would result in the intensification of land uses within the GPU Planning Area, which has the potential to create new sources of daytime glare and nighttime illumination.	Policy CC.2.3, Action CC.2.3.1, CC.2.3.2, CC.2.3.3, and CC.2.3.4.	LS	None required.	LS
Impact 4.11.4	Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update), along with foreseeable development in the region, would not result in the	Policy LU.1.3, Action LU.1.3.1, and LU.1.3.2, Policy LU.1.4, Action LU.1.4.1, and LU.1.4.2, Policy LU.1.5, Action LU.1.5.1, Policy LU.1.6,	LCC	None required.	LCC

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Impact	General Plan Policies and Action Items	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
significant conversion of the city's visual character.	Action LU.1.6.1, Policy LU.3.1, Action LU.3.1.1, Policy LU.3.2, Action LU.3.2.1, Policy LU.3.3, Action LU.3.3.1, and LU.3.3.2, Policy LU.3.4, Action LU.3.4.1, Policy LU.4.1, Action LU.4.1.1 and LU.4.1.2, Policy LU.4.2, Action LU.4.2.1, Policy LU.4.3, Action LU.4.3.1, Policy LU.5.1, Action LU.5.1.1, Policy LU.5.2, and CC.1.1, Action CC.1.1.1, CC.1.1.2, CC.1.1.3, and CC.1.1.4, Policy CC.1.2, Action CC.1.2.1, and CC.1.2.2, Policy CC.1.3, Action CC.1.3.1, and CC.1.3.2, Policy CC.1.4, Action CC.1.4.1, and CC.1.4.2, Policy CC.1.5, Action CC.1.5.1, CC.1.5.2, and CC.1.5.3, Policy CC.2.1, Action CC.2.1.1, CC.2.1.3, and CC.2.1.5, Policy CC.2.2, Action CC.2.2.1, CC.2.2.2, CC.2.2.3, CC.2.2.4, CC.2.2.5, and CC.2.2.6, Policy CC.2.3, Action CC.2.3.1, CC.2.3.2,			

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Impact	General Plan Policies and Action Items	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
	CC.2.3.3, and CC.2.3.4, Policy CC.4.2, and CC.5.1, Action CC.5.1.2, Policy CC.5.3, Action CC.5.3.1, and CC.5.3.2, Policy OS.3.3, OS.3.6, OS.3.14, and OS.6.1, Action OS.6.1.1, and OS.6.1.2, Policy OS6.2, Action OS.6.2.1, Policy OS.6.4, and OS.6.5.			
4.12 Public Services and Utilities				
Impact 4.12.1.1 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could result in increased demand for fire protection and emergency medical services within the GPU Planning Area.	Policy CS.2.3, Action CS.2.3.1, CS.2.3.2, CS.2.3.3, CS.2.3.4, CS.2.3.5, CS.2.3.6, and CS.2.3.7, Policy CS.2.4, Action CS.2.4.1, and CS.2.4.2, Policy HS.1.1, Action HS.1.1.1, and HS.1.1.3, Policy HS.1.2, Action HS.1.2.2.	LS	None required.	LS
Impact 4.12.1.2 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan and Zoning Code Update), along with other planned development and redevelopment within the GPU Planning Area, would contribute to the cumulative demand for fire protection and emergency medical services.	Policy CS.2.3, Action CS.2.3.1, CS.2.3.2, CS.2.3.3, CS.2.3.4, CS.2.3.5, CS.2.3.6, and CS.2.3.7, Policy CS.2.4, Action CS.2.4.1, and CS.2.4.2, Policy HS.1.1, Action HS.1.1.1, and HS.1.1.3, Policy HS.1.2, Action HS.1.2.2.	LCC	None required.	LCC

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Impact		General Plan Policies and Action Items	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
Impact 4.12.2.1	Implementation of the proposed project (General Plan Update, Three Corridor Specific Plan, and Zoning Code Update) would result in increased demand for law enforcement services within the GPU Planning Area.	Policy CS.1.4, Action CS.1.4.1, Policy CS.2.1, Action CS.2.1.1, Policy CS.2.2, Action CS.2.2.1, CS.2.2.2, and CS.2.2.3.	LS	None required.	LS
Impact 4.12.2.2	Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan and Zoning Code Update), along with other planned development and redevelopment within the GPU Planning Area, would contribute to the cumulative demand for law enforcement services.	Policy CS.1.4, Action CS.1.4.1, Policy CS.2.1, Action CS.2.1.1, Policy CS.2.2, Action CS.2.2.1, CS.2.2.2, and CS.2.2.3.	LCC	None required.	LCC
Impact 4.12.3.1	Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would increase student enrollment within the WCCUSD and may require new school facilities and related services.	Policy CS.4.1 and CS.4.2.	LS	None required.	LS
Impact 4.12.3.2	Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update), as well as potential development within the cumulative setting area, would result in cumulative public school impacts.	Policy CS.4.1 and CS.4.2.	LCC	None required.	LCC
Impact 4.12.4.1	Implementation of the proposed project (General Plan Update, Three Corridor Specific Plan, and Zoning	Action CS.1.3.4, CS.3.1.1, CS.3.1.2, CS.3.1.3, CS.3.3.4,	LS	None required.	LS

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Impact		General Plan Policies and Action Items	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
	Code Update) would increase the demand for existing facilities and require additional parks and recreational facilities to accommodate the anticipated growth associated with the proposed project.	CS.3.3.6, CS.3.3.7, CS.3.4.1, CS.3.4.2, CS.3.4.3, CS.3.4.4, CS.3.4.5, CS.3.4.6 and CS.3.4.7, Policy OS.3.3, OS.3.12, OS.4.1 and OS.7.1.			
Impact 4.12.4.2	Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update), in combination with other reasonably foreseeable development, would require additional park and recreation facilities within the GPU Planning Area.	Action CS.1.3.4, CS.3.1.1, CS.3.1.2, CS.3.1.3, CS.3.3.4, CS.3.3.6, CS.3.3.7, CS.3.4.1, CS.3.4.2, CS.3.4.3, CS.3.4.4, CS.3.4.5, CS.3.4.6 and CS.3.4.7, Policy OS.3.3, OS.3.12, OS.4.1 and OS.7.1.	LCC	None required.	LCC
Impact 4.12.5.1	Implementation of the General Plan Update, Three Corridor Specific Plan, and Zoning Code Update would require additional water supplies, as well as additional water supply infrastructure, to meet the projected water demands.	Policy GM.2.1, Action GM.2.2.1, Policy GM.2.2, Action GM.2.2.3, and GM.2.2.4, Policy GM.2.3, Action GM.2.3.1, and GM.2.3.2, Policy CS.5.1, and CS.5.2, Action CS.5.2.1, Policy OS.8.1, Action OS.8.1.1, OS.8.1.2, OS.8.1.3, and OS.8.1.6, Policy OS.8.2, Action OS.8.2.1, Policy OS.8.3, and OS.8.7,	LS	None required.	LS

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Impact		General Plan Policies and Action Items	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
		Action OS.8.7.3, and OS.8.7.4, Policy SE.9.1, Action SE.9.1.1, SE.9.1.2, SE.9.1.3, SE.9.4.1, SE.9.4.2, SE.9.4.3, SE.9.4.4, SE.9.4.5, and SE.9.5.3.			
Impact 4.12.5.2	Implementation of the proposed General Plan Update and its associated project components would contribute to the cumulative demand for water supply and associated infrastructure in EBMUD's service area.	Policy GM.2.1, Action GM.2.2.1, Policy GM.2.2, Action GM.2.2.3, and GM.2.2.4, Policy GM.2.3, Action GM.2.3.1, and GM.2.3.2, Policy CS.5.1, and CS.5.2, Action CS.5.2.1, Policy OS.8.1, Action OS.8.1.1, OS.8.1.2, OS.8.1.3, and OS.8.1.6, Policy OS.8.2, Action OS.8.2.1, Policy OS.8.3, and OS.8.7, Action OS.8.7.3, and OS.8.7.4, Policy SE.9.1, Action SE.9.1.1, SE.9.1.2, SE.9.1.3, SE.9.4.1, SE.9.4.2, SE.9.4.3, SE.9.4.4, SE.9.4.5, and SE.9.5.3.	CC	None required.	LCC
Impact 4.12.6.1	Implementation of the General Plan Update, Three Corridor Specific Plan, and Zoning Code Update	Action GM.1.1.5, Policy GM.2.1, Action GM.2.2.1, Policy	LS	None required.	LS

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Impact		General Plan Policies and Action Items	Level of Significance Without Mitigation	Mitigation Measure		Resulting Level of Significance
	would increase wastewater flows and demand for sanitary sewer facilities. Increased flows could exceed the capacity of the wastewater conveyance, treatment, and disposal systems of the City of Pinole Public Works Department and the West County Wastewater District.	GM.2.2, Action GM.2.2.3, and GM.2.2.4, Policy GM.2.3, Action GM.2.31, and GM.2.3.2, Policy GM.4.1, and CS.6.1, Action CS.6.1.1, CS.6.1.2, CS.6.1.3, and CS.6.1.4, Policy CS.6.2, Action CS.6.2.1, CS.6.2.2, and CS.6.2.3, Policy CS.6.3, and CS.6.4, Action OS.8.5.1, and SE.9.1.5.				
Impact 4.12.6.2	Implementation of the General Plan Update, Three Corridor Specific Plan, and Zoning Code Update could result in wastewater discharge that would exceed wastewater treatment requirements of the San Francisco Bay Regional Water Quality Control Board.	Policy CS.6.1, Action CS.6.1.1, CS.6.1.2, CS.6.1.3, and CS.6.1.4, Action OS.8.5.1, and SE.9.1.5.	LS	**MM 4.12.6.2**	The City shall include an action in the General Plan requiring all future development to demonstrate that there is sufficient sewer/wastewater treatment capacity to accommodate the proposed development and that the required sewer/wastewater infrastructure is in place before issuance of Certificate of Occupancy. Furthermore, all on-site and off-site sewer conveyance systems shall be in place prior to the issuance of Certificate of Occupancy and all financing shall be assured to the satisfaction of the City.	LS

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Impact		General Plan Policies and Action Items	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
Impact 4.12.6.3	Implementation of the General Plan Update, Three Corridor Specific Plan, and Zoning Code Update, as well as existing, planned, proposed, approved, and reasonably foreseeable development in the City of Pinole Public Works Department and West County Wastewater District wastewater service areas, would increase wastewater flows and require additional infrastructure and treatment capacity to accommodate anticipated demands.	Action GM.1.1.5, Policy GM.2.1, Action GM.2.2.1, Policy GM.2.2, Action GM.2.2.3, and GM.2.2.4, Policy GM.2.3, Action GM.2.31, and GM.2.3.2, Policy GM.4.1, and CS.6.1, Action CS.6.1.1, CS.6.1.2, CS.6.1.3, and CS.6.1.4, Policy CS.6.2, Action CS.6.2.1, CS.6.2.2, and CS.6.2.3, Policy CS.6.3, and CS.6.4, Action OS.8.5.1, and SE.9.1.5.	LCC	None required.	LCC
Impact 4.12.7.1	Implementation of the proposed project (General Plan Update, Three Corridor Specific Plan, and Zoning Code Update) would increase solid waste generation and the demand for related services.	Policy CS.8.1, Action CS.8.1.1, CS.8.1.2, CS.8.1.3, and CS.8.1.4, Policy CS.8.2, Action CS.8.2.1, CS.8.2.2, and CS.8.2.3, Policy SE.5.1, Action SE.5.1.1, SE.5.1.2, SE.5.1.3, SE.5.1.4, SE.5.1.5, SE.5.1.6, and SE.5.1.7, Policy SE.5.2, Action SE.5.2.1, Policy SE.5.4, Action SE.5.4.1, SE.5.4.2, and SE.5.4.3.	LS	None required.	LS
Impact 4.12.7.2	Implementation of the proposed project (General Plan Update, Three	Policy CS.8.1, Action CS.8.1.1, CS.8.1.2,	LCC	None required.	LCC

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Impact		General Plan Policies and Action Items	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
	Corridor Specific Plan, and Zoning Code Update), along with other existing, planned, proposed, approved, and reasonably foreseeable development within the West Contra Costa Integrated Waste Management Authority service area, would result in cumulative solid waste impacts.	CS.8.1.3, and CS.8.1.4, Policy CS.8.2, Action CS.8.2.1, CS.8.2.2, and CS.8.2.3, Policy SE.5.1, Action SE.5.1.1, SE.5.1.2, SE.5.1.3, SE.5.1.4, SE.5.1.5, SE.5.1.6, and SE.5.1.7, Policy SE.5.2, Action SE.5.2.1, Policy SE.5.4, Action SE.5.4.1, SE.5.4.2, and SE.5.4.3.			
Impact 4.12.8.1	Implementation of the proposed project (General Plan Update, three Corridors Specific Plan, and Zoning Code Update) would require additional electric and natural gas supplies, along with conveyance facilities for these and telephone and cable television services.	Action CS.1.1.4, Policy CS.9.1, Action CS.9.1.1, and CS.9.1.2.	LS	None required.	LS
Impact 4.12.8.2	Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update), as well as potential development in the surrounding areas, would result in an increase in cumulative utility service demands.	Action CS.1.1.4, Policy CS.9.1, Action CS.9.1.1, and CS.9.1.2.	LCC	None required.	LCC
4.13 Climate Change					
Impact 4.13.1	Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would result in greenhouse gas emissions that	Action GM.3.2.3, Policy GM.3.3, Action GM.3.3.1, GM.3.3.2, LU.8.1.1, LU.8.3.3 and LU.8.3.4, Policy CE.1.2,	LCC		

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Impact	General Plan Policies and Action Items	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
would not be anticipated to conflict with the goals of AB 32 nor result in a significant impact on the environment.	Action CE.1.2.1, CE.1.2.2 and CE.1.2.3, Policy CE.1.3, Action CE.1.3.1 and CE.1.3.2, Policy CE.1.4, Action CE.1.4.1, CE.1.4.2, CE.1.4.3 and CE.1.5.1, Policy CE.4.4, Action CE.4.4.1, Policy CE.5.1, Action CE.6.2.6, Policy CE.7.1, Action CE.7.1.1, CE.7.1.2 and CE.7.1.3, Policy CE.7.2 and CE.8.1, Action CE.8.1.1, CE.8.1.2, CS.3.4.2 and CS.5.2.1, Policy CS.8.1, Action CS.8.1.1, Policy CS.10.2, Action CS.10.2.2, Policy HS.5.1, Action HS.5.1.1, Policy HS.5.2, Action HS.5.2.1, HS.5.2.2 and HS.5.2.3, Policy HS.6.1, Action HS.6.1.1 and HS.6.1.2, Policy HS.6.2, Action HS.6.2.1, HS.6.2.2 and SE.1.1.5, Policy SE.1.2, Action SE.1.3.1, SE.1.3.2, SE.1.3.3 and SE.1.3.4, Policy SE.1.4, SE.1.5, SE.1.5.1, SE.1.5.2, SE.1.5.3 and SE.3.1, Action SE.3.1.1, Policy SE.3.3, Action SE.3.3.1, SE.3.3.2,			

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Impact	General Plan Policies and Action Items	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
	SE.3.3.3, SE.3.3.4, SE.3.3.5 and SE.3.3.6, Policy SE.3.4, Action SE.3.4.1, SE.3.4.6, SE.4.1.1, SE.4.1.3 and SE.4.2.4, Policy SE.4.3, Action SE. 4.3.1, SE.4.4.2, SE.4.4.3, SE.4.4.4, SE.4.5.1, SE.4.5.3, SE.4.6.2, SE.5.1.6, SE.5.1.7, SE.5.4.1 and SE.5.4.2, Policy SE.6.1, Action SE.6.1.3 and SE.6.2.1, Policy SE.7.1, Action SE.7.2.3 and SE.7.2.4, Policy SE.7.4, SE.7.8, and SE.8.6, Action SE.8.6.5, Policy SE.8.7, Action SE.8.7.1, SE.8.7.5, SE.8.10.1, and SE.8.10.3, Policy SE.9.1, Action SE.9.1.1, SE.9.1.2, SE.9.1.3, Policy SE.9.4, and SE.9.5, Action SE.9.5.1, SE.9.5.2 and SE.9.5.3			
Impact 4.13.2 Environmental effects of climate change are not currently expected to result in adverse impacts to the General Plan Update Planning Area.	Policy CS.5.1 and CS.5.2, Action CS.5.2.1, Policy CS.7.1, CS.7.2, CS.7.3 and CS.7.4, Action CS.7.4.1, HS.1.1.2, HS.1.1.3 and HS.2.1.3, Policy HS.2.2, Action HS.2.2.1, Policy	LCC	None required.	LCC

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Impact		General Plan Policies and Action Items	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
		HS.2.4, Action HS.2.4.1, Policy HS.4.1, Action HS.4.1.1, HS.4.1.2, HS.4.1.5 and HS.4.1.6. Policy HS.4.2, OS.1.1, OS.1.7, OS.1.8, OS.2.1, and SE.9.1, Action SE.9.1.1, SE.9.1.2 and SE.9.1.3, Policy SE.9.3, Action SE.9.3.1, SE.9.3.2 and SE.9.3.3			
Impact 4.13.3	Development under the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would increase the consumption of energy associated with electrical, natural gas, and vehicle fuel.	Action GM.3.2.3, GM.3.3.1, GM.3.3.2, LU.8.1.1, LU.8.3.3 and LU.8.3.4, Policy CE.1.2, Action CE.1.2.1 and CE.1.2.2 Policy CE.1.3, Action CE.1.3.2, Policy CE.1.4, Action CE.1.4.1, CE.1.4.2 and CE.1.4.3, Policy CE.4.4, Action CE.4.4.1, Action CE.6.2.6, Policy CE.7.1 and HS.5.1, Action HS.5.1.1, Policy HS.5.2, Action HS.5.2.1, HS.5.2.2 and HS.5.2.3, Policy HS.6.1, Action HS.6.1.2, HS.6.2.2 and SE.1.1.5, Policy SE.1.2, Action SE.1.3.1, SE.1.3.2, SE.1.3.3 and SE.1.3.4, Policy SE.1.4, SE.1.5.1, SE.1.5.2 and	LCC	None required.	LCC

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Impact	General Plan Policies and Action Items	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
	SE.1.5.3, Action SE.3.4.1, SE.3.4.6, SE.4.1.1, SE.4.1.3 and SE.4.2.4, Policy SE.4.3, Action SE. 4.3.1, SE.4.4.2, SE.4.4.3, SE.4.4.4, SE.4.5.1, SE.4.5.3, SE.6.1.3 and SE.6.2.1, Policy SE.7.8, Action SE.8.6.5, Policy SE.8.7, Action SE.8.7.1, SE.8.7.5, SE.8.10.1, and SE.8.10.3.			

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3.0 Project Description

3.1 INTRODUCTION

This section of the Draft Environmental Impact Report (Draft EIR; DEIR) describes the proposed City of Pinole General Plan Update (project). A general description of the project's technical and environmental characteristics is provided. This section also describes the objectives of the project, as well as the approvals and entitlements necessary to implement it.

For a description of the background, purpose, intended use, and type of environmental impact Report (EIR), as well as a list of agencies that are expected to use the EIR in their decision-making or permitting process, the reader is referred to Section 1.0, Introduction, of this DEIR. This project description has been prepared in compliance with the California Environmental Quality Act (CEQA) Guidelines Section 15124.

3.2 REGIONAL AND LOCAL SETTING

PROJECT LOCATION

The City of Pinole (City) is located in the San Francisco Bay Area, on the shores of San Pablo Bay in western Contra Costa County (see **Figure 3.0-1**). Contra Costa County (County) is bordered by Alameda County and San Joaquin County on the south and east, respectively. On the north, the county is bordered by the Carquinez Strait and Suisun Bay with Solano and Sacramento counties located beyond. On the west, the county is bordered by the San Pablo and San Francisco bays with Marin and San Francisco counties located beyond. Surrounding communities include the unincorporated areas of Bayview, Montalvin Manor, Tara Hills, Montara Bay, Rancho Road, and El Sobrante and the cities of San Pablo, Richmond, and Hercules.

Regional access to and from the area is provided by Interstate 80 (I-80) which bisects the city limits and connects Pinole with the metropolitan areas of San Francisco and Oakland to the west and south and Sacramento to the east. Additionally, the city is linked to central Contra Costa County and the cities of Martinez, Concord, and Pleasant Hill by State Route 4 (SR 4), which begins just north of the city limits and connects with Interstate 680 (I-680).

The city currently occupies approximately 11.6 square miles, or 7,438 acres including 3,490 acres of land, and 3,948 acres of water within San Pablo Bay. The existing General Plan Land Use Map shows the current Sphere of Influence (SOI) to contain an additional 1.7 square miles, or 1,105 acres. The SOI boundary is set by the Local Agency Formation Commission (LAFCo) as a representation of the likely ultimate extent of the city limits and service area limits. The City of Pinole SOI includes two areas beyond the existing city limits, as follows:

- Lands just beyond the southwestern city limits near the City of San Pablo and bordered to the south by Richmond Parkway; and
- Lands just south of the city limits near the unincorporated area of El Sobrante.

The General Plan Update (GPU) Planning Area boundary includes the area within the city limits as well as the existing SOI. The GPU Planning Area encompasses a total of approximately 13.3 (11.6 square miles in the city + 1.7 square miles in the SOI = 13.3) square miles, or 8, 543 acres (3,490 acres of land + 3,948 acres of water within the city limits + 1,105 acres within the SOI = 8,543 acres). The reader is referred to **Table 3.0-1** and **Figure 3.0-2**. The scope (planning horizon) of the General Plan was identified as 20 years, with adoption expected in 2010.

PROJECT SETTING

Within the city limits there are few large undeveloped parcels that are not classified as open space or in some form of preserve.

Similar to other cities in the western portion of Contra Costa County, Pinole serves as a bedroom community to larger employment centers in Oakland and the San Francisco Bay Area. Pinole also provides regional shopping opportunities via several large shopping centers. As of January 2009, the City's population was estimated at 19,383 persons (DOF, 2009).[1]

As described above, the Planning Area is crossed by I-80. Two rail lines pass through the area; Amtrak provides service to and from the city on the Richmond-to-Stockton line. There are no air-related facilities in the GPU Planning Area. The nearest airport to the City of Pinole is Buchanan Field Airport located on Sally Ride Drive in Concord, which is approximately 17 miles east of the GPU Planning Area.

The GPU Planning Area is characterized by gently rolling hills and steep hillsides on the north and south. Much of the historic native vegetation in the area has been converted to urban and suburban uses, including parks and some open space within Duncan Canyon. Nonetheless, riparian and wetland habitats persist within the GPU Planning Area. While Pinole Creek bisects the GPU Planning Area, flood control projects have significantly altered the fluvial geometry of Pinole Creek by straightening the channel between Interstate 80 and San Pablo Bay. The Pinole Creek Watershed has been the subject of extensive study resulting in the publication of the Pinole Creek Watershed Vision Plan in 2004 by the Urban Creeks Council in partnership with the City of Pinole Redevelopment Agency (Urban Creeks Council, 2004).

Existing Land Use Designations

A summary of existing General Plan (1995) land use designations in the GPU Planning Area and in the existing city limits are provided in **Table 3.0-1** and shown in **Figure 3.0-3**.

The existing land use pattern is a mix of residential neighborhoods and commercial centers, combined with parks and open spaces. The city also includes regional shopping centers along I-80, a historic city center, and residential neighborhoods characterized by detached, single-family residences and multi-family residential units, and upslope single-family homes built on steep terrain. The city also includes open space areas include the Pinole Valley Park, Fernandez Park, and Wilson Point East Bay Regional Park, among other unimproved open space areas and community and neighborhood parks.

[1] While the Department of Finance has released the 2010 population estimate, the analysis in this EIR was based on the Notice of Preparation issued in 2009.

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Figure 3.0-1
Regional Location Map

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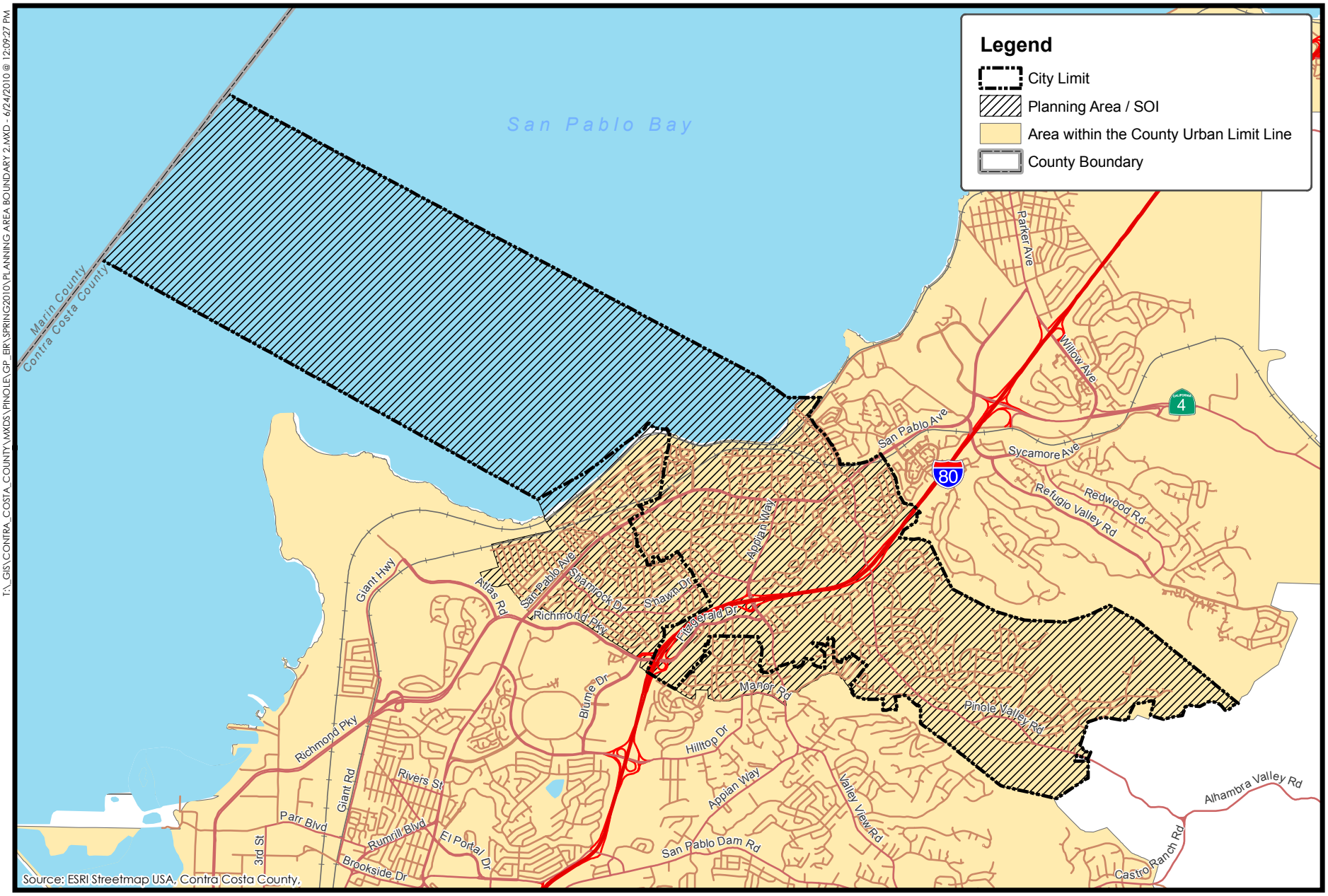

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Figure 3.0-2
Planning Area

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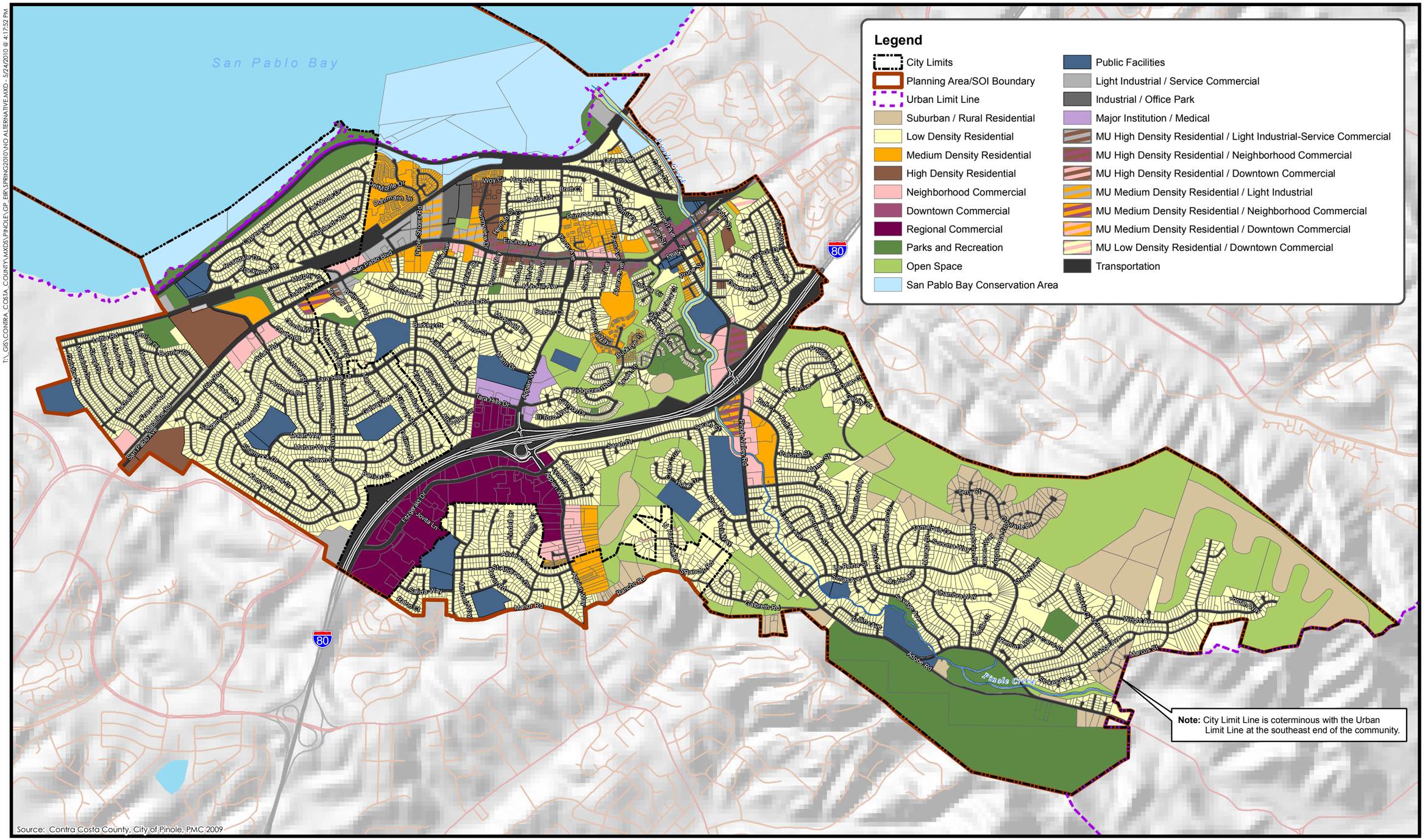

Figure 3.0-3
Existing Land Use Map

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TABLE 3.0-1
EXISTING LAND USES BY DESIGNATION WITHIN PLANNING AREA

General Plan Land Uses by Designation	City Only	Sphere of Influence[1]	Total Planning Area[1]	% of Total
Downtown Commercial (DC)	6	0	6	0.1
Neighborhood Commercial (NC)	49	14	63	0.7
Regional Commercial (RC)	129	0	129	1.5
Industrial Office Park (I-OP)	14	0	14	0.2
Light Industrial Service Commercial (LISC)	14	11	25	0.3
Major Institution/Medical (MI-M)	18	0	18	0.1
High Density Residential (HDR)	18	44	62	0.7
Medium Density Residential (MDR)	127	21	148	1.7
Low Density Residential (LDR)	1,091	602	1,693	19.8
Suburban/Rural Residential (SRR)	252	9	261	3.1
Mixed Use High Density Residential/Downtown Commercial (MU-HDR-DC)	7	0	7	0.1
Mixed Use High Density Residential/Light Industrial-Service Commercial (MU-HDR-LISC)	1	0	1	0.0
Mixed Use High Density Residential/Neighborhood Commercial (MU-HDR-NC)	23	0	23	0.3
Mixed Use Low Density Residential/Downtown Commercial (MU-LDR-DC)	2	0	2	0.0
Mixed Use Medium Density Residential/Light Industrial (MU-MDR-LI)	13	0	13	0.2
Mixed Use Medium Density Residential/Neighborhood Commercial (MU-MDR-NC)	9	2	11	0.1
Public Facilities (PF)	93	65	158	1.9
Open Space (OS)	624	9	633	7.4
Parks and Recreation (PR)	277	52	329	3.9
San Pablo Bay Conservation Area (SPBCA)	222	77	299	3.5
Open Water (San Pablo Bay)	3,948	0	3,948	46.2
Transportation Right-of-Way	501	195	696	8.2
Total	**7,438**	**1,101**	**8,539**	**100.0**

1 Differences in totals due to rounding.
Source: City of Pinole General Plan 2009

Downtown Commercial

The Downtown Commercial land use designation supports a wide range of retail, service, restaurant and office uses with higher-density residential uses located above the ground floor.

Parking needs are met through the use of public parking lots or structures. This designation applies to Old Town. Maximum Floor Area Ratio (FAR): 1.5. Maximum Building Height: 40 feet.

Neighborhood Commercial

The Neighborhood Commercial land use designation is reserved for small neighborhood convenience shopping centers whose primary focus is to provide convenient sources of everyday needs such as supermarkets, bakeries, drugstores, dry cleaners, real estate offices, other professional offices, and personal services. This designation applies to Pinole Valley Shopping Center, Del Monte Shopping Center, Nob Hill Center, Depot Center, Tara Hills Shopping Center, and at convenient locations along San Pablo Avenue and Pinole Valley Road. Maximum FAR: .30. Maximum Building Height: 30 feet.

Regional Commercial

The Regional Commercial land use designation is intended for large regional shopping centers and districts oriented toward the West County market area. Uses may include large retailers, such as furniture, appliance, auto and hardware stores, department stores, toy stores, offices, hotels, and restaurants. This designation applies to Pinole Vista and the Appian 80 shopping centers. Maximum FAR: .40. Maximum Building Height: 50 feet.

Light Industrial/Service Commercial

The Light Industrial/Service Commercial land use designation is intended for areas which provide citywide services and industrial-related activities. Uses include automobile and truck repair, auto sales, building materials, contractor's storage yards, wholesaling, warehousing, light manufacturing, and research and development industries. A limited amount of general office use and residential may be permitted as an accessory use in conjunction with the primary use. Maximum FAR: 1.0. Maximum Building Height: 50 feet.

Major Institution/Medical

The Major Institution/Medical land use designation includes private and public institutional community services and medical offices in association with Doctors Hospital, congregate care facilities, sanitariums, and pet hospitals. This designation allows other services and retail associated with institutional or medical uses. Maximum FAR: 1.0. Maximum Building Height: 75 feet.

High Density Residential

The High Density Residential land use designation provides for higher-density multi-family areas, typically up to three stories, usually located near transportation corridors, major stints, and commercial areas.

Medium Density Residential

The Medium Density Residential land use designation is intended for attached units, typically two to three stories, which include on-site usable open space. The land use would include town homes, apartments, condominium developments, and planned unit developments.

Low Density Residential

The Low Density Residential land use designation provides for single-family development that is typical most residential areas of the city. This is the single largest residential category. One dwelling unit per parcel, with the potential for a secondary dwelling unit with an approved Use Permit (identified as an adopted Housing Element program). Other uses which are potentially compatible with single-family neighborhoods but require Use Permits include, but are not limited to, religious facilities, day care and group care facilities, schools, cemeteries, and home occupations subject to compliance with City standards.

Residential – Suburban/Rural Density

The Suburban/Rural Residential land use designation includes sites characterized by steep slopes which have geologic and seismic constraints and which have community visual significance or have been identified as having very limited development potential through prior development approvals. This designation is typical of sensitive hillside areas in the GPU Planning Area, with clustering of development to be consistent with surrounding uses and to protect natural resources.

Mixed Use

The Mixed Use land use designation is intended for areas where either commercial or residential uses are appropriate. Commercial uses include Service Commercial/Light Industrial and Neighborhood Commercial. Residential uses include Medium and High Density Residential. Commercial uses can be combined with residential uses if the residential use is located either above the ground floor or on a separate portion of the site. Maximum FAR: Per the Commercial and Industrial land use category. Maximum Building Height: 50 feet.

Public Facilities

The Public Facilities land use designation is reserved for uses which are public serving in nature, including religious institutions, City offices, publicly owned recreation facilities, fire and police facilities, and County buildings. For schools, letters will be used on the map to designate grade levels as either (E) elementary or (S) secondary. This designation also includes facilities owned and/or operated by public utilities to serve the public with electricity, gas, water, and communications.

Open Space

The Open Space land use designation is reserved for open lands which are vacant of structures and improvements and which are primarily maintained in their natural condition. In some cases, maintained pathways that enhance access to the open space areas are considered compatible with this designation.

Parks and Recreation

The Parks and Recreation land use designation includes public parks, City-owned conservation lands, and private open space or recreation facilities. This designation is intended for improved open space lands whose primary purpose is recreation and includes all local and regional parks. Wherever possible, school sites are to be combined with public park and recreation facilities.

San Pablo Bay Conservation Area

The San Pablo Bay Conservation Area land use designation is reserved for the portion of the GPU Planning Area that extends into San Pablo Bay and the land immediately adjacent to the bay. This is primarily an open space designation. Very limited commercial development that is directly related to, and enhances the public use of, the waterfront may also be allowed. Appropriate commercial uses include restaurants, marine-related retail, offices, and marina berths. Maximum FAR: .25. Maximum Building Height: 30 feet.

Transportation Right-of-Way

The Transportation Right-of-Way land use designation is designated public or private right-of-way for transportation use. The designation includes Caltrans right-of-way, railroad corridors which provide transportation (portions of the railroad corridor not required for transportation purposes may be considered for other uses), and other mass transit right-of-way (such as for BART).

In addition, though not included as a separate land use designation in the current General Plan, the City of Pinole also contains three primary transportation corridors each with its unique mix of land uses: Appian Way, Pinole Valley Road, and San Pablo Avenue. The existing land uses in these corridors are described in more detail below:

Appian Way

Located on the western side of Pinole, Appian Way is four lane roadway and one of the City's two main north-south arterials. The northern end of Appian Way, at the intersection with San Pablo Avenue, contains a mix of residential, retail, and office uses, reflective of the mixed-use character of San Pablo Avenue. Traveling south, this land use pattern quickly gives way to single family residential development as well as an area of steep, undeveloped hillsides, where the topography requires deep setbacks and prevents intensive development. Near the intersection with Tara Hills Drive, the recently-closed Doctors Hospital occupies a large and prominent site along the eastern edge of the Appian Way corridor and looks across Appian Way to a school site and small medical office complex. Just north of I-80, Appian 80, an aging Safeway-anchored neighborhood shopping center, is the largest retail development along the northern section of the Corridor. South of I-80 and adjacent to Appian Way, much of Pinole's region-serving retail is concentrated along Fitzgerald Drive in the Pinole Vista shopping centers. Otherwise, the remaining southern stretch of the Corridor, continuing to Dalessi Drive, includes a somewhat disjointed mix of uses, which include professional offices, a motel, a self-storage site, a retirement home, single-family homes, and small businesses operating from converted single-family residences (City of Pinole, 2009).

Pinole Valley Road

Located on the eastern edge of the City, Pinole Valley Road is the City's other main north-south arterial. South of I-80 is the Pinole Valley Shopping Center and north of the I-80 Kaiser Permanente has constructed a 60,000 square foot medical office building on a five acres site adjacent to the freeway. Although there are some vacant sites on Pinole Valley Road, the corridor is largely built out and geographically constrained. Much of the southern portion of the Pinole Valley Road corridor is dedicated to retail and office uses, as well as a high school. Medical and other office uses are found just north of the freeway, while single-family residences and an elementary school dominate the northern-most portion of the Pinole Valley Road corridor (City of Pinole, 2009).

San Pablo Avenue

San Pablo Avenue is a 14-mile major arterial street connecting seven cities from northwestern Contra Costa County to southwestern Alameda County. Located at the eastern edge of Pinole along San Pablo Avenue is Old Town, which contains many historic commercial and residential buildings and a mix of office space, specialty retail, cafes and restaurants. West of Old Town is an eclectic mix of multi-family residential, small office and retail complexes, building materials sales, auto repair services, public storage, and light industrial uses. At the intersection of Sunnyview and San Pablo Avenue, the Sunnyview Plaza contains a variety of light industrial and service commercial uses. The Del Monte Shopping Center, located between Pinole Shores Road and Del Monte Drive, is a 44,000 square-foot neighborhood shopping center that is the corridor's largest retail center. Farther west on San Pablo Avenue, businesses include several auto-related service shops, and two fully occupied 1970's-era retail strip centers. Recent development activity on this section of the San Pablo Avenue corridor includes the construction of Phase I of the Pinole Shore Business Park, containing industrial/flex condominiums totaling roughly 60,000 square feet. (City of Pinole, 2009).

Between1995 and 2009, the City has undertaken a number of General Plan Amendments for:

- 2.69 acres from Low and Medium Density Residential to Mixed Use Medium Density Residential/Downtown Commercial in 1996;
- 1.18 acres from High Density Residential to Mixed Use Medium Density Residential/Downtown Commercial in 1997;
- 0-68 acres from Low Density Residential to Medium Density Residential in 1998;
- 1.52 acres from Mixed Use Neighborhood Commercial & High Density Residential to Mixed Use - Light Industrial/Service Commercial & Medium Density Residential in 2000;
- 0-55 acres from Neighborhood Commercial to Mixed Use - Neighborhood Commercial and High Density Residential; and 2.05 acres from Parks and Recreation to Public Facilities, in 2001;
- 0.59 acres from Open Space to Low Density Residential in 2002;
- 0.29 acres from Neighborhood Commercial to Mixed Use Neighborhood Commercial & High Density Residential in 2004;
- 15.75 acres from Medium Density Residential Light Industrial/Service Commercial to Industrial/Office Park in 2005; and,
- 0.21 acres from Neighborhood Commercial to Infill Development in 2009.

Similarly, the City has undertaken a number of re-zones between 1995 and 2009.

- 3.33 acres of PD-Planned Development was rezoned to R-1 Single Family Residential; and 2.11 acres of PD-Planned Development was rezoned to R-I Single Family Residential in 1995;
- 2.69 acres of R-4 General Apartment, R-3 Neighborhood Apartment, C-2 Central Business Commercial, C-1 Cottage Industry, R-1 Single Family Residential, PD-Planned

Development was rezoned to R-4 General Apartment, C-2 Central Business Commercial, C-1 Cottage Industry, R-1 Single Family Residential, OS-Open Space; and a certain acreage was rezoned from R-3 Neighborhood Apartment, C-2 Central Business Commercial, C-3 General Commercial, R-1 Single Family Residential, PD-Planned Development to R-4 General Apartment, C-2 Central Business Commercial, C-1 Cottage Industry, R-1 Single Family Residential, OS-Open Space, in 1996;

- 0.66 acres was rezoned from C-1 Neighborhood Commercial to MU-Mixed Use in 1998;

- 0.11 acres was rezoned from C-2 Central Business to MU-Mixed Use; 0/20 acres was rezoned from C-3 General Commercial to MU-Mixed Use; 57.39 acres was rezoned from R-4 General Apartment to PD-Planned Development; 0.11 acres was rezoned from R-4 General Apartment to MU-Mixed Use; and 0.85 acres was rezoned from R-1 Single Family Residential to R-2 Two Family Residential and R-4 General Apartment, in 1999;

- 0.56 acres was rezoned from C-2 Central Business to MU-Mixed Use; and 1.52 acres was rezoned from C-3 General Commercial to PD-Planned Development in 2000;

- 2.59 acres was rezoned to PD-Planned Development and R-1 Single Family Residential; and 0.23 acres was rezoned from C-1 Neighborhood Business to MU-Mixed Use Neighborhood Commercial/High Density Residential (16-25 units per acre) in 2001;

- 2.05 acres was rezoned from OS-Open Space to PR-Parks and Recreation; and 2.54 acres of R-3 Neighborhood Apartment was rezoned to PD-Planned Development in 2002;

- 6.25 acres was rezoned from PD-Planned Development to C-3 General Commercial; and 0-56 acres was rezoned from C-1 Neighborhood Business and R-3 Neighborhood Apartments to PD-Planned Development; and 0.61 acres was rezoned from C-3 General Commercial to PD-Planned Development in 2003;

- 2.5 acres was rezoned to R-1 Single Family Residential; and 0.19 acres was rezoned from C-1 Neighborhood Business to MU-Mixed Use; and 0.07 acres was rezoned from C-2 Central Business to MU-Mixed Use; and 0.29 acres was rezoned from C-1 Neighborhood Business to MU-Mixed Use; and 0.80 acres was rezoned from R-1 Single Family Residential to R-4 General Apartment in 2004;

- 0.10 acres was rezoned from M-2 General Industrial to MU-Mixed Use; and 0.18 acres was rezoned from C-1 Neighborhood Business to MU-Mixed Use; and 0.42 acres was rezoned from C-2 Central Business to R-1 Single Family Residential; and 0.20 acres was rezoned from C-2 Central Business to MU-Mixed Use; and 0.23 acres was rezoned from C-2 Central Business to MU-Mixed Use; and 15.75 acres was rezoned from M-1 Light Industrial, M-2 General Industrial, R-4 General Apartment to PD-Planned Development Light Industrial/Office in 2005;

- 0.28 acres was rezoned from MU-Mixed Use to PD-Planned Development in 2008; and,

- 0.21 acres was rezoned from C-3 General Commercial to PD-Infill Development in 2009.

Existing Zoning Districts

The City's Zoning Code establishes zoning districts based on the General Plan land use designations listed in **Table 3.0-1** above. These zoning districts are summarized in **Table 3.0-2**.

TABLE 3.0-2
EXISTING ZONING DISTRICTS WITHIN THE CITY OF PINOLE

Zoning District	Description	General Plan Land Use Designation	Minimum Lot Size
General Districts			
S/R	Suburban/rural residence district	Single-family residential in hill area terrain	65,000 square feet
R-1	Single-family residence district	Single-family residential in developed area	6,000 square feet for interior lots; 7,500 square feet for corner lots
R-2	Two-family residence district	Two-family residential in developed area	6,000 square feet
R-3	Neighborhood apartment district, three-family and four-family	Three- and four-family dwellings	6,000 square feet
R-4	General apartment district	Group dwellings and apartments	6,000 square feet for each permitted use
PF	Public facilities district	Public, quasi-public and institutional uses	6,000 square feet
C-1	Neighborhood business district	Shopping and service facilities in proximity to residential areas	Minimum 5,000 square feet
C-2	Central business district	General business facilities for public service and convenience	5,000 square feet
C-3	General commercial district	General commercial facilities for public service and convenience	No regulations
SC	Service commercial district	Centralized areas with general commercial facilities near industrial concentrations	No regulations
PA	Professional and administrative district	Medical, dental, professional and administrative offices	6,000 square feet
M-1	Light industrial district	Light industrial uses	No regulations
M-2	General industrial district	General industrial uses	No regulations
M-L	Limited industrial district	Business, professional, research and technical manufacturing uses which have unusual requirements for space, light and air	10,000 square feet
OS	Open space district	Open space lands	No minimum required
PR	Parks and recreation district	Public parks and recreation facilities	No regulation
SPC	San Pablo Bay conservation district	Area extending into and land adjacent to San Pablo Bay	No regulation
PD	Planned development district	Development with variations in siting, mixed land use mixed housing types and integrated design techniques, which complement surrounding uses.	As per the development proposal

Zoning District	Description	General Plan Land Use Designation	Minimum Lot Size
Combining Districts			
A	Special agricultural district	N/A	N/A
B	Special building site district	N/A	N/A
CD	Special civic center district	N/A	N/A
F	Special highway frontage district	N/A	N/A
FP	Special floodplain district	N/A	N/A
H	Special height district	N/A	N/A
HP	Special historic preservation district	N/A	N/A
HP-L	Special historic preservation district	N/A	N/A
MU	Special mixed use district	N/A	(a)For residential uses located to adjacent residential, 6,000 square feet. (b) For commercial and mixed uses, minimum 5,000 square feet
OTP	Special old town parking	N/A	N/A

3.3 COMPONENTS OF THE PROPOSED PROJECT

The proposed project is adoption and implementation of an updated General Plan, updated Zoning Code, and Three Corridors Specific Plan by the City of Pinole.

PROJECT OBJECTIVES

The overall vision for the General Plan is to "Build a City" that is a vibrant destination location in the region and intentionally seeks change in land use for profound improvement in the city. It also expresses a vision for the future where sustainable development and land use practices provide for the needs of existing residents and businesses while preserving choices for future generations. The following is the General Plan Vision Statement presented to the General Plan Steering Committee in October 2008.

> A sustainable community where the citizens act as stewards for the environment, the economy, and the social equality of the community. Preserving Pinole's historic past, while maintaining a healthy economy for all members of the community now and in the future.

The objectives of the proposed project, which also serve as the goals of the proposed General Plan Land Use Element, are as follows:

- Preserve and enhance the natural resource, high-quality residential neighborhoods and commercial areas, and small-town (semi-rural) character of Pinole.

- Assure the City takes an active leadership role coordinating planning with neighboring jurisdictions and other public agencies.
- Preserve historic resources and ensure high-quality site planning and design.
- Preserve and strengthen the identity and quality of life of Pinole's residential neighborhood.
- Assure any development of environmentally sensitive sites protects important natural resources and recognizes hazard constraints.
- Protect and enhance the natural resources of the San Pablo Bay waterfront for the enjoyment of Pinole residents.
- Balance housing and employment opportunities to reduce trips in and out of the region and encourage commercial development which maintains and enhances the quality of the city's commercial areas, provides services for residents and broadens the tax base of the community to provide needed revenues for public services.
- Concentrate commercial development and mixed-use activity areas within the three main transportation corridors so as to provide needed services and tax revenues while enhancing the overall character of the community.

Each element of the General Plan addresses more than one of these objectives and establishes goals and policies in the proposed General Plan.

To Implement the General Plan, the City proposes to adopt a Specific Plan that will be used as a regulatory and economic development tool to guide development along all three corridors and take advantage of underutilized properties and other community assets. The Specific Plan establishes a vision for the San Pablo Avenue, Appian Way, and Pinole Valley Road corridors and identifies urban design tools, development standards and administrative practices that would be used to accomplish the vision. Similarly, the City proposes to adopt a Zoning Code to set forth and coordinate City regulations governing the development and use of land in accordance with the City of Pinole General Plan.

General Plan Elements

State law requires that general plans address seven elements: land use, circulation, housing, conservation, open space, noise, and safety. These elements can be individual chapters, or combined as appropriate. In addition, each element includes a matrix that identifies which policies and action items are being carried over from the current, or 1995 General Plan, and which policies and action items are being added under the proposed General Plan Update.

The proposed General Plan contains the following elements:

Proposed General Plan Element Title	Government Code Section and Topic	Required
Land Use and Economic Development	65302(a) Land Use	Yes
Circulation	65302(b) Circulation	Yes
Housing	65302(c) Housing	Yes
Natural Resources and Open Space	65302(d) Conservation	Yes

Proposed General Plan Element Title	Government Code Section and Topic	Required
	65302(e) Open Space	
Health and Safety	65302(f) Noise 65302(g) Safety	Yes
Community Services and Facilities	N/A – optional element	No
Growth Management	N/A – optional element but required in Contra Costa County per Measure J	No
Sustainability	N/A – optional element	No
Community Character	N/A – optional element	No

Following is a brief description of the intent of each General Plan element. A more detailed analysis of each element is included as applicable in the subsequent EIR chapters.

Land Use and Economic Development (Required Element)

The Land Use and Economic Development Element provides the central framework for the General Plan and serves as a compass to guide planners, the general public, and decision makers on the desired pattern of development in the city. The element describes both existing and future land use activity, the latter of which is designed to achieve the City's long-range goals for physical development. The element provides land use designations for all of the land within the GPU Planning Area based on the expected type of development. While some of the land use designations are individual, others encourage a mix of land use types (e.g. commercial and residential) and allow an increase in densities to support infill or redevelopment. The land use designations also specify maximum density and intensity of development that can occur.

Proposed General Plan Land Use Map

Figure 3.0-4 shows the proposed General Plan Land Use Map. The Land Use Map shows the General Plan Planning Area/SOI that extends outside the current city limits. The Planning Area represents the area which the City envisions may ultimately be included in the incorporated city limits. Outside the city limits, this General Plan is purely advisory. The planning horizon of the General Plan was identified as 20 years, with adoption expected in 2010. The land use designation map (**Figure 3.0-4**) sets forth a range of land use classifications, including varying residential densities, commercial, office, industrial, parks, and open space designations. The land use map is intended to work in concert with a series of guiding and implementation policies contained in each specific element. **Table 3.0-3** below summarizes Year 2030 (proposed project) land uses by the total acreage of each land use type.

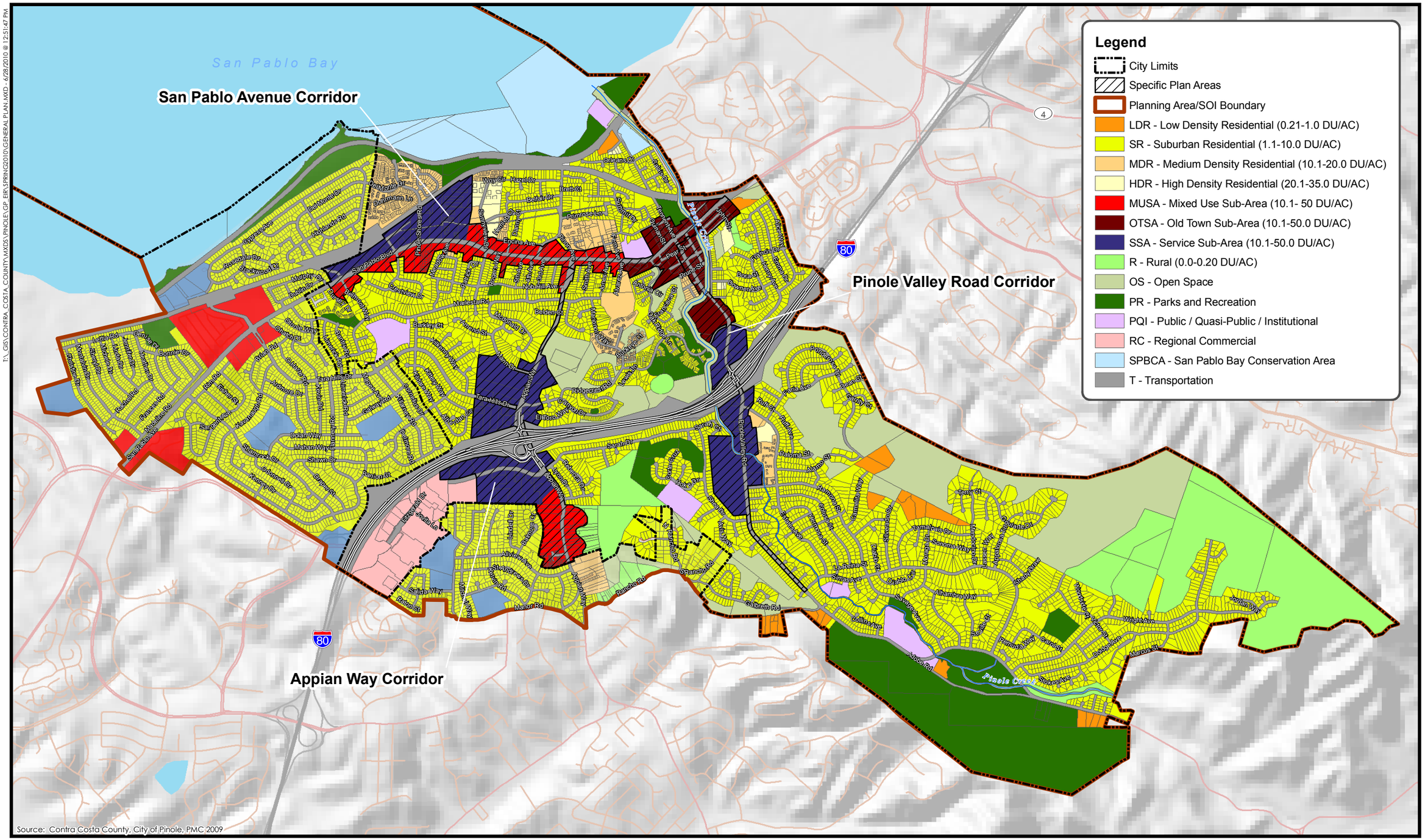

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Figure 3.0-4
Proposed General Plan Land Use Map

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TABLE 3.0-3
PROPOSED GENERAL PLAN YEAR 2030 LAND USES

Land Use Designation	City Only	Sphere of Influence[1]	Planning Area Total[1]
Regional Commercial	71	0	71
High Density Residential	19	0	19
Medium Density Residential	97	12	109
Low Density Residential	22	0	22
Suburban Residential	1,161	602	1,763
Rural	314	9	323
Public/Quasi-Public/Institutional	46	80	126
Parks and Recreation	294	37	331
Open Space	382	10	392
San Pablo Bay Conservation Area	158	0	158
Old Town Sub-Area	52	0	52
Service Area Sub-Area	179	0	179
Mixed Use Sub-Area	74	71	145
Transportation	594	232	826
Open Water (San Pablo Bay)	3,975	50	4,025
Total	**7,438**	**1,101**	**8,539**

1 Differences in totals due to rounding.
Source: City of Pinole General Plan 2009

Proposed General Plan Land Use Categories

Regional Commercial

Intended for large regional shopping centers serving the West County market area. Uses may include large retailers such as furniture, appliance, auto and hardware stores, department stores, toy stores, offices, hotels and restaurants. This designation would apply to areas along Interstate 80 that are not within the Three Corridors Specific Plan Area described below. An example is the Pinole Vista Shopping Center. Maximum Floor Area Ratio (FAR): 0.40.

Low Density Residential (0.21 to 1 unit per acre)

Includes sites located adjacent to open space areas or near environmental resources where a development transition from suburban to rural land use is desirable. This designation is typical of sites where larger lot sizes are appropriate to ensure flexible siting and design to maintain scenic and environmental resources.

Suburban Residential (1.1 to 10 units per acre)

Provides for single-family development that is typical of most residential areas of the city. This is the single largest residential category. One dwelling unit per parcel, with the potential for a secondary dwelling unit. Other uses which may be considered potentially compatible with

single-family neighborhoods include, but are not limited to, religious facilities, daycare and group care facilities, schools, cemeteries and home occupations subject to compliance with City standards.

Medium Density Residential (10.1 to 20 units per acre)

Intended for attached dwelling units, typically two or three stories, which include on-site usable open space. Medium Density Residential land use would include town homes, apartments, condominiums and planned unit developments.

High Density Residential (20.1 to 35 units per acre)

Provides for higher-density multi-family areas, typically two or three stories, usually located near transit corridors or arterial roadways and located in close proximity to commercial services.

Rural (0.0 to 0.20 units per acre)

Includes sites where development shall be clustered to preserve at least 90% of the property in a natural condition and predominantly free of development in order to protect visual and environmental resources. This designation is typical for sites that are characterized by steep slopes, contain environmental resources, have visual significance in the community, are integral to riparian systems, or which have been identified as having limited development potential due to service delivery constraints. These parcels also create opportunities for urban agriculture uses, including agricultural parks and specialty crop farming. Other uses, such as telecommunications facilities, solar collectors, and wind energy conversion systems, may be considered provided they are designed to preserve the natural landscape. These areas help preserve remaining natural landscapes. In certain areas of the city, they can also provide open space buffers between Pinole and neighboring communities, serve as fire breaks, provide connections between neighborhoods and recreational areas, and may provide an educational resource.

Public/Quasi-Public/Institutional

Reserved for uses which are public-serving in nature, including religious institutions, City and other government offices, publicly owned recreation facilities, and fire and police facilities. For schools, letters will be used on the map to designate grade levels as (ES) elementary, (MS) middle school or (HS) high school. This designation also includes facilities owned and/or operated by public utilities to serve the public with electricity, gas, water and communications.

Parks and Recreation

Includes public parks, City-owned conservation lands, and private open space or recreation facilities. This designation is intended for improved open space lands whose primary purpose is recreation and includes all local and regional parks. Wherever possible, school sites shall be combined with public park and recreation facilities.

Open Space

Reserved for public and private undeveloped lands which are vacant of structures and improvements and which are primarily maintained in their natural condition and designated as open space. In some cases, maintained pathways or access routes, which enhance access to the open space areas, may be considered suitable for this designation.

San Pablo Bay Conservation Area

Reserved for the portion of the Pinole Planning Area that extends into San Pablo Bay and the land immediately adjacent to San Pablo Bay. This is primarily an open space designation with a few other possible uses such as for expansion of the Pinole-Hercules Water Pollution Control Plant, railroad corridors, passenger rail stations, recreation facilities such as the Bay Trail, or flood protection improvements. In addition, very limited commercial development which is directly related to, and enhances the public use of, the waterfront may also be allowed. Appropriate commercial uses may include limited food establishments, marine-related recreational uses, marine-related retail, offices and marina berths. City uses such as water pollution control, corporation yard and parks are also allowed uses. Maximum FAR: 0.25.

Transportation

Designated transportation corridors that accommodate movement of goods and services through the city, regional trips and transit service. The designation includes Caltrans rights-of-way, railroad corridors which provide transportation (portions of the railroad corridor not required for transportation purposes may be considered for other uses), San Pablo Avenue, Appian Way, portions of Pinole Valley Road, and other mass transit rights-of-way.

Community Services and Facilities (Optional Element)

The Community Services and Facilities Element is an optional Element and is included in this General Plan to address important issues related to how new development will affect the City's ability to provide community services and facilities. This Element concerns the public infrastructure and facilities. While this Element also addressed operational and programmatic issues are considered, it is primarily concerned with the provision of capital facilities.

Circulation (Required Element)

This Element includes policies and actions addressing a broad range of topics related to infrastructure, and the physical systems of roads, trails, walkways, etc., that access to the land uses within the GPU Planning Area. Key to this element is the map that illustrates the existing and proposed circulation network. The reader is referred to the Circulation Element in the proposed General Plan for further details on this Element and the map of the existing and proposed circulation network. The Circulation Map identifies roadways (existing and proposed) by their classification type: state highway, arterial (major and minor), and collector. The Circulation Element contains specific goals and policies pertaining to the classification system. Modifications proposed to the main corridors addressed in the Specific Plan are included for: San Pablo Avenue, Pinole Valley Road, and Appian Way.

Housing Element (Required Element)

The Housing Element is the only Element that must be updated approximately every five years and is also subject to review and certification by the State of California Department of Housing and Community Development. Certification by the state is important to enable the city to receive some state grants. The housing element was prepared and is scheduled to be adopted separately by the City of Pinole in July 2010, and it is not included as part of this proposed General Plan Update process, and therefore not analyzed in this DEIR. The housing element covers a period that began on January 1, 2007 and ends on June 30, 2014.

Natural Resources and Open Space Element (Required Elements of Conservation and Open Space)

This Element addresses resource conservation, including enhancement of the environment through protection of resources, preservation of biological resources, and water and energy conservation. This Element also identifies the need to protect and preserve existing open space and natural recreational areas, as well as the need to maintain those areas and create additional areas for the enjoyment of residents and the protection of the environment. This element also addresses resource issues such as water supply and quality, soils, biology, air, visual impacts and energy.

Health and Safety Element (Required Element of Safety, plus additional topic of Health)

This Element includes goals, policies, and actions intended to minimize the potential risk of death, injuries, property damage, and economic hardship and social displacement resulting from fires, floods, earthquakes, landslides, and other hazards. Additionally, this Element addresses safety and hazards related to groundwater contamination, noise, air quality, water quality, the potential release of hazardous materials into the community, and general issues related to healthcare, police and fire protection services.

Growth Management Element (Locally Required Element)

The purpose of the Growth Management Element of the Pinole General Plan is to establish policies and level of service standards for growth management and traffic, and performance standards for fire, police, parks, sanitary facilities, water and flood control in order to ensure generally that public facilities are provided consistent with the adopted standards for roadways, response time objectives for fire and police, acreage requirements of recreational land uses (at one acre per 1,000 persons), and policies related to water use, wastewater disposal, and flood control. In addition, the Growth Management Element meets all the requirements of Measure J, a Growth Management Program approved by the Contra Costa County voters in 2004, and effective April 1, 2009.

Sustainability Element (Optional Element)

This element establishes policies and action items that promote sustainability for the environment and the local economy and help establish equity for all people. The Sustainability Element also addresses the emission of greenhouse gases resulting from General Plan implementation and its impact on climate change.

Community Character Element (Optional Element)

The Community Character Element of the General Plan is best defined as an element that will preserve and enhance, and strengthen Pinole's feel of "sense of place" and unique identity. This element intends to incorporate that feel in existing facilities, buildings and features as well as in new growth and development in Pinole; influence the future physical form of the community by guiding the quality and character of future development; and protect the existing natural and built environment that define the City of Pinole's character.

THREE CORRIDORS SPECIFIC PLAN

Three roadway corridors are proposed for revitalization in the Specific Plan for San Pablo Avenue, Pinole Valley Road, and Appian Way (see **Figures 3.0-5** through **3.0-8**).

Land uses within these three Corridors are described in the Specific Plan, with specific policies and directives established for each corridor.

- **San Pablo Avenue** – The Specific Plan establishes seven land use districts for this area. These districts will facilitate San Pablo Avenue's transformation from its current land use configuration to the one described by the Specific Plan's vision of a narrowed, pedestrian-oriented corridor.

- **Pinole Valley Road** – The Specific Plan establishes five land use districts for this project area. The Specific Plan establishes policies that seek to focus commercial activities in combination with office and residential uses to make Pinole Valley Road into a pedestrian-oriented corridor.

- **Appian Way** – The Specific Plan established five land use districts for this project area. The Plan seeks to focus commercial, office, and residential uses to make Appian Way into a regional service and commercial corridor. The Specific Plan also establishes policies to give preference to replacing vacated and underutilized commercial areas with new office professional and commercial developments and increasing the density of a few existing residential areas along the corridor.

Proposed land uses within each of the Specific Plan corridors are summarized in **Table 3.0-4** below.

TABLE 3.0-4
PROPOSED SPECIFIC PLAN YEAR 2030 LAND USES

Specific Plan Area	Land Use Designation	Acres	Percentage of Specific Plan Area
San Pablo Avenue Corridor	Commercial Mixed Use	39.2	34.0
	Office Industrial Mixed Use	35.4	30.7
	Public/Quasi-Public/Institutional	3.9	3.4
	Very High Density Residential	6.2	5.4
	Medium Density Residential	13.5	11.7
	Residential Mixed Use	15.9	13.8
	Open Space	1.2	1.0
San Pablo Avenue Corridor Sub-Total		*115.3*	*100.0*
Pinole Valley Road Corridor	Commercial Mixed Use	19.4	24.8
	Office Professional Mixed Use	11.3	14.5
	Public/Quasi-Public/Institutional	35.6	45.5
	High Density Residential	1.7	2.2
	Medium Density Residential	6.8	8.7
	Open Space	3.4	4.3
Pinole Valley Road Corridor Sub-Total		*78.2*	*100.0*
Appian Way Corridor	Commercial Mixed Use	70.8	63.7
	Office Professional Mixed Use	8.4	7.6

Specific Plan Area	Land Use Designation	Acres	Percentage of Specific Plan Area
	Public/Quasi-Public/Institutional	11.5	10.3
	High Density Residential	1.9	1.7
	Residential Mixed Use	18.6	16.7
Appian Way Corridor Sub-Total		*111.2*	*100.0*
Specific Plan Total		***304.9***	***100.0***

CITY OF PINOLE ZONING CODE UPDATE

The proposed project also updates the City's Zoning Code (Title 17 of the City's Municipal Code) (see **Figure 3.0-9**). Key issues addressed in the update include:

- Administration and Permit Procedures: streamline/simplify permit procedures, permit extensions, review administrative use permit procedures, local agency applicability
- Land Use Districts and Corresponding Uses and Standards: update allowed uses, simplify allowed use tables, eliminate unused/underutilized districts, clarify purpose, add mixed use districts from specific plans
- General Site Planning and Development Regulations: parking regulations, sign regulations
- Special Use Regulations: accessory buildings/structures
- Definitions: add new definitions, amend existing definitions
- Legal Issues: consistency with state and federal law, add required uses to certain zoning districts, density bonus provisions

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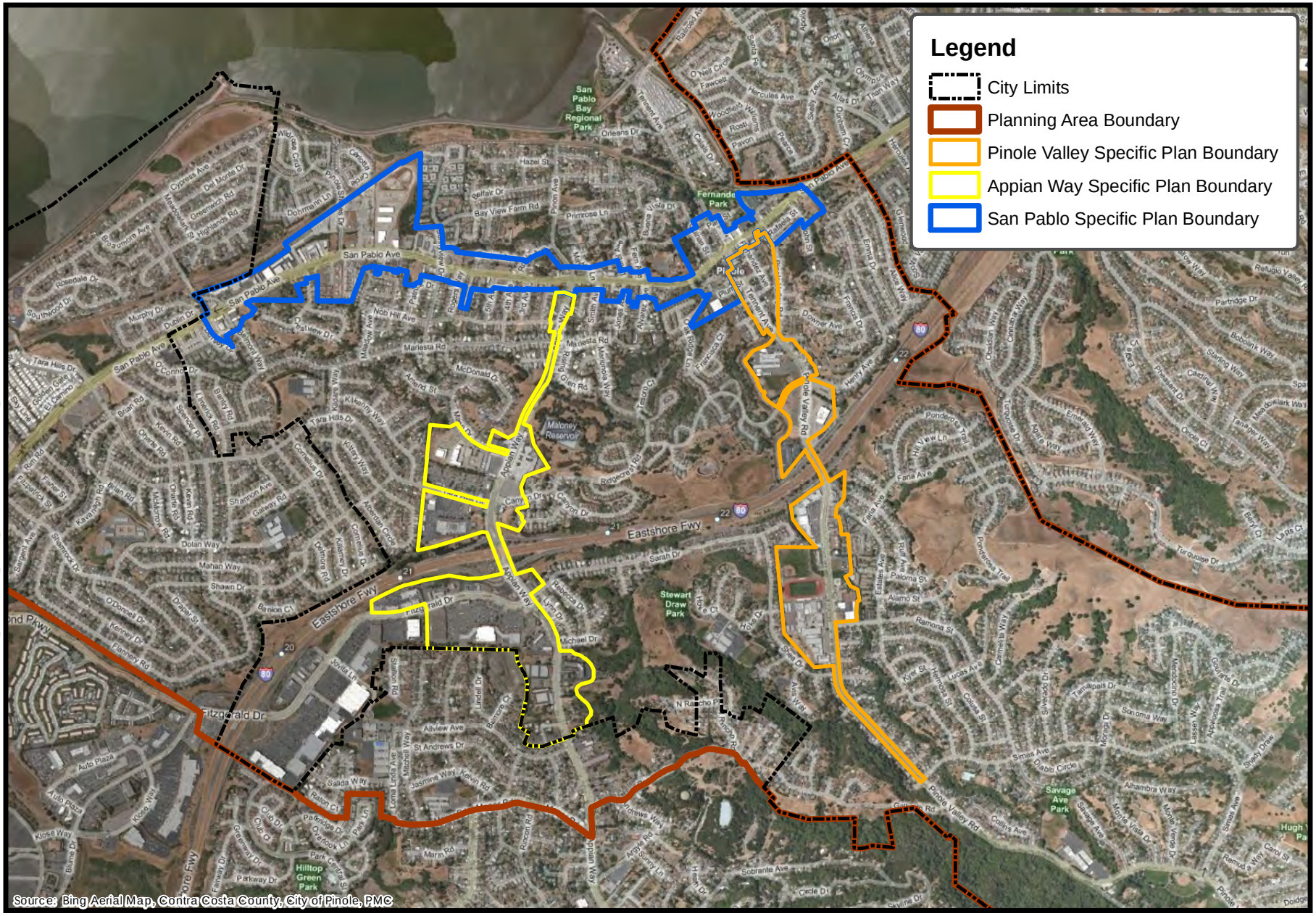

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Figure 3.0-5
Proposed Specific Plan Area Boundaries

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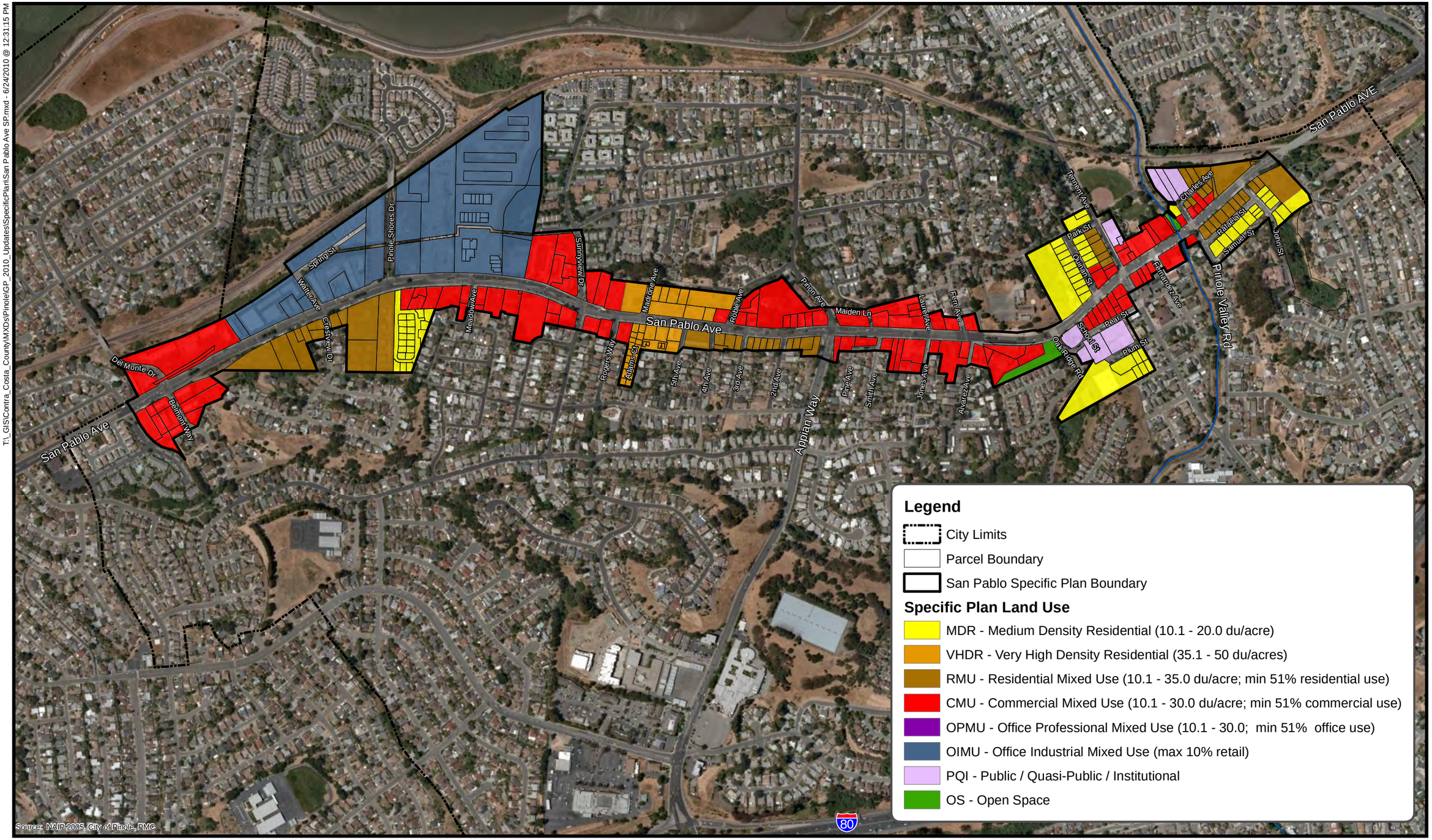

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Figure 3.0-6
Proposed Specific Plan Land Uses – San Pablo Avenue Corridor

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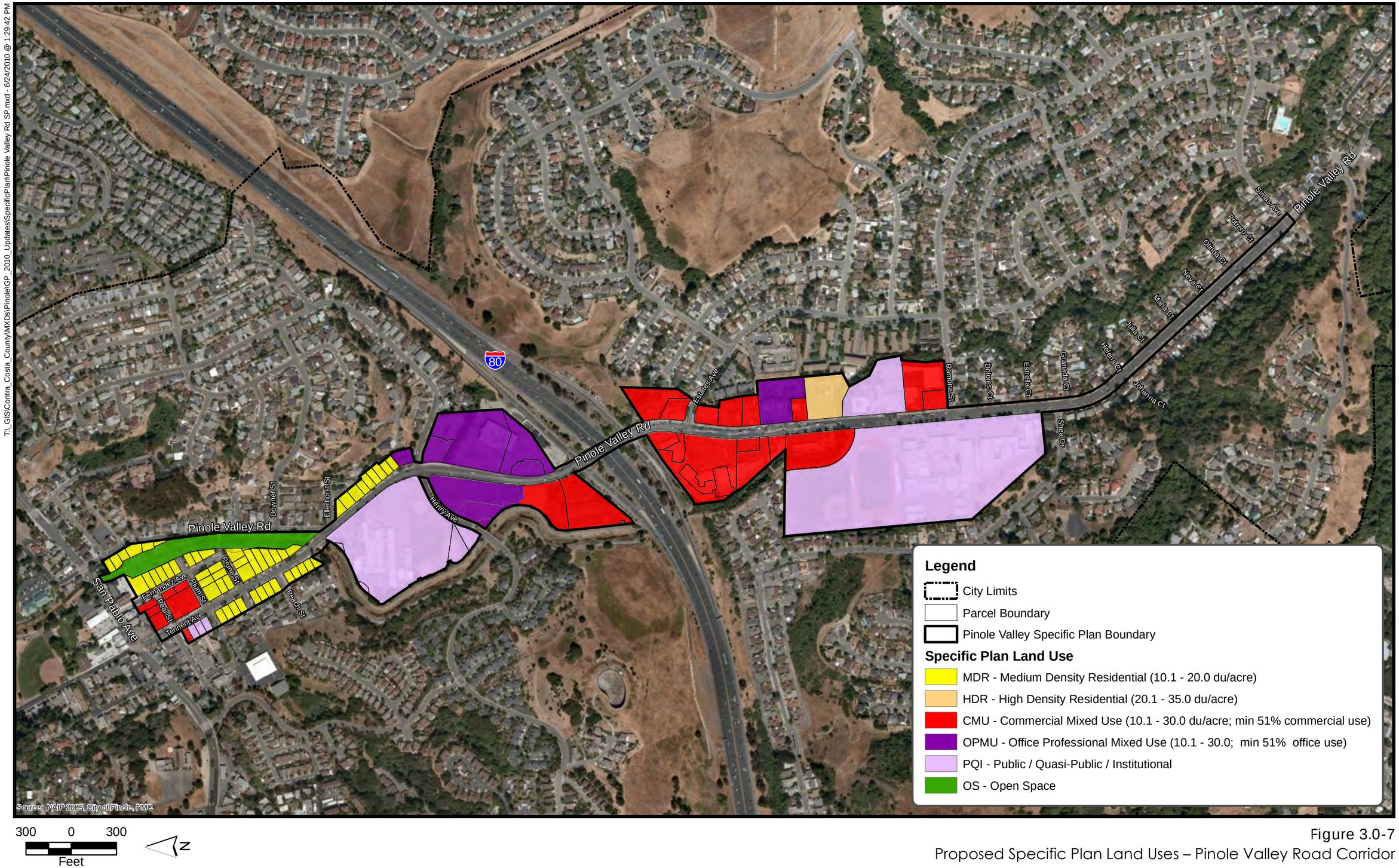

Figure 3.0-7
Proposed Specific Plan Land Uses – Pinole Valley Road Corridor

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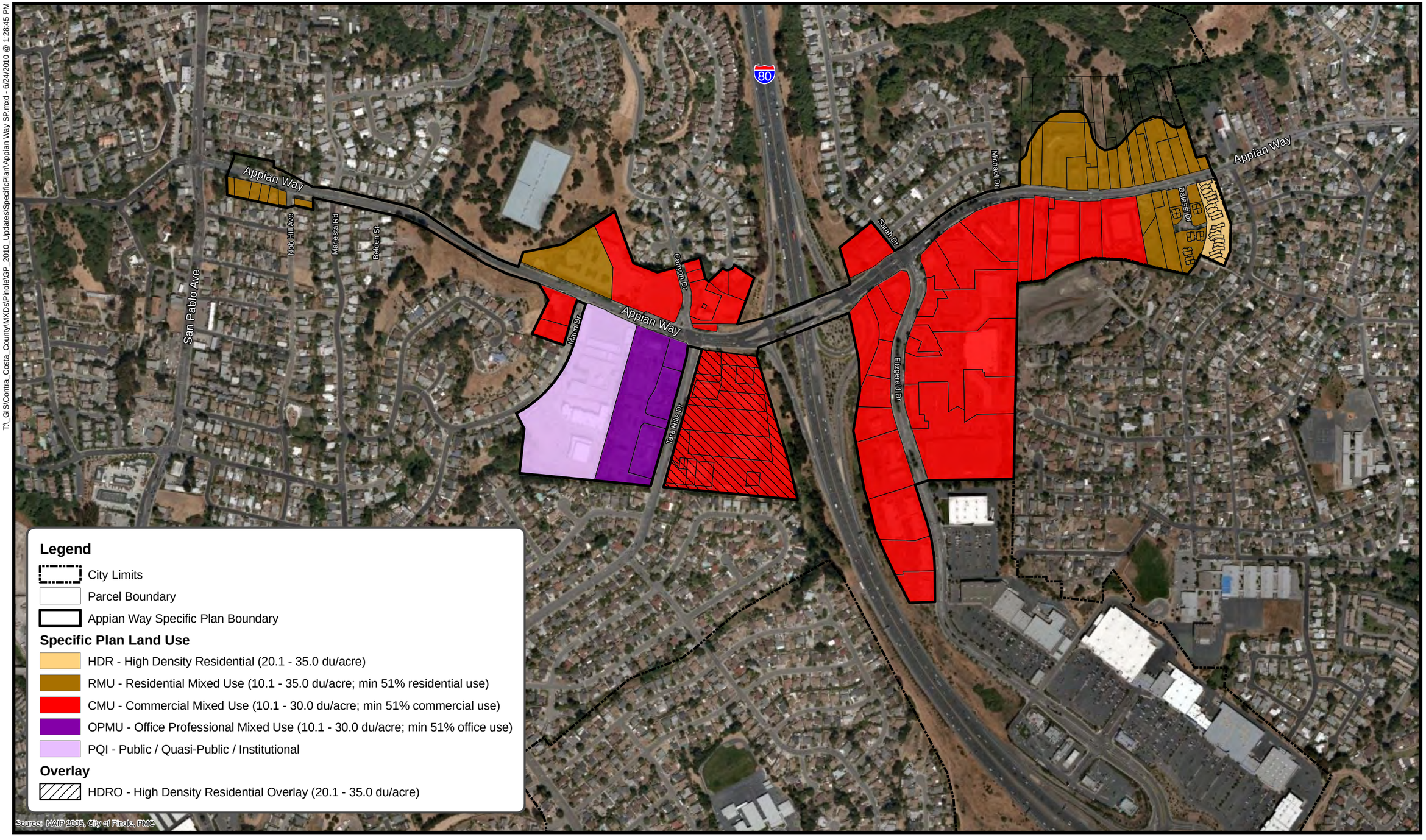

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Figure 3.0-8
Proposed Specific Plan Land Uses – Appian Way Corridor

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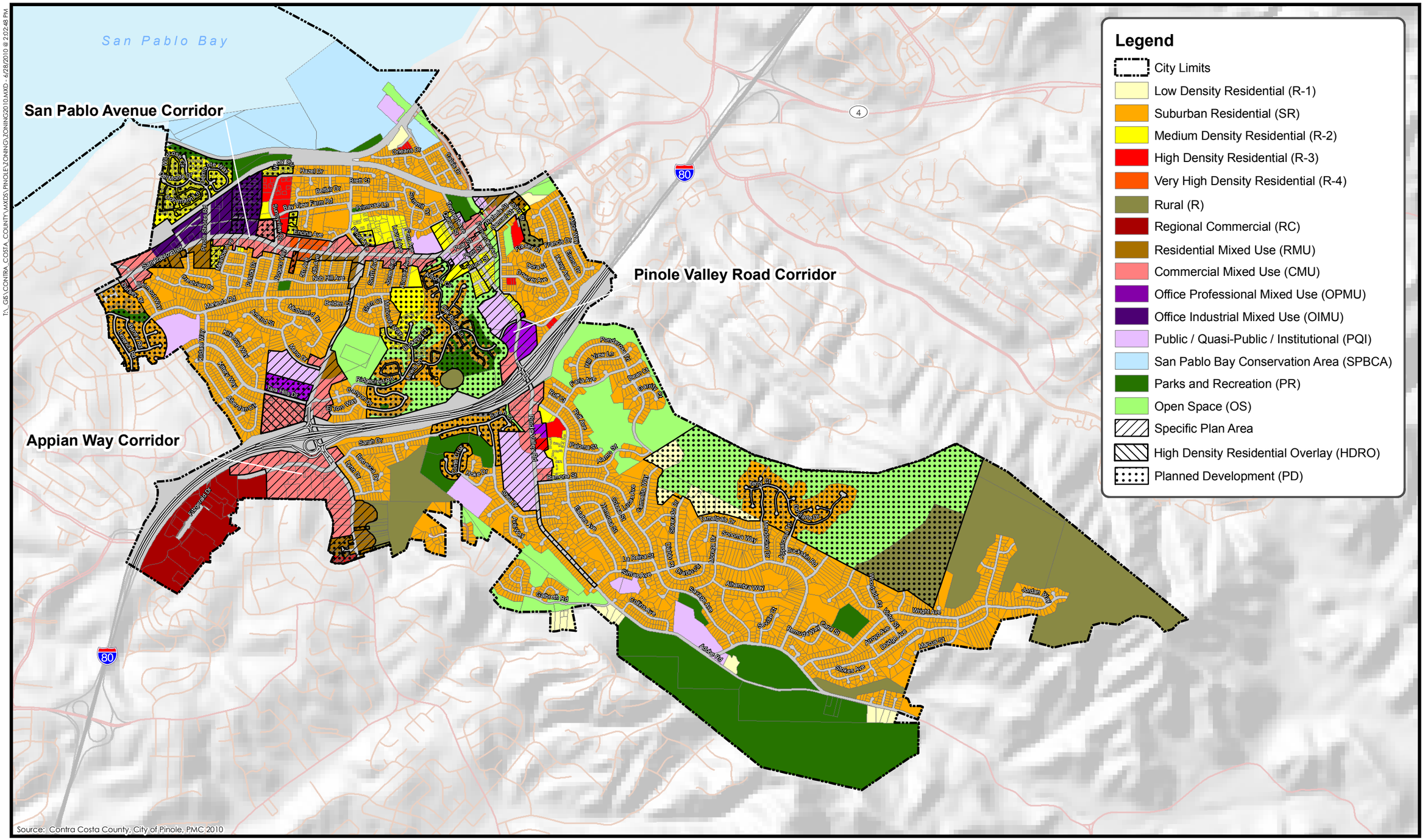

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Figure 3.0-9
Proposed Zoning Map
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3.4 INTENDED USES OF THE EIR AND APPROVAL PROCESS

This EIR provides a programmatic environmental review of implementation of the General Plan Update, Three Corridors Specific Plan, and Zoning Code Update. Subsequent activities falling under the General Plan will use this EIR to focus the environmental review of the subsequent activity and as the basis in determining whether the later activity may have any significant effects, pursuant to State CEQA Guidelines Section 15183.

The City of Pinole General Plan, Three Corridors Specific Plan, and Zoning Code will be presented to the City of Pinole Steering Committee for review, comment, and recommendations. The City of Pinole City Council, as the City's legislative body, is the approving authority for the City of Pinole General Plan and related documents. In order to approve the General Plan, the City Council would have to take the following actions:

- Certification of the City of Pinole General Plan, Three Corridors Specific Plan, and Zoning Code EIR
- Adoption of required findings for the above actions, including required findings under the State CEQA Guidelines, Sections 15090, 15091, and 15093
- Adoption of the City of Pinole General Plan

Following adoption of the General Plan and its project components, and certification of the EIR by the City Council, all subsequent activities and development within the city will be guided by the goals and policies in the updated General Plan. The City Council is anticipated to conduct the following subsequent activities to implement the General Plan:

- Adoption of the Three Corridors Specific Plan.
- Adoption of the proposed amendments to the City of Pinole Zoning Code.
- The City will consider adopting financing programs or fee programs for public infrastructure.
- The City will consider further analyzing and planning for public infrastructure such as roadway improvements, construction of parks, trails, infrastructure improvements (e.g., water distribution and treatment facilities, wastewater facilities, and other public improvements), other capital improvements, and natural resource preservation and/or restoration.
- The City may conduct or consider further focused planning studies, including the preparation of a Downtown Master Plan and a set of citywide Design Guidelines.
- The City would consider approval of various private development entitlement requests (e.g., specific plans, master plans, tentative subdivision maps, design review, use permits) that are consistent with the General Plan and its Land Use Map.

OTHER GOVERNMENTAL AGENCY APPROVALS

Additional subsequent approvals and permits that may be required from local, regional, state and federal agencies in the processing of subsequent development permits include, but are not limited to, the following:

- Contra County Local Agency Formation Commission (LAFCo) approval of future requests to annex land into the city. LAFCo must also approve the formation, reorganization, incorporation, or consolidation of special districts that provide services in the city or the Planning Area.

- Bay Area Air Quality Management District approval of dust control plans and other permits for subsequent projects.

- California Department of Transportation (Caltrans) approval of improvements and/or funding for future improvements associated with state highway facilities.

- Contra Costa Transportation Authority (CCTA)

- San Francisco Bay Conservation and Development Commission (BCDC)

- Extension of service and/or expansion of infrastructure facilities by the City or other providers, including:

  - Contra Costa County Fire Protection District
  - California Department of Forestry and Fire Protection (CalFire)
  - Pinole City Police Department
  - Water purveyors (East Bay Municipal Utility District)
  - Richmond Sanitary Service
  - West Contra Costa Unified School District (WCCUSD)
  - Pacific Gas & Electric Company (PG&E)
  - California Public Utilities Commission (CPUC)
  - Telephone, cable, and Internet services (AT&T, Comcast, etc.)
  - City of Pinole Recreation Department
  - East Bay Regional Park District

- California Department of Fish and Game approval of future streambed alternation agreements, pursuant to the Fish and Game Code. Approval of any future potential take of state-listed wildlife and plant species covered under the California Endangered Species Act.

- San Francisco Bay Area Regional Water Quality Control Board (SFBRWQCB) and State Water Resources Control Board (SWRCB) review and/or approval of any activity impacting Planning Area water features, pursuant to the Clean Water Act and RWQCB standards.

- U.S. Army Corps of Engineers (USACE) approvals of any future wetland fill activities, pursuant to the federal Clean Water Act.

- U.S. Fish and Wildlife Service (USFWS) approvals involving any future potential take of federally listed wildlife and plant species and their habitats covered under the federal Endangered Species Act.

- U.S. Environmental Protection Agency (USEPA) concurrence with Section 404 of the Clean Water Act permit.

REFERENCES

California Department of Finance (DOF). 2009. *E-5 Population and Housing Estimates for Cities, Counties and the State, 2001–2009, with 2000 Benchmark*. Sacramento, California.

City of Pinole. 1995. *City of Pinole General Plan*.

City of Pinole. 2008. *Appian Way, Pinole Valley Road, and San Pablo Avenue Specific Plans Economic Background Report*. Prepared by Bay Area Economics.

City of Pinole. 2009. *Background Report for the City of Pinole General Plan Update*.

Urban Creeks Council. 2004. *Pinole Creek Watershed Vision Plan: A Local Community-Based Effort*. Prepared by Restoration Design Group, LLC.

4.0 Introduction to the Environmental Analysis and Assumptions Used

The following is an introduction to the environmental analysis of the project-specific as well as the cumulative impacts resulting from implementation of the proposed General Plan Update and its associated project components. This introduction describes the general assumptions used in the analysis. The reader is referred to the individual technical sections of the EIR, Sections 4.1 to 4.13, regarding the specific assumptions and methodologies used in the analysis for that particular technical subject.

4.0.1 ANALYSIS ASSUMPTIONS GENERALLY USED TO EVALUATE THE IMPACTS OF THE CITY OF PINOLE GENERAL PLAN UPDATE, SPECIFIC PLAN, AND ZONING CODE UPDATE

BASELINE ENVIRONMENTAL CONDITIONS ASSUMED IN THE EIR

Section 15125(a) of the California Environmental Quality Act (CEQA) Guidelines requires that an environmental impact report (EIR) include a description of the physical environmental conditions in the vicinity of a project, as they exist at the time the Notice of Preparation (NOP) is published. The State CEQA Guidelines also specify that this description of the physical environmental conditions should serve as the baseline physical conditions by which a lead agency determines whether the impacts of a project are considered significant.

The environmental setting conditions of the City of Pinole and its surrounding area are described in detail in the individual technical sections of the DEIR (see Sections 4.1 through 4.13). In general, these sections describe the setting conditions of the city and the surrounding area, as they generally existed when the NOP for the project was released originally on December 18, 2006 and then re-circulated on February 17, 2009, with the addition of the Three Corridors Specific Plan to the Project. In general, conditions as they existed in February 2009 have been utilized for the EIR analysis. In addition, the Bay Area Air Quality Management District (BAAQMD) and the Metropolitan Transportation Commission (MTC) utilize the 2007 ABAG projections for their plans and in utilizing the ABAG 2007 population projections this DEIR is also consistent with the BAAQMD and MTC plans.

Table 4.0-1 presents the status of large-scale development projects in the proposed update to the General Plan Planning Area (Planning Area), as well as large-scale development in Contra Costa County, including other incorporated cities within the county such as Richmond and Hercules. These projects are assumed under cumulative conditions.

TABLE 4.0-1
PROPOSED AND RECENTLY APPROVED LARGE-SCALE RESIDENTIAL AND COMMERCIAL PROJECTS IN THE PLANNING AREA AND SURROUNDING REGION

Project	Location	City/County	Project Description	Total Acres	Residential Units (net new)	Nonresidential Acres or Square Feet	Status
North Richmond Specific Plan	Intersection of Pittsburg Avenue and Richmond Parkway	Contra Costa	General Plan Amendment to allow development of site into a variety of land uses (residential, commercial, industrial, and open space)	254	2,100	169 acres	proposed
The Bay Point Waterfront Strategic Plan	Terminus of McAvoy Road in the Bay Point area of eastern Contra Costa County	Contra Costa	General Plan Amendment to allow creation of a full-scale marina and associated uses (offices, retail, yacht club, and medium-density residential)	290	450	267.5 acres	proposed
The Hilltown Project	Bounded by John Muir Parkway to the south, San Pablo Avenue to the west, the Victoria By The Bay development to the north, and Interstate 80 to the east	Hercules	Remediation and rezone of former industrial site to allow for residential uses	44	640	N/A	proposed
Hercules New Town Center	Immediately southwest of the I-80 and SR 4 interchange and bounded by SR 4 to the north, Sycamore Avenue to the south, I-80 to the east, and San Pablo Avenue to the west	Hercules	Mixed-use, transit-oriented development	35	400	140,000 square feet	approved

Project	Location	City/County	Project Description	Total Acres	Residential Units (net new)	Nonresidential Acres or Square Feet	Status
Sycamore North	Between Tsushima and South Front	Hercules	A for-sale residential component (47 units), a rental residential component (49 units), and a retail component, contained within two contiguous buildings that are joined at the center of the site by a plaza and tower	N/A	96	40,000 square feet	approved
Sycamore Crossing	Downtown Hercules	Hercules	A mix of retail, office, and residential uses. The first phase of Sycamore Crossing (also known as Sycamore South) will include 40,000 square feet of ground-floor retail space with a mix of 2- and 3-story offices and apartments above.	14	284	46,000 square feet	approved
Hercules Waterfront	Located within the former Hercules Powder Company property in the City of Hercules, west of I-80	Hercules	A 40-acre site planned to be a transit-oriented, mixed-use, traditional neighborhood project	40	1,200	369,000 square feet	approved
Circle S aka "The District"	San Pablo Avenue and El Portal Avenue	San Pablo	Mixed-use concept to include housing, retail, entertainment, and open space	8.5	N/A	69,900 square feet	proposed
Mission Plaza Project	Between San Pablo Avenue and Broadway Avenue	San Pablo	Development of approximately 3–4 stories of residential above commercial	1.5	90	N/A	proposed

Project	Location	City/County	Project Description	Total Acres	Residential Units (net new)	Nonresidential Acres or Square Feet	Status
Powell Place 1800 23rd	23rd Street and Market Avenue	San Pablo	31 condo units above approximately 6,000 square feet of commercial with parking in the back	0.5	31	6,000 square feet	proposed
Walgreens	College Center	San Pablo	Full service pharmacy and drive-through	N/A	none	14,820 square feet	approved
Richmond Revival Project	Lakeside Drive	Richmond	Drugstore, banks, convenience shops	N/A	none	41,761 square feet	proposed

Source: Contra Costa County, 2010; City of Hercules, 2010; City of San Pablo, 2010; City of Richmond, 2010

GENERAL PLAN DEVELOPMENT ASSUMPTIONS

Future growth in the General Plan Planning Area is guided by the land uses identified in the General Plan Land Use Map (see **Figure 3.0-4**). The impact analysis (both temporary [i.e., construction-related] and operational effects) is based on these proposed land use patterns. The EIR also evaluates the indirect environmental effects of construction and operation of the land uses and transportation improvements that may take place under the proposed General Plan Update and its associated project components. **Table 3.0-1** identifies the land use acreages that currently exist within the city, the current Sphere of Influence (SOI), and the Three Corridors Specific Plan areas that make up the remainder of the Planning Area. **Table 3.0-3** shows land use acreages that are being proposed under the project.

The Draft EIR analysis is based on 2030 buildout projections. The City is largely built out and most large land holdings in the city have been developed. Land and development costs are high in the city due to the limited supply of vacant land. In addition to the high land cost, the increasing cost of constructing new housing, the recent economic downturn and credit crisis, and site constraints such as topography and availability of community services also inhibit new housing opportunities in the city, particularly affordable housing opportunities. As such, it is anticipated that the City of Pinole will have minimal growth in the future since the city currently includes approximately 64.69 acres of vacant land zoned for residential development outside of the Three Corridors Specific Plan areas. This would result in a development potential of 230 additional housing units and therefore an additional 665 persons in the City, but outside the Specific Plan areas.

The City does not anticipate expanding its Sphere of Influence (SOI) or annexing any land into the city in the foreseeable future. However, the proposed General Plan Update would accommodate some opportunities for new development and redevelopment on the city's primary commercial corridors via the Three Corridors Specific Plan. Accordingly, buildout projections for the General Plan Update focus on the land use changes that increase development potential within the Specific Plan areas. The Specific Plan areas contain approximately 300 acres of predominantly developed land. At buildout, if all of the properties within the Specific Plan areas were to develop according to the proposed provisions of the land use and development standards contained in the Specific Plan, the city would be expected to experience increased development over the course of the next 20 years as indicated in **Table 4.0-2** below.

Residential development within the Three Corridors Specific Plan area would develop consistent with the methodology that has been described in Appendix A of the Specific Plan. Development projections for the residential areas were based on average densities per housing unit, the actual development potential for residentially designated areas, based on site constraints, the City's occupancy rate of 2.89 persons per household for single-family units, as well as economic analyses provided by Bay Area Economics (City of Pinole 2010).

TABLE 4.0-2
SPECIFIC PLAN DEVELOPMENT PROJECTIONS

Corridor	Residential (Units)	Retail (s.f.)	Office (s.f.)	Industrial (s.f.)
San Pablo Avenue	885	322,172	336,253	426,692
Pinole Valley Road	141	238,708	105,038	1,239
Appian Way	244	561.260	468,449	48,352
Existing Total	1,270	1,122,140	909,740	476,283
San Pablo Avenue	1,119	552,927	307,233	472,578
Pinole Valley Road	351	192,603	386,843	0
Appian Way	877	807,698	728,129	0
Proposed Total	2,346	1,553,228	1,422,206	472,578
Difference	1,076	431,088*	512,466*	(3,705)
Projections	1076	150,0008*	150,0008*	(3,705)_

*Note: * Because the proposed land use designations would accommodate more commercial development than is expected to occur during the General Plan cycle, these development projections limit growth in the commercial and office sectors to 150,000 square feet above the existing land use capacity by the year 2030.*
Source: City of Pinole, 2010

As shown, implementation of the Specific Plan could result in an additional 1,076 housing units in the Planning Area by 2030. Therefore, the DEIR assumes that the total population of the city (excluding all areas outside the current city limits but within the City's Sphere of Influence) could increase from the current (2010) population of 20,100 to 23,875 at buildout of the General Plan Update (2.89 persons per household x 1,306 housing units + existing population of 20,100 = 23,875 persons). The Association of Bay Area Governments (ABAG) projections estimate that the City of Pinole will have a population of 21,800 in 2030 (Contra Costa LAFCo, 2008). Therefore, the city's projected population after implementation of the General Plan Update and Three Corridors Specific Plan would be 2,075, or roughly 9.5 percent more than the ABAG estimate. Development of commercial, office, and industrial uses under the proposed Three Corridors Specific Plan will result in an additional 2,050 office employees (431088/250 = 2050), an additional 862 retail employees (431088/500 = 862) , and a loss of 6 employees (-3705/700 = -6) for industrial uses by 2030. These non-residential development was projected based on the following industry standards for number of employees per square feet of non-residential use:

- Office: 1 employee per 250 square feet
- Retail: 1 employee per 500 square feet
- Industrial: 1 employee per 700 square feet

The reader is referred to Section 4.2, Population, Housing and Employment for further discussions on employment trends for the GPU Planning Area.

Subsequent requests for increases in development potential beyond what is set forth in the General Plan would require approval of an amendment to the General Plan and are outside the scope of the analysis of this EIR.

STRUCTURE OF THE ENVIRONMENTAL IMPACT ANALYSIS

Sections 4.1 through 4.13 of this DEIR contain a detailed description of current setting conditions (including applicable regulatory setting), an evaluation of the direct and indirect environmental effects resulting from the implementation of the proposed General Plan Update, Specific Plan, and Zoning Code Update, identification of proposed General Plan policies and action items that mitigate the environmental effect, additional feasible mitigation measures, identification of whether significant environmental effects of the project would remain after application of proposed policies and action items, and feasible mitigation measures. The individual technical sections of the DEIR follow the following format:

Existing Setting

This subsection includes a description of the physical setting conditions associated with the technical area of discussion, consistent with State CEQA Guidelines Section 15125. As previously identified, the existing setting is based on conditions as they existed when the NOP for the project was released on February 17, 2009.

Regulatory Framework

This subsection consists of the identification of applicable federal, state, regional, and local plans, policies, laws, and regulations that apply to the technical area of discussion.

Impacts and Mitigation Measures

This subsection identifies direct and indirect environmental effects associated with implementation of the proposed General Plan Update (includes the Three Corridors Specific Plan and updates to the City's Zoning Code) and identifies those proposed updated General Plan policies and implementation actions that mitigate the environmental effect, as well as any of the existing regulations and ordinances that do the same. Standards of significance are identified and utilized to determine whether identified environmental effects are considered "potentially significant" or "significant" and require the application of mitigation measures. Each environmental impact analysis is identified numerically (e.g., Impact 4.1.1 – Consistency with Relevant Land Use Planning Documents).

Mitigation measures were developed through a thorough review of the environmental effects of the updated General Plan by consultants with technical expertise as well as by environmental and engineering professionals. After identification of proposed General Plan policies and implementation actions that mitigate the environmental impact being discussed, any additional feasible mitigation measures that could minimize significant adverse impacts are discussed, after which the impact discussion notes whether the impact has been mitigated to a less than significant level or remains significant and unavoidable.

Cumulative Setting, Impacts, and Mitigation Measures

This subsection is an analysis of the proposed project's contribution to cumulative impacts to the environment. The analysis focuses on whether the project's contribution is "cumulatively considerable" (State CEQA Guidelines Section 15130). A cumulative impact occurs from the change in the environment that results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a

period of time (State CEQA Guidelines Section 15355(b)). Accordingly, the cumulative setting includes related past, present, and reasonably foreseeable projects.

DEFINITION OF CUMULATIVE SETTING

State CEQA Guidelines Section 15130 requires that EIRs include an analysis of the cumulative impacts of a project when the project's effect is considered cumulatively considerable. In general, the cumulative setting conditions considered in this Draft EIR are based on:

- **Local Adopted General Plans.** The existing land use plans in the Pinole region, including those of Contra Costa County and the cities of Richmond and Hercules.

- **Large-Scale Development Projects.** Consideration of large-scale proposed and approved development projects listed in **Table 4.0-1**. This list of projects is intended to describe large-scale proposed, approved, and reasonably foreseeable future development activities in the Pinole region that, when considered with the proposed General Plan Update, Specific Plan, and Zoning Code Update, have the potential to have cumulatively considerable impacts. It is not intended to be an all-inclusive list of projects in the Pinole region.

- **Effect of Regional Conditions.** Consideration of background traffic volumes and patterns on state highways (e.g., Interstate 80), background air quality conditions, and other associated environmental conditions that occur within the Bay Area, both within and outside of the Planning Area. The reader is referred to Section 4.2, Population/ Housing /Employment for further details on regional development projections set forth by ABAG.

- **Consideration of Existing Development Patterns.** Consideration of the current environmental conditions of existing development and past land use activities in the region.

Each technical section of the Draft EIR includes a description of the geographic extent of the cumulative setting based on the characteristics of the environmental issue under consideration as set forth in Section 15130(b) of the State CEQA Guidelines.

Consideration of Cumulative Impacts

Each technical section in the DEIR considers whether the project's effect on anticipated cumulative setting conditions is cumulatively considerable (i.e., a significant effect). "Cumulatively considerable" means that the incremental effects of an individual project are significant, under cumulative conditions, when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects [CEQA Guidelines, Section 15065(a)(3)]. The determination of whether the project's impact on cumulative conditions is considerable is based on a number of factors, including consideration of applicable public agency standards, consultation with public agencies, and expert opinion. The environmental effects of potential development of the City's Planning Area are incorporated in the cumulative impact analysis. Section 5.0, Cumulative Impacts, provides a summary of the cumulative impacts associated with the project.

REFERENCES

Contra Costa County. 2010. *REACH*. http://www.ccreach.org/ (accessed May 2010).

Contra Costa Local Agency Formation Commission. *East Contra Costa County Sub-regional Municipal Service Review and Sphere of Influence Update*. Adopted December 10, 2008. http://www.contracostalafco.org/municipal_service_reviews.htm (accessed April 2010).

Hercules, City of. 2010. *Hercules Projects*. http://www.ci.hercules.ca.us/index.aspx?page=199 (accessed May 2010).

Pinole, City of. 2010. *City of Pinole Draft General Plan Update*.

Pinole, City of. 2009b. *City of Pinole General Plan Update Background Report*.

Pinole, City of. 2010. *Three Corridors Specific Plan*.

Richmond, City of. 2010. *Projects*. http://www.ci.richmond.ca.us/index.aspx?nid=1404 (accessed May 2010).

San Pablo, City of. 2010. *Current Projects*. http://www.ci.hercules.ca.us/index.aspx?page=199 (accessed May 2010).

4.1 Land Use

This section of the Draft Environmental Impact Report (DEIR) describes the existing land uses within the City of Pinole General Plan Update (GPU) Planning Area, characterizes the surrounding land uses, and discusses adopted and relevant draft plans and policies pertinent to the area. The section also identifies environmental impacts associated with the General Plan Update and associated project components. Appropriate mitigation measures are identified to reduce, lessen, or eliminate impacts.

4.1.1 EXISTING SETTING

REGIONAL SETTING

The City of Pinole is located in the San Francisco Bay Area, on the shores of San Pablo Bay in Contra Costa County as shown on **Figure 3.0-1** in Section 3.0, Project Description, of this DEIR. Contra Costa County is one of nine San Francisco Bay Area counties and encompasses 1,291 square miles (1,159 square miles of land and 118 square miles of water). As a whole, the county is relatively undeveloped. As of 2000, only 25.4 percent of county land was developed with urban uses, with the remainder used for agriculture, wetlands, parks, recreation, or general open space and other non-urban uses (Contra Costa County, 2005).

West Contra Costa County (West County), which consists of the cities of Pinole, El Cerrito, Hercules, Richmond, San Pablo, and some urbanized unincorporated areas, contains 20 percent of all urbanized land in the county and is predominantly developed with residential uses. Historically West County has comprised "bedroom communities" with a commuter work force. Commercial and industrial land uses represent 20 percent of developed land in West County (10 percent each) (Contra Costa County, 2005).

LOCAL SETTING

Pinole City Limits

The city currently occupies approximately 11.6 square miles, or 7,438 acres, including 3,490 acres of land and 3,948 acres of water within San Pablo Bay. The existing General Plan Land Use Designation Map shows the current Sphere of Influence (SOI) to contain an additional 1.7 square miles, or 1,105 acres. The SOI boundary is set by the Local Agency Formation Commission (LAFCo) as a representation of the likely ultimate extent of the city limits and service area limits. The City of Pinole SOI includes two areas beyond the existing city limits, as follows:

- Lands just beyond the southwestern city limits near the City of San Pablo and bordered to the south by Richmond Parkway; and
- Lands just south of the city limits near the unincorporated area of El Sobrante.

The GPU Planning Area boundary includes the area within the city limits as well as the existing SOI. The GPU Planning Area encompasses a total of approximately 13.3 square miles, or 8,543 acres (see **Table 3.0-1** and **Figure 3.0-2**). In addition, there is a city-adopted Urban Limit Line located along the southeastern city limits, beyond which annexations are not permitted (see **Figure 3.0-2**). Interstate 80 (I-80) bisects the city limits and connects the city with the metropolitan areas of San Francisco and Oakland to the west and south and Sacramento to the east. Additionally, Pinole is linked to central Contra Costa County and the cities of Martinez, Concord, and Pleasant Hill by State Route (SR) 4, which begins just north of the city limits and connects with Interstate 680.

Within the City of Pinole, the existing land use pattern is generally reflective of the land use designations in the city's current General Plan (1995), with a mix of residential neighborhoods and commercial centers, combined with parks and open spaces. The city also includes regional shopping centers along I-80, a historic city center, and residential neighborhoods characterized by detached, single-family residences and multi-family residential units, and upslope single-family homes built on steep terrain. The city also includes open space areas include the Pinole Valley Park, Fernandez Park, and Wilson Point East Bay Regional Park, among other unimproved open space areas and community and neighborhood parks. Existing City General Plan land use designations for the city are shown in **Table 4.1-1** below and depicted in **Figure 3.0-3** in Section 3.0, Project Description, of this DEIR.

TABLE 4.1-1
EXISTING GENERAL PLAN LAND USE DESIGNATIONS AND ACREAGE

Existing General Plan Land Use Designation	City Only	Sphere of Influence[1]	Total GPU Planning Area[1]	Percentage of Total
Downtown Commercial (DC)	6	0	6	0.1
Neighborhood Commercial (NC)	49	14	63	0.7
Regional Commercial (RC)	129	0	129	1.5
Industrial Office Park (I-OP)	14	0	14	0.2
Light Industrial Service Commercial (LISC)	14	11	25	0.3
Major Institution/Medical (MI-M)	18	0	18	0.1
High Density Residential (HDR)	18	44	62	0.7
Medium Density Residential (MDR)	127	21	148	1.7
Low Density Residential (LDR)	1,091	602	1,693	19.8
Suburban/Rural Residential (SRR)	252	9	261	3.1
Mixed Use High Density Residential/Downtown Commercial (MU-HDR-DC)	7	0	7	0.1
Mixed Use High Density Residential/Light Industrial-Service Commercial (MU-HDR-LISC)	1	0	1	0.0
Mixed Use High Density Residential/Neighborhood Commercial (MU-HDR-NC)	23	0	23	0.3
Mixed Use Low Density Residential/Downtown Commercial (MU-LDR-DC)	2	0	2	0.0
Mixed Use Medium Density Residential/Light Industrial (MU-MDR-LI)	13	0	13	0.2
Mixed Use Medium Density Residential/Neighborhood Commercial (MU-MDR-NC)	9	2	11	0.1
Public Facilities (PF)	93	65	158	1.9
Open Space (OS)	624	9	633	7.4
Parks and Recreation (PR)	277	52	329	3.9
San Pablo Bay Conservation Area (SPBCA)	222	77	299	3.5
Open Water (San Pablo Bay)	3,948	0	3,948	46.2

Existing General Plan Land Use Designation	City Only	Sphere of Influence[1]	Total GPU Planning Area[1]	Percentage of Total
Transportation Right-of-Way	501	195	696	8.2
Total	**7,438**	**1,101**	**8,539**	**100.0**

[1] *Difference in total due to rounding.*
Source: City of Pinole Community Development Department, 2010

Several distinct land uses, neighborhoods, and areas characterize the city. Existing land uses within the city limits include residential, retail, and commercial uses, public facilities (City Hall, fire and police department stations, Old Bank building) of Old Town Pinole, located along San Pablo Avenue encompassing the intersection at Tennent Avenue and Pinole; the industrial and commercial uses located along San Pablo Avenue in the western portion of the city; the main commercial centers of Pinole Vista Crossing Shopping Center, Pinole Vista Shopping Center, located south of Interstate 80 and east of the Appian Way interchange, and Pinole Valley Shopping Center, Appian 80, Park View Plaza, and Del Monte Shopping Center; the residential neighborhoods along the Pinole Valley Road corridor, between San Pablo Avenue and the bay front, and in the western portion of the city; open and natural land, including Pinole Valley Park, the bay front along San Pablo Bay, and various open space areas throughout the community.

Three Corridors Specific Plan

The City of Pinole also contains three primary transportation corridors: Appian Way, Pinole Valley Road, and San Pablo Avenue. The existing land uses in these corridors are shown in **Figure 3.0-3** and described in more detail below. It should be noted that for projects built pursuant to State-mandated density bonuses, the allowable units per acre may be increased beyond the City's specified limits (up to 50 units per acre) if necessary to accommodate the increased density required by law.

Appian Way

Located on the western side of Pinole, Appian Way is four-lane roadway and one of the city's two main north-south arterials. The northern end of Appian Way, at the intersection with San Pablo Avenue, contains a mix of residential, retail, and office uses, reflective of the mixed-use character of San Pablo Avenue. Traveling south, this land use pattern quickly gives way to single-family residential development as well as an area of steep, undeveloped hillsides, where the topography requires deep setbacks and prevents intensive development. Near the intersection with Tara Hills Drive, the recently-closed Doctors Hospital occupies a large and prominent site along the eastern edge of the Appian Way corridor and looks across Appian Way to a school site and small medical office complex. Just north of I-80, Appian 80, an aging Safeway-anchored neighborhood shopping center, is the largest retail development along the northern section of the corridor. South of I-80 and adjacent to Appian Way, much of Pinole's region-serving retail is concentrated along Fitzgerald Drive in the Pinole Vista shopping center. Otherwise, the remaining southern stretch of the corridor, continuing to Dalessi Drive, includes a somewhat disjointed mix of uses, which include professional offices, a motel, a self-storage site, a retirement home, single-family homes, and small businesses operating from converted single-family residences (BAE, 2008).

Pinole Valley Road

Located on the eastern edge of the city, Pinole Valley Road is the city's other main north-south arterial. South of I-80 is the Pinole Valley Shopping Center. North of I-80, Kaiser Permanente has constructed a 60,000 square foot medical office building on a 5-acre site adjacent to the freeway. Although there are some vacant sites on Pinole Valley Road, the corridor is largely built out and geographically constrained. Much of the southern portion of the Pinole Valley Road corridor is dedicated to retail and office uses, as well as a high school. Medical and other office uses are found just north of the freeway, while single-family residences and an elementary school dominate the northern-most portion of the Pinole Valley Road corridor (BAE, 2008).

San Pablo Avenue

San Pablo Avenue is a 14-mile major arterial street connecting seven cities from northwestern Contra Costa County to southwestern Alameda County. Located at the eastern edge of Pinole along San Pablo Avenue is Old Town, which contains many historic commercial and residential buildings and a mix of office space, specialty retail, cafés, and restaurants. West of Old Town is an eclectic mix of multi-family residential, small office and retail complexes, building materials sales, auto repair services, public storage, and light industrial uses. At the intersection of Sunnyview and San Pablo Avenue, the Sunnyview Plaza contains a variety of light industrial and service commercial uses. The Del Monte Shopping Center, located between Pinole Shores Road and Del Monte Drive, is a 44,000 square foot neighborhood shopping center that is the corridor's largest retail center. Farther west on San Pablo Avenue, businesses include several auto-related service shops and two fully occupied 1970s-era retail strip centers. Recent development activity on this section of the San Pablo Avenue corridor includes the construction of Phase I of the Pinole Shore Business Park, containing industrial/flex condominiums totaling roughly 60,000 square feet (BAE, 2008). While there is no station in the city, Union Pacific Railroad facilities pass through the northern portion of the city along the shoreline.

Pinole Sphere of Influence

Land uses within the city's SOI that are outside the city limits are designated by the Contra Costa County General Plan and have the following County land use designations (**Figure 3.0-3**):

San Pablo Bay Area – Ocean Bay

- *Lands just beyond the southern city limit in the El Sobrante unincorporated area west of Appian Way* – Single Family Residential (High Density), Public/Semi Public, Multiple Family Residential (High Density)

- *Lands just beyond the southern city limit in the El Sobrante unincorporated area east of Appian Way* – Multiple Family Residential (Medium Density), Open Space, Public/Semi Public, Multiple Family Residential (Very High Density Special), Single Family (Low Density)

- *Lands just beyond the western city limit near the City of San Pablo, north of San Pablo Avenue* – Single-Family Residential (High Density), Multiple Family Residential (High Density), Open Space, Mixed Use, Public/Semi-Public, Commercial

- *Lands just beyond the western city limit near the City of San Pablo, south of San Pablo Avenue* – Single-Family Residential (High Density), Commercial, Public/Semi-Public, Multiple Family Residential (High Density), Mixed Use, Multiple Family Residential (Low Density)

Briones Hills Agricultural Preservation Area

In addition, the County's General Plan designates as Watershed the land owned by the East Bay Municipal Utility District (EBMUD) adjacent to the City of Pinole's southeastern boundary and along Pinole Valley Road. In order to safeguard the public water supplies stored in EBMUD reservoirs, a limited number of uses are allowed in watershed areas. This land area located adjacent to the City of Pinole's southeastern boundary and designated Watershed is part of the Briones Hills Agricultural Preservation Area, which comprises 64 square miles of open space in the Briones Hills in both unincorporated and incorporated areas of Contra Costa County. The area includes both publicly and privately held lands that are designated as agricultural lands (CCCDCD, 2009). The preservation area is protected by the Briones Hills Agricultural Preservation Area compact, which is discussed further under the Regulatory Framework subsection below.

4.1.2 REGULATORY FRAMEWORK

STATE

California Government Code

California law requires each city to adopt a comprehensive, long-term general plan to guide the physical development of the incorporated city and land outside city boundaries that bears a relationship to its planning activities. The city may adopt a general plan in the format that best fits its unique circumstances in an integrated, internally consistent, and compatible statement of development policies. Together, the seven mandated elements of a general plan form a comprehensive set of planning policies. In accordance with California Government Code Section 65302, the General Plan addresses the issues of land use, circulation, housing, noise, safety, conservation, and open space.

The general plan also addresses additional topics of special and unique interest, including community character, economic development, historic and cultural resources, and municipal services. These topics reflect additional issues that are important to the community. While optional elements are not required by state law, once they are adopted by a city, optional elements are as legally binding and valid as the required elements.

By law, the general plan is the primary document a city utilizes to regulate land use. It provides the city with a consistent framework for land use decision-making. Once a general plan is adopted, its maps, diagrams, and development policies form the basis for city zoning, subdivision, and public works actions. Therefore, the zoning ordinance, specific plans, planned development master plans, and individual public and private development proposals must be consistent with the general plan goals, policies, and standards. Under California law, no specific plan, area plan, zoning, subdivision map, or public works project may be approved unless the city finds that it is consistent with the adopted general plan.

Specific Plan

A specific plan is a tool for the systematic implementation of a general plan. It effectively establishes a link between implementing policies of the general plan and the individual development proposals in a defined area. A specific plan may be as general as setting forth broad policy concepts or as detailed as providing direction to every facet of development from the type, location, and intensity of uses to the design and capacity of infrastructure and from the resources used for financing public improvements to the design guidelines of a subdivision.

To an extent, the range of issues contained in a specific plan is left to the discretion of the decision-making body. However, all specific plans, whether prepared by a general law city or a county, must comply with Sections 65450 through 65457 of the Government Code. These provisions require that a specific plan be consistent with the adopted general plan of the jurisdiction within which it is located. In addition, specific plans must be consistent with any Airport Land Use Plan pursuant to Public Utilities Code Section 21676. In turn, all subsequent subdivision and development, public works projects, and zoning regulations must be consistent with the specific plan.

The adoption of a specific plan does not vest development. Rather, development entitlements may be defined by development agreements, vesting tentative maps, use permits, or other approvals. Specific plans themselves are dynamic documents and may be subject to change. There are no assurances to residents and project proponents that the plan will not be subject to future revisions.

Statutory Requirements

Section 65451 of the Government Code mandates that a specific plan contain text and a diagram or diagrams which specify all of the following in detail:

(1) The distribution, location, and extent of the uses of land, including open space, within the area covered by the plan.

(2) The proposed distribution, location, and extent and intensity of major components of public and private transportation, sewage, water, drainage, solid waste disposal, energy, and other essential facilities proposed to be located within the area covered by the plan and needed to support the land uses described in the plan.

(3) Standards and criteria by which development will proceed, and standards for the conservation, development, and utilization of natural resources, where applicable.

(4) A program of implementation measures including regulations, programs, public works projects, and financing measures necessary to carry out paragraphs (1), (2), and (3).

The specific plan must also include a statement of the relationship of the specific plan to the general plan.

REGIONAL

San Francisco Bay Conservation and Development Commission

The San Francisco Bay Conservation and Development Commission's (BCDC) primary mission is to analyze, plan, and regulate the San Francisco Bay as an ecological unit. BCDC has permit jurisdiction over San Francisco Bay, San Pablo Bay, and the Suisun Marsh—including levees, waterways, marshes, and grasslands—below the 10-foot contour line (as measured off a USGS quadrangle map from mean high water). Any person or public agency other than a federal agency that proposes certain activities in or around these areas must obtain a development permit from BCDC.

The area over which BCDC has jurisdiction for the purpose of carrying out the controls described above is defined in the McAteer-Petris Act and includes:

- The open water, marshes and mudflats of greater San Francisco Bay, including Suisun, San Pablo, Honker, Richardson, San Rafael, San Leandro, and Grizzly bays and the Carquinez Strait.
- The first 100 feet inland from the shoreline around San Francisco Bay.
- The portion of the Suisun Marsh—including levees, waterways, marshes and grasslands—below the 10-foot contour line.
- Portions of most creeks, rivers, sloughs, and other tributaries that flow into San Francisco Bay.
- Salt ponds, duck hunting preserves, game refuges, and other managed wetlands that have been diked off from San Francisco Bay.

Where necessary, particular portions of BCDC's jurisdiction may be further clarified by BCDCs regulations.

LOCAL

Contra Costa Local Agency Formation Commission

The Contra Costa Local Agency Formation Commission (LAFCo) is a local agency charged by the state legislature with "discouraging urban sprawl and encouraging the orderly formation and development of local agencies" based on "local circumstances and conditions" (Contra Costa LAFCo, 2010). To meet its responsibilities, LAFCo must review and approve or deny proposals to:

- Annex land to cities or special districts.
- Detach land from cities or special districts.
- Consolidate two or more cities or two or more special districts.
- Form new special districts and incorporate new cities.
- Dissolve special districts and dis-incorporate cities.
- Allow cities or special districts to provide services outside of their boundaries.

Briones Hills Agricultural Preservation Area Compact

The Briones Hills Agricultural Preservation Area compact was signed by Contra Costa County and the cities of Martinez, Pleasant Hill, Walnut Creek, Lafayette, Orinda, Richmond, Pinole, and Hercules in 1988. The compact states that the jurisdictions voluntarily agree not to annex any lands within the 64-square-mile Briones Hills Agricultural Preservation Area for the purposes of allowing urban development.

City of Pinole Old Town Design Guidelines

The Old Town Design Guidelines were adopted in July 1996 to help enhance the positive qualities of Pinole's commercial downtown and protect the livability of its residential neighborhoods. The Old Town Design Guidelines Overlay District extends north from Interstate 80 along Pinole Valley Road and Tennent Avenue to San Pablo Bay and west from the Hercules/Pinole border along San Pablo Avenue to Second Avenue. The guidelines address issues of compatibility, project function, and aesthetics. They also endeavor to encourage the provision of efficient vehicular movement and pedestrian circulation.

City of Pinole Residential Design Criteria and Guidelines

The City of Pinole adopted new Residential Design Criteria and Guidelines in November 2007 to implement the goals and policies of the General Plan relevant to urban design, pedestrian circulation, neighborhood and community identity, and residential, mixed-use, and commercial project design. The Design Criteria and Guidelines supplement the Zoning Code development standards and are used by the City to evaluate design review applications for qualifying residential and residential mixed-use projects.

City of Pinole Urban Limit Line

The City adopted a voter approved Urban Limit Line to satisfy Measure C and J requirements. The Urban Limit Line is a self-imposed growth boundary that limits future annexations southeast of the current city limits. The Urban Limit Line is shown on **Figure 3.0-2**.

4.1.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

A land use impact is considered significant if implementation of the project would:

1) Physically divide an established community.

2) Conflict with any applicable land use plan, policy or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.

3) Conflict with any applicable habitat conservation plan or natural community conservation plan.

A discussion of applicable habitat conservation plans/natural community conservation plans and potential impacts to these plans resulting from the proposed General Plan Update and its associated project components can be found in Section 4.7, Biological Resources, of this DEIR.

METHODOLOGY

An evaluation of the potential land use impacts associated with implementation of the proposed City of Pinole General Plan Update and its other project components was based on a review of relevant planning documents, city regulations, the Contra Costa County General Plan, and Contra Costa County LAFCo policies, as described previously in this section under Regulatory Framework. The analysis contained herein is based on a mathematically determined buildout condition for the GPU Planning Area. The buildout analysis does not assess impacts associated with the phasing of individual development projects, site-specific constraints to development, or other factors that might affect density and intensity of development. The mathematically derived buildout estimate is considered the worst-case scenario, with the final buildout figures likely being less than the calculated totals.

The focus of the land use analysis in this section is on land use impacts that would result from the proposed General Plan Update and its other project components. Therefore, where appropriate, the discussion of each impact is separated into three discussion sections (i.e., the General Plan

Update policy document and Land Use Map, the proposed Three Corridors Specific Plan, and the City's Zoning Code Update) for ease of analysis.

IMPACT STATEMENTS AND MITIGATION MEASURES

Physically Divide an Established Community (Standard of Significance 1)

Impact 4.1.1 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would not physically divide an established community. This is considered **no impact**.

The proposed project further refines the urban form of the City of Pinole. Implementation of the General Plan will allow for more intensive development, particularly within the Three Corridors Specific Plan area. As shown on the Land Use Map for the General Plan and land use maps for the Three Corridors Specific Plan, the proposed land use designations concentrate development within the GPU Planning Area and Three Corridors Specific Plan area and do not divide or separate any portion of the community. The proposed Zoning Code Update is consistent with the land use designations shown in the General Plan and Three Corridors Specific Plan. As the policies and maps associated with the proposed project work to consolidate growth potential in the City of Pinole, there is no potential to divide an established community and therefore **no impact**.

Proposed General Plan Policies and Action Items that Address the Physical Division of an Established Community

The proposed General Plan does not include any policies and/or action items that address the division of an established community.

Mitigation Measures

None required.

Consistency with Relevant Land Use Planning Documents (Standard of Significance 2)

Impact 4.1.2 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would not result in conflicts with relevant land use planning documents within and adjacent to the City of Pinole. This is considered a **less than significant** impact.

The Contra Costa County General Plan land use designations and policies are applicable to those areas of the Planning Area located outside the Pinole city limits (i.e., the SOI). The County's General Plan Land Use Map designates the majority of the SOI for residential and public facility uses, as well as some open space and commercial uses. The City's proposed General Plan Land Use Map has designated the SOI for land uses that are consistent with the existing County General Plan land use designations, with two minor exceptions (see **Figure 3.0-4**). Specifically, a portion of land located just to the north of San Pablo Boulevard and bisected by Tara Hills Drive currently includes high- and medium-density residential and park uses. The proposed General Plan designates this area as a Mixed Use sub-area, which accommodates high-density residential and commercial uses. In addition, a portion of land located along San Pablo Boulevard on the western boundary of the SOI currently includes high-density residential uses to the southeast of San Pablo Boulevard and commercial uses to the northwest of the boulevard. Since the proposed General Plan land use designations in these areas are similar in use, density,

and intensity to the actual existing land uses, the potential for land use conflicts would not be considered significant. In addition, prior to any future development under the proposed Pinole General Plan in these areas, these lands would need to be annexed into the City. Upon annexation, the County would no longer have jurisdiction over these areas and proposed development projects would be subject to the Pinole General Plan policies and action items listed below, as well as throughout this DEIR, to mitigate potential environmental impacts.

As listed below, the proposed City of Pinole Land Use Element includes policies that assure the City takes an active leadership role coordinating planning with neighboring jurisdictions and other public agencies. Policy LU.2.2 requires the City to coordinate land use planning decisions in Pinole's Sphere of Influence (SOI) or Planning Area with other jurisdictions, which would include Contra Costa County. Policy LU.2.3 addresses annexation of lands within the City's SOI, stating that annexation should only occur when it encourages orderly growth and development through logical and timely boundary changes. These policies addressing land use coordination would assist in safeguarding against placement of incompatible uses adjacent to one another.

The cities of Hercules, Richmond, and San Pablo are adjacent to Pinole. The proposed project does not change the land use designations in areas that are adjacent to these jurisdictions. Proposed General Plan Policy OS.6.3 requires that the City maintain a continuous open space separator between Pinole and the cities of Hercules (Pinole Ridge) and El Sobrante/ Richmond (El Sobrante Ridge). In addition, the proposed General Plan policies listed below provide for land use planning coordination with surrounding jurisdictions in order to prevent conflicts.

Therefore, impacts from conflicts with applicable land use plans are considered **less than significant**.

Briones Hills Agricultural Preservation Area

Proposed General Plan Policy LU.2.4 requires that the City continue to support the agreement for the Briones Hills Agricultural Preservation Area that established the area as an agricultural preservation area. As the proposed project does not change existing support for the agreement, there is **no impact.**

City of Pinole Zoning Code

The Zoning Code zones property and prescribes development standards and processes within the city limits. State planning law requires the Zoning Code to be consistent with the General Plan. Each General Plan land use category must have one or more corresponding zoning districts, and the development standards and land use regulations contained in the Zoning Code must reflect the policy statements in the Land Use Element. **Table 4.1-2** below shows the proposed Zoning Districts that will implement each General Plan land use designation.

TABLE 4.1-2
ZONING DISTRICTS

Zoning District Symbol	Zoning District Name/Description	General Plan Land Use Designation Implemented by Zoning District
Residential Zoning Districts		
R-1	**Low Density Residential District**. This district provides for larger lot single-family dwellings and includes sites located adjacent to open space areas or near environmental resources where a development transition from suburban to rural land use is desirable.	Low Density Residential
SR-1	**Suburban Residential Zoning District**. This district provides for single-family development that is typical of most residential areas of the city. This is the single largest residential category.	Rural
R-2	**Medium Density Zoning District**. This district allows attached dwellings, townhomes, apartments with on-site usable open space.	Medium Density Residential
R-3	**High Density Zoning District**. This district provides for multi-family areas, townhomes, and apartments found near transit and/or commercial uses.	High Density Residential
R-4	**Very High Density Zoning District**. This district includes townhomes, condominiums, brownstones and apartment complexes	Very High Density Residential
Rural Zoning District		
R	**Rural Zoning District**. This district includes sites characterized by steep slopes, which have geologic constraints, visual significance in the community, sensitive environmental resources, or which have been identified as having limited development due to service delivery constraints.	Rural
Commercial Zoning District		
RC	**Regional Commercial Zoning District**. This district provides for large regional commercial shopping center area along Interstate 80. This designation would apply to areas along Interstate 80 that are not within the Corridor Specific Plan Area.	Regional Commercial
Mixed Use Districts		
RMU	**Residential Mixed Use District**. The predominant use of the district is residential. It also encourages the vertical and/or horizontal integration of commercial and/or office uses that are compatible with the residential development. This district does not preclude development that is solely residential, but rather encourages a mix of uses.	RMU
CMU	**Commercial Mixed Use District**. The predominant use of this district is commercial. This category is designed to provide for the integration of retail and service commercial uses with office and/or residential uses.	CMU
OPMU	**Office Professional Mixed Use District**. The predominant use of this district is office, but commercial uses may be integrated into office buildings or located horizontally in freestanding buildings.	OPMU
OIMU	**Office Industrial Mixed Use District**. This district allows a wide range of office and light industrial development. It is intended for office and light industrial uses with supporting retail and service uses. Retail must be ancillary to the principal industrial activity of the property.	OIMU

Zoning District Symbol	Zoning District Name/Description	General Plan Land Use Designation Implemented by Zoning District
Public, Quasi Public, and Recreational Zoning Districts		
SPBCD	**San Pablo Bay Conservation District**. This district is reserved for the portion of the Pinole Planning Area that extends into San Pablo Bay and the land immediately adjacent to San Pablo Bay. This is primarily an open space designation with a few other possible uses such as for expansion of the Pinole-Hercules Water Pollution Control Plant; railroad corridors; passenger rail stations, recreation facilities such as the Bay Trail; or flood protection improvements. In addition, very limited commercial development which is directly related to, and enhances the public use of, the waterfront may also be allowed.	San Pablo Bay Conservation Area
PQI	**Public/Quasi-Public/Institutional District**. This district provides for uses which are primarily public-serving in nature, including City and other government offices public school facilities, publicly owned recreation facilities, and fire and police facilities. This district also allows for quasi-public and institutional uses.	Public Facilities
PR	**Parks and Recreation District**. This district includes public parks, City-owned or East Bay Regional Park District owned conservation lands, and private open space or recreation facilities for active sport use.	Parks and Recreation
OS	**Open Space District**. This district includes undeveloped lands which are vacant of structures and improvements and which are primarily maintained in their natural condition and designated as open space.	Open Space
Special Purpose Zoning Districts		
SP	**Specific Plan District**. This district designates areas for master planning with unique zoning and design standards through adoption of a Specific Plan to govern development of land with in the plan area.	All
PD	**Planned Development District**. This district allows for some flexibility in development standards in exchange for public benefit and in keeping with the allowed use of the corresponding base zoning district.	All

As shown, the proposed Zoning Districts are consistent with the proposed General Plan land use designations and various General Plan policies. Therefore, this impact is considered **less than significant**.

Proposed General Plan Policies and Action Items that Address Consistency with Relevant Land Use Planning Documents

Policy LU.2.1 Continue to coordinate planning review of development proposals with appropriate federal, state, regional and local public agencies (e.g., WCCTAC, BCDC, EBRPD, ABAG).

Policy LU.2.2 Coordinate land use planning decisions within Pinole's Sphere of Influence (SOI) or Planning Area with other jurisdictions (see Figure 5.1).

Policy LU.2.3 Annexation of areas outside the current city limits should be dependent on resident interest, the cost/revenue implications of specific annexation proposals and the ability to provide City services to the area.

Action LU.2.3.1 Consider property annexation where it would:

- Encourage orderly growth and development through logical and timely boundary changes.
- Promote long-term and efficient delivery of local services and the assignment of appropriate local political responsibility for those services.
- Provide for the orderly implementation of the adopted Sphere of Influence.
- Implement the adopted General Plan.
- Result in boundaries that follow existing natural or man-made features such as streams, lakes, natural terrain, railroad tracks and roadways.
- Ensure economically feasible provision of services with available revenues.

Policy LU.2.4 Continue to support the agreement for the Briones Hills Preserve that established this area as an agricultural preservation area in 1987.

Action GM.1.1.1 Regional Planning. Work with regional planning agencies (e.g., Metropolitan Transportation Commission, Association of Bay Area Governments, Contra Costa Transportation Authority, West Contra Costa Transportation Advisory Committee, Bay Conservation and Development Commission, and Bay Area Air Quality Management District) and transit providers (e.g. WestCAT, AC Transit, and Bay Area Rapid Transit) to address regional land use, transportation and environmental issues.

Policy OS.6.3 Open Space Separators. Maintain a continuous open space separator between Pinole and the cities of Hercules (Pinole Ridge), and El Sobrante/ Richmond (El Sobrante Ridge) through requirement of scenic easements where feasible, and in conjunction with ridgeline preservation policies and Open Space Plan.

The proposed Three Corridors Specific Plan does not include any policies that specifically address consistency with relevant land use planning documents. However, the Three Corridors Specific Plan implements the General Plan by further refining the objectives for the Project Area and by establishing a direct connection between the General Plan and economic and revitalization opportunities within the three Specific Plan corridors. An overall goal of the Three Corridors Specific Plan is the orderly development of San Pablo Avenue, Pinole Valley Road, and Appian Way consistent with the City's General Plan. Therefore, the policies and land uses proposed by the Three Corridors Specific Plan would be consistent with and implement the General Plan policies and actions aimed at reducing conflicts with applicable land use plans.

As previously noted, the above General Plan policies and actions would help to reduce conflicts with applicable land use plans resulting from implementation of the proposed project to a **less than significant** level.

Mitigation Measures

None required.

Land Use Incompatibilities (Standard of Significance 1)

Impact 4.1.3 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could create incompatibilities between existing and future land uses within the City of Pinole. This is considered a **less than significant** impact.

General Plan Update

The proposed General Plan Land Use Map (**Figure 3.0-4**) and policy document were developed with the intent to designate areas for the most appropriate type of land use based on existing land uses, the existing and planned circulation system, the specific needs of the community, environmental constraints, and other factors. However, some designated land uses have the potential to result in conflicts. As shown in **Table 4.1-3** below, the proposed General Plan Update reduces the acreage designated for Open Space and conservation area in comparison to the existing General Plan. In addition, the General Plan Update designates land uses that would concentrate new and intensified development on Pinole's primary commercial corridors as discussed in more detail below. Potential land use conflicts include noise; hazardous materials use, storage, and transport; toxic air emissions and odors; and light pollution and undesirable views in close proximity to sensitive receptors. Each of these issues is addressed in detail in the appropriate technical sections of this DEIR. This is a **potentially significant** impact.

By encouraging growth within the GPU Planning Area and along existing corridors that can accommodate transit, bicycles, and pedestrians, the General Plan Update seeks to build on the city's historic land use patterns and provide a logical and convenient interface between land uses to minimize the vehicular travel distances between residences, employment, services, shopping, and recreational spaces. In general, areas in the city with topographic conditions, visual prominence, and/or resource value that require protection from land use conflicts have been designated by the proposed General Plan as Open Space or Rural. Proposed land use policies create the opportunity to reduce the development potential at these sites to no more than 1 housing unit per 5 acres (0.2 dwelling units per acre) and provide greater design control over future development in order to avoid potential environmental impacts by requiring development to be clustered on the most accessible, geologically stable, and least visible portions of a site to maximize community separators, views, and other resource protection and to support urban agriculture uses.

TABLE 4.1-3
EXISTING AND PROPOSED GENERAL PLAN LAND USE DESIGNATIONS AND ACREAGE

General Plan Land Use Designation	Existing			Proposed		
	City Only	Sphere of Influence	Total Planning Area	City Only	Sphere of Influence	Total Planning Area
Downtown Commercial (DC)	6	0	**6**	0	0	**0**
Neighborhood Commercial (NC)	49	14	**63**	0	0	**0**
Regional Commercial (RC)	129	0	**129**	71	0	**71**
Industrial Office Park (I-OP)	14	0	**14**	0	0	**0**
Light Industrial Service Commercial (LISC)	14	11	**25**	0	0	**0**
Major Institution/Medical (MI-M)	18	0	**18**	0	0	**0**

General Plan Land Use Designation	Existing			Proposed		
	City Only	Sphere of Influence	Total Planning Area	City Only	Sphere of Influence	Total Planning Area
High Density Residential (HDR)	18	44	**62**	19	0	**19**
Medium Density Residential (MDR)	127	21	**148**	92	12	**104**
Low Density Residential (LDR)	1,091	602	**1,693**	40	0	**40**
Suburban/Rural Residential (SRR)	252	9	**261**	0	0	**0**
Suburban Residential (SR)	0	0	**0**	1,144	602	**1,746**
Rural (R)	0	0	**0**	313	9	**322**
Old Town Sub-Area (OTSA)	0	0	**0**	52	0	**52**
Service Area Sub-Area (SASA)	0	0	**0**	179	0	**179**
Mixed Use Sub-Area (MUSA)	0	0	**0**	74	71	**145**
Mixed Use High Density Residential/Downtown Commercial (MU-HDR-DC)	7	0	**7**	0	0	**0**
Mixed Use High Density Residential/Light Industrial-Service Commercial (MU-HDR-LISC)	1	0	**1**	0	0	**0**
Mixed Use High Density Residential/Neighborhood Commercial (MU-HDR-NC)	23	0	**23**	0	0	**0**
Mixed Use Low Density Residential/Downtown Commercial (MU-LDR-DC)	2	0	**2**	0	0	**0**
Mixed Use Medium Density Residential/Light Industrial (MU-MDR-LI)	13	0	**13**	0	0	**0**
Mixed Use Medium Density Residential/Neighborhood Commercial (MU-MDR-NC)	9	2	**11**	0	0	**0**
Public/Quasi-Public/Institutional (PQI)	93	65	**158**	51	80	**131**
Open Space (OS)	624	9	**633**	363	10	**373**
Parks and Recreation (PR)	277	52	**329**	328	37	**365**
San Pablo Bay Conservation Area (SPBCA)	222	77	**299**	143	0	**143**
Open Water (San Pablo Bay)	3,948	0	**3,948**	3,975	53	**4,028**
Transportation Right-of-Way	501	195	**696**	594	232	**826**
Totals	**7,438**	**1,101**	**8,539**	**7,438[1]**	**1,106[1]**	**8,544[1]**

[1] *Differences in totals due to rounding.*
Source: City of Pinole General Plan 1995

Three Corridors Specific Plan

Implementation of the proposed Three Corridors Specific Plan would encourage the revitalization of the San Pablo Avenue, Pinole Valley Road, and Appian Way corridors. Proposed

land uses within these three corridors are described in the Specific Plan, with specific policies and directives established for each corridor. Land use changes proposed in each of the corridors is summarized below.

San Pablo Avenue

The proposed land use plan and designations introduce changes to the existing land use pattern along San Pablo Avenue. Currently, this corridor contains a wide variety of commercial uses including office parks, small businesses, and a local shopping mall; light industrial uses such as Sugar City; and historic homes and buildings. The Specific Plan seeks to protect existing industry from conflicting land uses and focus the commercial and residential activity in pulse points to make San Pablo Avenue into a pedestrian-oriented corridor. In addition, the land use districts along San Pablo Avenue give preference to replacing vacated and underutilized commercial areas with new residential and commercial mixed-use developments and increasing the density of a few existing residential areas.

Pinole Valley Road

The proposed land use plan and designations introduce changes to the existing land use pattern along Pinole Valley Road. Currently, Pinole Valley Road is lined with commercial retail and service uses. The Specific Plan seeks to focus these commercial activities in combination with office and residential uses to make Pinole Valley Road into a pedestrian-oriented corridor. In addition, policies give preference to replacing vacated and underutilized commercial areas with new office professional developments and increasing the density of a few existing residential areas along the corridor.

Appian Way

The proposed land use plan and designations introduce changes to the existing land use pattern along Appian Way. Currently, Appian Way is lined with commercial retail, office, professional, and service uses. The Specific Plan seeks to focus these commercial activities in combination with office and residential uses to make Appian Way into a regional service and commercial corridor. The plan calls for the eventual transformation of underutilized sites in this area, expanding office uses and introducing commercial service uses onto the parcels that include the existing Doctors Hospital and offices, Appian 80 shopping center, and residential properties south of I-80 fronting Appian Way.

In general, land use policies and designations in the Three Corridors Specific Plan replace single-use commercial zoning with various mixed-use zones and include the mixing of commercial retail and service uses, office uses, and residences at key points, the inclusion of new mixed-density neighborhoods, and the densification of existing neighborhoods throughout the three commercial corridors. The Specific Plan areas contain approximately 300 acres of predominantly developed land. If all of the vacant and underutilized properties within the Specific Plan areas were to develop according to the proposed land use designations, the Specific Plan area would be expected to experience increased buildout development as indicated in **Table 4.1-4** below.

TABLE 4.1-4
SPECIFIC PLAN DEVELOPMENT PROJECTIONS

Corridor	Residential (Units)	Retail (s.f.)	Office (s.f.)	Industrial (s.f.)
San Pablo Ave.	885	322,172	336,253	426,692
Pinole Valley Rd.	141	238,708	105,038	1,239
Appian Way	244	561.260	468,449	48,352
Existing Total	**1,270**	**1,122,140**	**909,740**	**476,283**
San Pablo Ave.	1,119	552,927	307,233	472,578
Pinole Valley Rd.	351	192,603	386,843	0
Appian Way	877	807,698	728,129	0
Proposed Total	**2,346**	**1,553,228**	**1,422,206**	**472,578**
Difference	1,076	431,088*	512,466*	(3,705)

*Note: * Because the proposed land use designations would accommodate more commercial development than is expected to occur under the General Plan development, these development projections limit growth in the commercial and office sectors to 150,000 square feet above the existing land use capacity by the year 2030. For further discussion on development projections, the reader is referred to Section 4.0, Introduction to the Environmental Analysis and Assumptions Used*
Source: City of Pinole. 2010. Specific Plan for San Pablo Avenue, Pinole Valley Road, Appian Way.

Such intensification and modification of land uses could result in land use conflicts including noise; hazardous materials use, storage, and transport; toxic air emissions and odors; and light pollution and undesirable views in close proximity to sensitive receptors. This is a **potentially significant** impact.

Zoning Code Update

Updates to the Zoning Code involve the deletion, addition, and modification of certain zoning districts and development standards in order to make the code consistent with the updated General Plan (see Section 3.0, Project Description, for more details). These updates would not result in any development activities beyond those analyzed for the proposed GPU. Therefore, the Zoning Code Update would have an impact similar to that for the General Plan Update as discussed above.

Proposed General Plan Policies and Action Items that Address Land Use Incompatibilities

The proposed General Plan incorporates the following policies and actions that provide mitigation to minimize impacts associated with land use conflicts:

Policy LU.1.1 Increase land use diversity along the San Pablo Avenue, Pinole Valley Road and Appian Way corridors; reduce residential density on large land holdings designated for Rural land use; and maintain other land use designations for a variety of residential, commercial, light industrial, recreational, open space and public purposes which (1) protect environmental resources; (2) provide a mix of housing types, densities and tenure; (3) ensure that a variety of commercial and industrial goods, services and employment opportunities are available; and (4) offer a range of recreational and public facilities to meet the needs of residents.

Action LU.1.1.1	Adopt and implement the Three Corridors Specific Plan for the San Pablo Avenue, Pinole Valley Road and Appian Way corridors.
Policy LU.1.2	Require all proposed projects to be consistent with the General Plan and other applicable development standards established by the Specific Plan(s) or the City's Zoning Code.
Action LU.1.2.1	Adopt a Zoning Code Update to implement the General Plan.
Policy LU.1.6	Establish required setback areas around sensitive resources or reduce development intensity on constrained sites to prevent development impacts.
Policy LU.2.4	Continue to support the agreement for the Briones Hills Preserve that established this area as an agricultural preservation area in 1987.
Policy LU.3.2	Ensure high-quality site planning, architecture and landscape design for all new residential development, renovation or remodeling.
Action LU.3.2.1	Continue to implement the adopted Residential Design Criteria and Guidelines.
Policy LU.3.3	Require design review of commercial and industrial projects to ensure compatibility with adjacent or nearby land uses, including intensity, access, internal circulation, visual characteristics, noise, odors, fire hazards, vibrations, smoke, discharge of wastes and nighttime lighting.
Action LU.3.3.1	Develop and adopt Commercial and Industrial Design Review Criteria and Guidelines.
Action LU.3.3.2	Update the Zoning Code to reflect Commercial and Industrial Design Review policies and procedures.
Policy LU.3.4	Identify and protect sites and structures of architectural, historical, archaeological and cultural significance, including significant biological resources. Require new development in historic areas to complement the character of nearby historic structures. (See also the Community Character Element.)
Policy LU.4.1	Ensure all new development, renovation or remodeling preserves and strengthens Pinole's residential neighborhoods by requiring projects to be harmoniously designed and integrated with the existing neighborhood.
Action LU.4.1.1	Continue to implement the adopted Residential Design Criteria and Guidelines.
Policy LU.4.2	Maintain the character and long-term viability of the city's residential areas by ensuring that residential projects are well designed and consistent with site and area resources and constraints. The following guidelines shall provide a starting point for establishing project-specific densities, as shown on the Land Use Map:

a) Low End of the Density Range/Below the Maximum Allowable Density: The low end of the range is appropriate for sites with challenging development constraints, such as those with restrictive easements, irregular shape, proximity to important open space or natural resources, other physical or service delivery access challenges, or ongoing safety concerns.

b) High End of the Density Range: The high end of the range is allowable when site development constraint issues (see Policy LU.4.3 and other General Plan elements) can be mitigated through some or all of the following:

1. Creative solutions to building location and/or design.

2. Preservation of views or vistas.

4. Creation of usable open areas for public and/or private enjoyment.

5. Provision of pedestrian/bicycle pathways and facilities for links to existing or proposed routes.

6. Preservation of wildlife resources.

7. Conservation of energy resources (through solar siting, clustering, etc.).

8. Clustering to reduce paving, grading runoff, and changes in vegetation cover.

9. Additional landscaping area is provided to enhance the natural qualities of the site.

10. On-site recreational facilities are provided for the enjoyment of project residents.

11. Traffic, noise or visual effects of the higher-density development would not significantly affect adjacent or nearby residences or the overall streetscape.

12. Proximity to transportation facilities.

13. Provision of affordable housing.

Action LU.4.2.1 Large undeveloped properties with the Rural land use designation should have a zoning designation allowing no more than 1 unit per 5 acres in order to protect important visual, community and environmental resources.

Policy LU.4.3 Cluster development at higher densities to protect natural resources and address site development constraint issues, including archaeological sites, access, traffic, emergency services, water and sewer availability, creek and tree protection, steep slopes, potential geologic hazards, grading impacts, view protection and protection of open space resources. (See also Goal LU.8 below.)

Action LU.5.1.2 Large undeveloped properties with the Rural land use designation should have a zoning designation allowing no more than 1 unit per 5 acres in order to protect important visual, community and environmental resources.

Action LU.5.3.1 Establish a creek protection ordinance to govern land use along Pinole Creek that takes into account resource and flood protection issues. Standards may be different for existing and new development. For the portion of the creek located north of Interstate 80, the protection zone should extend 50 feet outward from the centerline of the creek. For upstream parcels, the City should establish standards that respect existing development patterns, particularly where the creek is located on private property. Within this zone, riparian resource protection, public access and recreational activity should be the primary use.

Action LU.5.3.2 In areas where existing development abuts the creek, recreational use and public access adjacent to the resource are appropriate uses and activities. Where undeveloped properties abut the creek, siting and design of facilities should preserve and protect the natural resources, but public access and recreational activity are acceptable.

Policy LU.6.1 Retain the designation for the land immediately adjacent to the bay as San Pablo Bay Conservation Area, and expand the San Pablo Bay Conservation Area to include the Pinole/Hercules Water Pollution Control Plant and Bayfront Park. Primary use of the San Pablo Bay Conservation Area shall be for water-dependent uses (including water pollution control), recreation, public access, open space and resource protection. The City should formulate a plan for this area to meet the needs of connecting the Bay Trail, providing backbone facilities for the Bay Water Trail, expanding the Pinole-Hercules Water Pollution Control Plant, restoring Pinole Creek, and providing Pinole residents with waterfront uses. All proposals shall incorporate public open space and provide public access to open space areas.

Action LU.6.1.1 Establish a waterfront planning strategy to coordinate between regulatory agencies, property owners and other stakeholders to maximize recreation, public access and flood protection while ensuring continued water pollution control and creating opportunities for water-dependent uses.

Policy LU.8.1 Encourage land uses that attract higher-density residential development to key San Pablo Avenue locations that support local-serving and specialty business. Expand the range of community and civic uses within the Old Town Sub-Area and encourage industrial uses in the Service Sub-Area at the west end of San Pablo Avenue that can serve local and regional demand for green industries and products. Utilize the San Pablo Avenue Mixed Use and Old Town Sub-Areas to encourage a balance of employment and housing opportunities with a variety of housing types and densities.

Action LU.8.1.1 Utilize the Three Corridors Specific Plan to encourage attractive mixed-use development along San Pablo Avenue while retaining Pinole's important view corridors; providing a safe circulation plan that includes traffic calming measures, enhanced transit, bicycle, and pedestrian facilities as well as to encourage sustainable and green building environment.

Policy OS.1.7 Transitional Zones. The City will condition or modify development approvals to ensure that natural transitions along the edges of different habitat types are preserved and enhanced because of their importance to wildlife. Maintain proper buffers between sensitive habitat and conflicting land uses. Habitat types of particular concern are those along the margins of riparian corridors, marshlands, and oak woodlands. Preserves and areas with special conservation status must have compatible surrounding land uses.

Policy OS.3.2 Regional Planning. Coordinate with Contra Costa County and adjoining jurisdictions, federal and state agencies to assure regional connectivity of open space and wildlife corridors.

Policy OS.3.3 Cluster Development. Encourage cluster development and other creative site planning techniques to preserve open space, trails and visual, habitat, recreation and archaeological resources.

Policy OS.3.5 Buffers for Sensitive Resources. When activities close to open space resources within or outside the urban area could harm these resources, the City will require buffers between the activities and the resources. The City will actively encourage individuals, organizations and other agencies to follow this policy. Buffers associated with new development shall be on the site of the development, rather than on neighboring land containing the open space resource. Buffers provide distance in the form of setbacks, within which certain features or activities are not allowed or conditionally allowed. Buffers shall also use techniques such as planting and wildlife-compatible fencing. Buffers shall be adequate for the most sensitive species in the protected area, as determined by a qualified professional and shall complement the protected area's habitat values. Buffers shall be required in the following situations:

- Between urban development – including parks and public facilities – and natural habitat such as creeks, wetlands, rocky outcrops, and grassland features to address noise, lighting, storm runoff, spread of invasive, non-native species, and access by people and pets.

- Between agricultural operations and natural habitat, to address noise, chemical use, sediment transport, and livestock access.

Policy OS.3.6 Minimize Environmental Impacts. Encourage development patterns which minimize impacts on the City's biological, visual, and cultural resources, and integrate development with open space areas.

In addition, Chapter 7.0, *Private Realm Design Guidelines*, and Chapter 8.0, *Public Realm Standards and Design Guidelines*, of the Three Corridors Specific Plan encourage the use of site design techniques that minimize nuisances associated with incompatible uses including the use of landscaped buffers and the placement of noise and odor generating facilities and equipment away from residential uses. Furthermore, Chapter 6.0, *Land Use Standards*, of the Specific Plan as well as the Zoning Code Update establish permitted uses by parcel in order to ensure that future develop is appropriate and compatible with surrounding uses. Specific Plan Land Use Policies 8 and 10 encourage compatible land uses and preservation of historic resources and would further assist in reducing potential land use conflicts.

As all projects must be consistent with the General Plan and Three Corridors Specific Plan, implementation of the General Plan policies and Specific Plan policies, standards, and guidelines discussed above would reduce potential land use conflicts to **less than significant**.
Mitigation Measures

None required.

4.1.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The land use policies in the proposed City of Pinole General Plan would provide direction for growth within the GPU Planning Area, while the Contra Costa County General Plan and general plans for the cities of Richmond, San Pablo, and Hercules would provide direction for growth outside of the GPU Planning Area. The setting for this cumulative analysis includes existing, proposed, approved, and reasonably foreseeable projects within the GPU Planning Area. Development in the City of Pinole and surrounding area, including the proposed and approved projects discussed in Section 4.0 of this DEIR, would change the intensity of land uses in the GPU Planning Area.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Land Use Impacts

Impact 4.1.4 When considered with existing, proposed, approved, and reasonably foreseeable development in the region, implementation of the proposed project has the potential to contribute to cumulative land use conditions, resulting in significant impacts to the physical environment. The proposed project would have a **less than cumulatively considerable** contribution to this impact.

After implementation of the proposed General Plan Update and its associated project components, land use patterns and development within the City of Pinole Planning Area would contribute to the environmental effects of growth expected to occur in the region over the next 20 years and beyond. There are multiple existing, proposed, approved, and reasonably foreseeable development projects in the region that will further contribute to cumulative changes in land use patterns in the region.

In addition, the proposed General Plan Update and its associated project components allow for intensified development, primarily in the Three Corridors Specific Plan area, within the next 20 years. The proposed land use pattern and development intensity would continue to contribute to increased traffic, air emissions, elevated noise levels, removal of habitat and biological resources, reduction in impervious surfaces, increased stormwater runoff, potential for increased erosion, and potential impacts to cultural resources. These cumulative impacts would result in significant effects to the environment, which are discussed and analyzed in greater detail in the sections relating specifically to those particular issue areas in this DEIR. The proposed project would have a **potentially cumulatively considerable** contribution to this impact.

Proposed General Plan Policies and Action Items that Address Cumulative Land Use Impacts

The proposed General Plan update contains several goals, policies, and action items that would assist in reducing this potential impact to prehistoric resources, historic resources and human remains. The following list contains those policies and action items that contain specific, enforceable requirements and/or restrictions and corresponding performance standards that assist in reducing (though not eliminating) this impact. Since these policies and action items have been described in detail in prior impact discussions for this section, the following is limited to only listing the policy and action item numbers.

Growth Management Element

Action GM.1.1.1

Land Use and Economic Development Element

Policy LU.1.1; Action LU.1.1.1; Policy LU.1.2; Action LU.1.2.1;Policy LU.1.6; Policy LU.2.1; Policy LU.2.2; Policy LU.2.3; Action LU.2.3.1; Policy LU.2.4; Policy LU.3.2; Action LU.3.2.1; Policy LU.3.3; Action LU.3.3.1; Action LU.3.3.2; Policy LU.3.4; Policy LU.4.1; Action LU.4.1.1; Policy LU.4.2; Action LU.4.2.1; Policy LU.4.3; Action LU.5.1.2; Action LU.5.3.1; Action LU.5.3.2; Policy LU.6.1; Action LU.6.1.1; Policy LU.8.1; Action LU.8.1.1

Natural Resources and Open Space Element

Policy OS1.7; Policy OS.3.2; Policy OS.3.3; Policy OS.3.5; Policy OS.3.6; Policy OS.6.3

As discussed above, Chapters 7.0 and 8.0 of the Three Corridors Specific Plan encourage the use of site design techniques that minimize nuisances associated with incompatible uses and Chapter 6.0 of the Specific Plan as well as the Zoning Code Update establish permitted uses by parcel in order to ensure that future develop is appropriate and compatible with surrounding uses. Specific Plan Land Use Policies 8 and 10 encourage compatible land uses and preservation of historic resources and would further assist in reducing potential land use conflicts. Implementation of the above General Plan Update policies and Specific Plan standards and guidelines would assist in reducing the environmental effects of proposed land use patterns accommodated by the General Plan Update. In addition, the proposed General Plan Update and the Three Corridors Specific Plan promote infill and redevelopment and direct growth toward existing transit, jobs, retail, and infrastructure. The General Plan Update also encourages the clustering of development and higher densities within previously developed areas. All of these policies and actions minimize impacts to the environment by directing growth to existing urban areas. Furthermore, policies in the General Plan assure that the City takes an active leadership role in coordinating planning with neighboring jurisdictions and other public agencies. Policies addressing land use coordination assist in safeguarding against land use conflicts with other regional jurisdictions and/or agencies. Therefore, the proposed General Plan policies would reduce the City's cumulative contribution to a **less than cumulatively considerable** impact.

Mitigation Measures

None required.

REFERENCES

Bay Area Economics (BAE). 2008. *Appian Way, Pinole Valley Road, and San Pablo Avenue Specific Plans Economic Background Report*. Emeryville, California.

Contra Costa County. 2005. *Contra Costa County General Plan 2005–2020*. Martinez, California.

Contra Costa County, Department of Conservation and Development (CCCDCD). 2009. *Contra Costa Pipeline Project Draft Environmental Impact Report*.

Contra Costa Local Agency Formation Commission (LAFCO). 2010. http://www.contracostalafco.org/index.html (accessed May 25, 2010).

Richmond, City of. 2010. *General Plan Update*. http://www.cityofrichmondgeneralplan.org/ (accessed February 12, 2010).

San Pablo, City of. 2010. http://www.ci.san-pablo.ca.us/ (accessed February 12, 2010).

4.2 POPULATION/HOUSING/EMPLOYMENT

This section of the Draft Environmental Impact Report (Draft EIR; DEIR) discusses current and projected population characteristics, housing, and employment conditions within the Pinole General Plan Update Planning Area and analyzes potential changes that would occur as a result of implementation of the proposed project.

This section utilizes population and housing estimates and projections primarily from the Association of Bay Area Governments (ABAG), which is responsible for making long-term forecasts of population, housing, and employment for the nine-county Bay Area. Although the California Department of Finance (DOF) also publishes demographic data for state planning and budgeting purposes, the City of Pinole considers ABAG projections to be more regionally accurate in that they present a realistic assessment of growth in the region, while recognizing trends in markets and demographics, as well as recognize local policies that promote more compact infill and transit-oriented development. However, it should be noted that where ABAG information was not available, this DEIR has referenced the most recent DOF demographic data. The Notice of Preparation for this DEIR was published on February 17, 2009. Therefore, consistent with Section 15152 of the California Environmental Quality Act (CEQA) Guidelines, the environmental conditions that existed on February 17, 2009, are considered the baseline physical conditions for the DEIR and, as the 2009 ABAG projections were not released until August of 2009, this DEIR utilizes the 2007 ABAG projections. In addition, the Bay Area Air Quality Management District (BAAQMD) and the Metropolitan Transportation Commission (MTC) utilize the 2007 ABAG projections for their plans and in utilizing the ABAG 2007 population projections this DEIR is also consistent with the BAAQMD and MTC plans.

4.2.1 EXISTING SETTING

REGIONAL SETTING

The City of Pinole is located in western Contra Costa County in the San Francisco Bay Area. According to ABAG, the Bay Area, consisting of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma counties, had a population of approximately 7,096,099 in 2005 and was projected to have a population of 7,412,500 in 2010 (MTC, 2007). ABAG projects that the Bay Area region will grow to a total population of 8,712,799 by the year 2030.

Contra Costa County is the Bay Area's third most populous county. In 2005, Contra Costa County contained just over 14 percent of the Bay Area's population, with approximately 1,023,400 people. ABAG estimates the population of Contra Costa County at 1,061,900 in 2010 and projects that the population will increase to 1,255,300 by 2030. **Table 4.2-1** shows ABAG's population estimates and growth projections for the Bay Area and Contra Costa County.

TABLE 4.2-1
ABAG POPULATION ESTIMATES AND PROJECTIONS FOR THE BAY AREA AND CONTRA COSTA COUNTY

Year	Bay Area Region			Contra Costa County		
	Total Population	Numerical Change	Percentage Change	Total Population	Numerical Change	Percentage Change
2000	**6,783,762**	N/A	N/A	**948,816**	N/A	N/A
2005	**7,096,099**	312,337	4.6%	**1,023,400**	74,584	7.9%
2010	**7,412,500**	316,401	4.5%	**1,061,900**	38,500	3.8%

Year	Bay Area Region			Contra Costa County		
	Total Population	Numerical Change	Percentage Change	Total Population	Numerical Change	Percentage Change
2020	**8,069,699**	657,199	8.9%	**1,157,000**	95,100	9.0%
2030	**8,712,799**	643,100	8.0%	**1,255,300**	98,300	8.5%

Source: MTC, 2007

LOCAL SETTING

Population Trends

The City of Pinole has seen little change in population in the last five years at 2 percent total growth since 2005. Because there is little vacant land in the Planning Area, the city will experience similar slow growth in the coming decade. The most notable growth period in Pinole's history occurred between 1950 and 1970 when the population grew from 1,147 to 13,266 residents. This increase in growth represented a 1,056 percent increase in population in just 20 years. Since then, population growth in the city has been more moderate, increasing by 10 to 20 percent every decade. The City of Pinole's population changes since 2000 are summarized and compared to Contra Costa County's population changes in **Table 4.2-2**.

ABAG's projections for the city's future population growth are shown in **Table 4.2-3**. As shown, ABAG anticipates that the city (that portion within the city limits not including the unincorporated portions of the city's Sphere of Influence) will continue to have a slow rate of growth — averaging between 0.4 percent and 0.6 percent per year – with gradual tapering off through the year 2030. However, as evidenced by the slow growth associated with a recession, the growth numbers over time could be even lower than projected.

TABLE 4.2-2
POPULATION GROWTH ESTIMATES
CITY OF PINOLE AND CONTRA COSTA COUNTY
2000–2010

Year	City of Pinole			Contra Costa County		
	Total Population	Numerical Change	Percentage Change	Total Population	Numerical Change	Percentage Change
2000	**19,039**	N/A	N/A	**948,816**	N/A	N/A
2005	**19,700**	661	3.4%	**1,023,400**	74,584	7.8%
2010	**20,100**	400	2%	**1,061,900**	38,500	3.7%

Source: ABAG, 2007

TABLE 4.2-3
ABAG POPULATION PROJECTIONS
CITY OF PINOLE
2015–2030

Year	Population	Numerical Change	Percentage Change	Annual Percentage Change
2015	20,300	N/A	N/A	N/A
2020	20,700	400	2.0%	0.4%
2025	21,200	500	2.4%	0.5%
2030	21,800	600	2.8%	0.6%

Source: ABAG, 2007; Contra Costa LAFCo, 2008

Housing Trends

Number of Households

Table 4.2-4 compares the number of households in the city versus the number of households in the county between 2000 and 2010 as estimated by ABAG. **Table 4.2-5** shows ABAG household projections for the city through 2030. According to the ABAG projections, the city will have a total of 8,060 households by 2030 (ABAG, 2007).

TABLE 4.2-4
NUMBER OF HOUSEHOLDS
CITY OF PINOLE AND CONTRA COSTA COUNTY
2000–2010

Year	City of Pinole			Contra Costa County		
	Total Households	Numerical Change	Percentage Change	Total Households	Numerical Change	Percentage Change
2000	**6,743**	N/A	N/A	**344,129**	N/A	N/A
2005	**6,920**	177	2.6%	**368,310**	24,181	7%
2010	**7,200**	280	4%	**385,400**	17,090	4.6%

Source: ABAG, 2007

TABLE 4.2-5
HOUSEHOLD PROJECTIONS
CITY OF PINOLE
2015–2030

Year	Households	Numerical Change	Percentage Change	Annual Percentage Change
2015	7,370	N/A	N/A	N/A
2020	7,550	180	2.4%	0.5%
2025	7,780	230	3.0%	0.6%
2030	8,060	280	3.6%	0.7%

Source: ABAG, 2007

Household Size

Household size refers to the number of persons in a household. According to ABAG estimates, the average household size in the city in 2010 was 2.89 persons per household. In the same year, Contra Costa County as a whole averaged 2.73 persons per household (ABAG, 2007).

Housing Units

The majority of the existing housing stock in the City of Pinole consists of single-family detached units. The DOF estimates that in 2010, 73.5 percent of the 7,033 housing units in the city were single-family and detached. In that same year, there were 498 attached single-family housing units, 1,347 multi-family units, and 15 mobile homes in the city (DOF, 2010).

Vacancy Rates

Vacancy rates establish the relationship between housing supply and demand. For example, if the demand for housing is greater than the supply, then the vacancy rate is low and the price of housing will most likely increase. According to the California Department of Housing and Community Development's (HCD) *Raising the Roof, California Housing Development Projections and Constraints, 1997–2020*, the desirable vacancy rate in a community is considered to be 5 percent (HCD, 2000). Generally, when the vacancy rate drops below 5 percent, the demand for housing exceeds the supply of housing. Subsequently, prospective buyers and renters may experience an increase in housing costs.

Between 2000 and 2009, the city's vacancy rate ranged between 1.22 and 1.24 percent. Of the 7,032 housing units in the city in 2009, 6,946 were occupied. This is the equivalent of a 1.22 percent vacancy rate, the second lowest in Contra Costa County (DOF, 2010).

Housing Prices

Along with the national and California real estate markets, the prices of preexisting residential property in Pinole increased significantly between 2000 and 2006 but have fallen sharply since then. Between 2000 and 2003, the median price of detached, single-family housing units in the city increased 100 percent from $195,000 to $390,000. Between 2000 and 2006, the median value of single-family residences nearly tripled to $554,000. Since 2006, the median price for housing in the city has dropped along with the broader California and national markets. The median sales price for single-family detached homes in the city during November 2009 through January 2010 was $263,400, a 52 percent decline from the high of $554,000 and a return to 2000 price levels (Trulia, 2010).

Employment Trends

As shown in **Table 4.2-6**, ABAG projects the number of jobs in Pinole will increase from 5,840 in 2005 to 7,560 in 2030, a 29 percent increase (BAE, 2008). Even so, the rate of job growth in the city is expected to be slower than in the county or Bay Area, where the number of jobs is projected to increase by 56 percent and 52 percent, respectively, between 2005 and 2030. Again, these projections are affected by the largely built-out nature of the city, which constrains future development opportunities for employment-generating land uses.

In 2005, the health, education, and recreational services sector was the largest job provider in the City of Pinole General Plan Update Planning Area, providing 52 percent of jobs. The retail sector represented the second highest concentration of jobs (23 percent), followed by financial

and professional services (11 percent). ABAG projects that a similar distribution of jobs will continue each year through 2030 (BAE, 2008).

Jobs-to-Housing Ratio

A jobs-to-housing ratio is a tool used to gauge the relative balance of jobs and housing units within a community. One way to determine a jobs-to-housing ratio is to divide the number of jobs in an area by the number of households in that same area in order to estimate the number of jobs available per housing unit. While Contra Costa County and the Bay Area have historically maintained a jobs-to-housing ratio over one job per household, the City of Pinole has historically had an excess of housing units compared to available jobs. For example, the Bay Area had a jobs-to-housing ratio of 1.34 in 2005 and in that same year Contra Costa County had a jobs-to-housing ratio of 1.03. In contrast, the 2005 jobs-to-housing ratio in the city was 0.84. The 29 percent increase in jobs projected for the City of Pinole would shift the jobs-to-housing ratio to 0.94 by 2030 (ABAG, 2007). **Table 4.2-6** shows the projected improvement in the city's jobs-to-housing ratio through 2030.

TABLE 4.2-6
CITY OF PINOLE JOBS PROJECTIONS

Year	Jobs	Jobs-to-Housing Ratio
2015	6,500	0.88
2020	6,850	0.91
2025	7,210	0.93
2030	7,560	0.94

Source: ABAG, 2007

4.2.2 REGULATORY FRAMEWORK

FEDERAL

Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970

The Uniform Act, passed by Congress in 1970, is a federal law that establishes minimum standards for federally funded programs and projects that require the acquisition of real property (real estate) or displace persons from their homes, businesses, or farms. The Uniform Act's protections and assistance apply to the acquisition, rehabilitation, or demolition of real property for federal or federally funded projects. 49 CFR Part 24 is the government-wide regulation that implements the act.

Title 24 – Housing and Urban Development Part 42

Displacement, Relocation Assistance, and Real Property Acquisition for HUD and HUD-Assisted Programs

Section 104(d) of the Housing and Community Development Act provides minimum requirements for federally funded programs or projects when units that are part of a community's low-income housing supply are demolished or converted to a use other than low- or moderate-income dwellings.

Section 104(d) requirements include:

- Replacement, on a one-for-one basis, of all occupied and vacant occupiable low- or moderate-income dwelling units that are demolished or converted to a use other than low- or moderate-income housing in connection with an activity assisted under the act; and

- Provision of certain relocation assistance to any lower-income person displaced as a direct result of the following activities in connection with federal assistance:

  – Demolition of any dwelling unit, or

  – Conversion of a low- or moderate-income dwelling unit to a use other than a low- or moderate-income residence.

Section 104(d) requirements are triggered by the use of HOME, Community Development Block Grant (CDBG), Section 108 Loan Guarantee, or Urban Development Action Grant (UDAG) funding in a project involving the demolition or conversion of low- or moderate-income housing.

STATE

California Relocation Statute – Government Code Section 7260

The statute is a California law that establishes minimum standards for state-funded programs and projects that require the acquisition of real property (real estate) or displace persons from their homes, businesses, or farms. The statute's protections and assistance apply to the acquisition, rehabilitation, or demolition of real property for state-funded projects. The statute is intended for the benefit of displaced persons, to ensure that such persons receive fair and equitable treatment and do not suffer disproportionate injuries as the result of programs designed for the benefit of the public as a whole. Title 25, Division 1, Chapter 6 of the California Code of Regulations provides the regulatory guidelines to enforce the statute.

Title 25, Division 1, Chapter 6, Subchapter 1 – Relocation Assistance and Real Property Acquisition

This section of Title 25 provides guidelines to assist public entities in the development of regulations and procedures implementing Government Code Section 7260. The guidelines are designed to carry out the following policies of Section 7260:

1) To ensure that uniform, fair, and equitable treatment is afforded persons displaced from their homes, businesses, or farms as a result of the actions of a public entity in order that such persons shall not suffer disproportionate injury as a result of action taken for the benefit of the public as a whole; and

2) In the acquisition of real property by a public entity, to ensure consistent and fair treatment for owners of real property to be acquired, to encourage and expedite acquisition by agreement with owners of such property in order to avoid litigation and relieve congestion in courts, and to promote confidence in public land acquisition.

Proposition 46

In November 2002, the Housing and Emergency Shelter Trust Fund Act of 2002 was passed by the voters of California. Prop. 46 created a trust fund to provide shelters for battered women, clean and safe housing for low-income senior citizens, emergency shelters for homeless families with children, housing with social services for homeless and mentally ill persons, repairs/accessibility improvements to apartments for families and handicapped citizens, veterans homeownership assistance, and security improvements/repairs to existing emergency shelters. Funded by a bond issue of $2.1 billion, Prop. 46 makes cities and counties eligible to receive specified funds and subjects expenditures to independent audit. Prop. 46 also appropriates money from the state general fund to repay bonds.

Regional Housing Needs Allocation

The Regional Housing Needs Allocation (RHNA) is a state-mandated process for determining how many housing units, including affordable units, each community must plan to accommodate. The California Department of Housing and Community Development (HCD) determines the total housing need for a region. As the Council of Governments for the nine Bay Area counties, ABAG is required by state law to distribute this housing need to local governments. Working with local governments, ABAG develops an allocation methodology for assigning units by income category to each city and county in the Bay Area. This allocation of need shows local governments the total number of housing units, by affordability, for which they must plan in their housing elements. The current planning period for the RHNA is 2007 to 2014. Allocations for each jurisdiction are published in the annual housing report (ABAG, 2010). The most recent of these is the *San Francisco Bay Area Housing Needs Plan, 2007–2014* (2008). tThe City of Pinole has prepared a draft Housing Element Update that has been reviewed by HCD and includes goals, policies, and actions to accommodate the latest RHNA for Pinole. The City anticipates taking action on its draft Housing Element Update and submitting an approved Housing Element to HCD in July of 2010 for certification.The City of Pinole's housing needs allocation for the 2007–2014 planning period is 323 total units: 83 (26 percent) affordable to very low-income households, 49 (15 percent) affordable to low-income households, 48 (15 percent) affordable to moderate-income households, and 143 (44 percent) affordable to above moderate-income households (ABAG, 2008).

4.2.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

According to the CEQA Guidelines Section 15131(a), economic or social effects of a project are not treated as significant effects on the environment. If the proposed project were to cause physical changes as a result of economic or social changes, then the physical effects (such as the destruction of habitat resulting from housing construction to accommodate increased population) could be considered significant. A population and housing impact is considered significant if implementation of the project would:

1) Induce substantial growth or concentration of population in an area either directly or indirectly (e.g., through projects in an undeveloped area or extension of major infrastructure) that results in a physical effect on the environment.

2) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere.

3) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere.

Growth inducement effects of the proposed project are specifically addressed in Section 7.0 of this DEIR.

As standards of significance 2 and 3 above both address the potential for construction of replacement housing as a result of the proposed project, these standards are addressed concurrently under Impact 4.2.2.

METHODOLOGY

The following impact analysis was prepared using ABAG and California DOF data, as well as projected demographic and housing information contained in the City's draft 2010 Housing Element. When considering the potential impacts a project may have on the physical environment, the existing conditions must be compared to the expected outcome the project may produce and the potential environmental impacts such a change could cause. The projected increase in the City of Pinole General Plan Update Planning Area population and housing units would result in direct and indirect environmental effects such as noise, demand for services and utilities, visual degradation, traffic, and air quality. These impacts are discussed in the relevant chapters of this DEIR. The following is a discussion of the proposed project and the potential to induce substantial growth. Where appropriate, the discussion of each impact is separated into three discussion sections (i.e., the General Plan Update policy document and Land Use Map, the proposed Three Corridors Specific Plan, and the City's Zoning Code Update) for ease of analysis.

PROJECT IMPACTS AND MITIGATION MEASURES

Population, Housing, and Employment Increases (Standard of Significance 1)

Impact 4.2.1 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would result in slight population, housing, and employment increases within the Planning Area. This is considered a **less than significant** impact.

General Plan Update and Three Corridors Specific Plan

Land and development costs are high in Pinole due to the limited supply of vacant land. In addition, the high land cost, increasing cost of constructing new housing, site constraints, including site assembly difficulties, and allowable existing densities all work to inhibit housing opportunities. However, the proposed General Plan Update policy document and Land Use Map do accommodate some modification of existing land uses and encourage infill development that could increase population, housing, and employment in the city. An inventory of vacant lands in Pinole demonstrates that there are currently approximately 64.69 acres of vacant land zoned for residential development outside of the Three Corridors Specific Plan area, which is discussed below. Together, these sites have an estimated dwelling unit potential of 230 housing units and a potential population of 665 persons as shown in **Table 4.2-7**.

TABLE 4.2-7
VACANT SITES IN THE CITY OF PINOLE
(OUTSIDE OF THE SPECIFIC PLAN)

Land Use Designation	Vacant Acres	Maximum Dwelling Units Per Acre[1]	Development Potential[2]	
			Housing Units[3]	Population[3]
Rural	38.21	0.2	8	23
Low Density Residential	5.58	1	6	17
Medium Density Residential	0.65	20	13	38
Suburban Residential	20.25	10	203	587
Totals	**64.69**	**N/A**	**230**	**665**

1 In order to present a "worst-case scenario," development potential is expressed as the total number of housing units and people that could be accommodated if the land were developed to the maximum potential allowed by land use designations. As each land use designation allows for a range of densities, the actual development density will likely be less than shown here.
2 Based on ABAG's 2007 estimate of 2.89 persons per household.
3 Numbers rounded.

Primarily, the General Plan Update includes opportunities for some new development and redevelopment on the city's primary commercial corridors via the Three Corridors Specific Plan. The Three Corridors Specific Plan is intended to establish more housing choices and job opportunities within the city's commercial corridors. Due to the city's small supply of developable land, the updated General Plan and the Three Corridors Specific Plan direct the majority of the city's future growth to sites designated for mixed and multiple-family uses in the San Pablo Avenue, Pinole Valley Road, and Appian Way corridors. The Three Corridors Specific Plan also identifies opportunity sites for infill mixed-use development along the city's commercial corridors in close proximity to transit and other amenities.

The Specific Plan area contains approximately 300 acres of predominantly developed land. In order to accommodate the projected demand for development and invite further capital investment in the city, the Specific Plan would change land uses in order to replace single-use commercial zoning with various mixed-use zones, eliminate commercial floor area ratio (FAR) as a development constraint, increase opportunities for residential development, and increase residential density. If all of the residential properties within the Specific Plan area were to develop according to the proposed provisions of the land use and development standards contained in the Specific Plan, the city would be expected to experience increased development as indicated in **Table 4.2-8** below. As shown, implementation of the Specific Plan could result in an additional 1,077 housing units in the city by 2030. Based on ABAG's 2007 estimate of 2.89 persons per household, the Specific Plan could result in an additional 3,110 persons by 2030 (1,076 housing units x 2.89 persons per household).

TABLE 4.2-8
SPECIFIC PLAN RESIDENTIAL DEVELOPMENT PROJECTIONS

Corridor	Residential (Units)	
	Existing	Projected
San Pablo Avenue	885	1,119
Pinole Valley Road	141	351
Appian Way	244	877

Corridor	Residential (Units)	
	Existing	Projected
Total	**1,270**	**2,346**
Difference	1,076*	

** Note: Differences in number are due to rounding errors*
Source: City of Pinole, 2010

If the vacant land outside of the Specific Plan area and the land within the Specific Plan area realize their full potential, the total population of the city could increase from the current (2010) population of 20,100 to 23,875 (existing population of 20,100 + 665 persons in the General Plan Planning Area outside of the Specific Plan area + 3,110 persons within the Specific Plan area). The projected increase in the city's population and housing units could result in direct and indirect environmental effects (e.g., increased traffic, air quality impacts, noise impacts, and biological resource impacts). These impacts are addressed in the appropriate technical sections of this DEIR. Furthermore, directing growth toward infill and redevelopment sites in areas close to existing transit, retail, jobs, infrastructure, and other amenities would reduce the potential environmental impacts of growth in the city.

ABAG projections estimate that Pinole will have a population of 21,800 in 2030. Therefore, the city's projected population increase after implementation of the General Plan Update and Three Corridors Specific Plan would be 2,075, or roughly 9.5 percent more than the ABAG estimate. As these figures are purely the result of mathematical formulas and do not take into account physical constraints on development, the difference in projections is considered to be the worst-case scenario. With a population projection difference of less than 10 percent over a 20-year period, the City considers this impact to be **less than significant**. The physical environmental effects of this growth is addressed in the other technical sections of this Draft EIR.

The creation of additional jobs within the Three Corridors Specific Plan area is not expected to induce additional population growth within the city as there is currently a jobs-to-housing imbalance (see **Table 4.2-6**). A jobs-to-housing imbalance means that residents of the city commute out of the city to work. The creation of more jobs within the city would reduce the need for residents to commute, which could be an environmental benefit through reduction of vehicle miles travelled. This impact is considered **less than significant**.

Zoning Code Update

Adoption of the updated General Plan would require amendments to the Zoning Code for consistency with the General Plan land use designations and various General Plan policies. The City therefore plans to update its Zoning Code as part of the proposed General Plan Update project. These updates would involve the deletion, addition, and modification of certain zoning districts and development standards in order to make the Zoning Code consistent with the updated General Plan (see Section 3.0, Project Description, for more details). These updates would not result in any development activities beyond those analyzed for the proposed GPU. Therefore, the Zoning Code Update would have an impact similar to that for the General Plan Update as discussed above.

Proposed General Plan Policies and Action Items that Address Population, Housing, and Employment Increases

The proposed General Plan incorporates the following policies and action items that further minimize impacts associated with population, housing, and employment growth.

Policy LU.1.1 Increase land use diversity along the San Pablo Avenue, Pinole Valley Road and Appian Way corridors; reduce residential density on large land holdings designated for Rural land use; and maintain other land use designations for a variety of residential, commercial, light industrial, recreational, open space and public purposes which (1) protect environmental resources; (2) provide a mix of housing types, densities and tenure; (3) ensure that a variety of commercial and industrial goods, services and employment opportunities are available; and (4) offer a range of recreational and public facilities to meet the needs of residents.

Policy LU.1.6 Establish required setback areas around sensitive resources or reduce development intensity on constrained sites to prevent development impacts.

Policy LU.2.3 Annexation of areas outside the current city limits should be dependent on resident interest, the cost/revenue implications of specific annexation proposals and the ability to provide City services to the area.

Action LU.2.3.1 Consider property annexation where it would:

- Encourage orderly growth and development through logical and timely boundary changes.
- Promote long-term and efficient delivery of local services and the assignment of appropriate local political responsibility for those services.
- Provide for the orderly implementation of the adopted Sphere of Influence.
- Implement the adopted General Plan.
- Result in boundaries that follow existing natural or man-made features such as streams, lakes, natural terrain, railroad tracks and roadways.
- Ensure economically feasible provision of services with available revenues.

Policy LU.4.3 Cluster development at higher densities to protect natural resources and address site development constraint issues, including archaeological sites, access, traffic, emergency services, water and sewer availability, creek and tree protection, steep slopes, potential geologic hazards, grading impacts, view protection and protection of open space resources. (See also Goal LU.8 below.)

Policy LU.7.3 Continue to strive for a balance between the number of jobs in the Pinole Planning Area and the number of housing units available for workers by encouraging and supporting policies and programs, mixed-use projects which provide both housing and employment opportunities, and the development of affordable housing.

Action LU.7.3.1 Utilize the Three Corridors Specific Plan to identify sites that are appropriate for higher-density residential development and create greater opportunities for the creation of new jobs within mixed-use developments.

Policy LU.7.4 Encourage affordable housing production by allowing mixed residential/commercial projects. Proposed mixed-use projects should:

- Provide commercial uses primarily for residents of the project in which the establishment is located and for adjacent residences.
- Limit commercial uses to the ground floor of a multi-story residential building or to single-story buildings.
- Limit commercial uses to those that are compatible with residential.
- Regulate signs through a planned sign program.
- Protect residential uses from the noise and traffic generated by commercial establishments with landscaping, open space and other design features.
- Develop a parking management strategy that balances parking demand with the objective of encouraging public transportation and pedestrian/bicycle circulation to minimize vehicle trips. This may include on-site, off-site and shared parking to provide sufficient parking for residents, employees and customers within convenient walking distance of the destination.
- Provide an adequate amount of open space for use by any residents of the project. Such open space area should be designed to provide a private area for residents.
- Use sustainable, green building practices such as the use of solar power or swales to help with stormwater runoff.

Policy LU.8.3 Encourage development that provides jobs and new housing opportunities primarily through reuse of the former Doctors Hospital site and revitalizing existing retail and service commercial development by allowing a mix of uses and higher building intensities at the Appian 80 Shopping Center and in the areas south of Interstate 80. The intent of this policy is to support the following objectives:

- Capitalize on Appian Way's proximity to Interstate 80 as a convenient regional shopping area by upgrading existing development over time and attracting increasingly desirable commercial service providers.
- Improve vehicular and pedestrian circulation and safety over time in and around Pinole Junior High School, existing commercial areas, and at the Interstate 80 interchange.
- Improve streetscape design over time that establishes a more attractive and unique identity for the corridor within the region.

Policy GM.4.2 **Regional Jobs/Housing Balance.** Consistent with the Land Use and Economic Development Element of the Pinole General Plan, encourage reasonable opportunity for people to live and work within west Contra Costa County.

Action GM.4.2.1 **Housing Element Programs.** In accordance with the General Plan's Housing Element, provide housing opportunities in a variety of structure and tenure types for all economic sectors and compositions of households to maintain a jobs/housing balance as a method of potentially reducing commute trip lengths.

In addition, Three Corridors Specific Plan Land Use Policy 3 requires the Specific Plan to encourage affordable housing consistent with the General Plan and Land Use Policies 8 and 9 promote mixed use office in proximity to transit and smaller retail and office space to encourage opportunities for small business. These policies, as well as land uses and development standards identified throughout the Three Corridors Specific Plan, are intended to promote an intensity of development that is appropriate in Pinole.

The proposed General Plan Land Use Element policies and associated actions, as well as the Specific Plan standards and guidelines, discussed above generally promote infill and redevelopment and direct growth toward existing transit, jobs, retail, and infrastructure. The policies also encourage clustering development at higher densities. These policies make maximum use of existing infrastructure to accommodate population and job growth, which minimizes impacts to the environment. The projected population growth for the proposed project is generally consistent with the existing projections by ABAG, and the anticipated jobs will reduce the existing jobs-to-housing deficit. By creating more jobs within the city, the need for commuting for employment and services is reduced, which in turn reduces vehicle miles traveled and creates an environmental benefit. Overall, the impacts associated with population and housing are **less than significant**.

Mitigation Measures

None required.

Displacement of a Substantial Number of Persons or Housing (Standard of Significance 2 and 3)

Impact 4.2.2 Subsequent land use activities associated with implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would not result in the displacement of substantial numbers of housing units and/or persons. This is considered a **less than significant** impact.

General Plan Update

Implementation of the proposed project would not directly displace housing units or people. The proposed project does, however, change land use designations, which could allow for redevelopment activities that could convert existing residential land uses to nonresidential uses. In addition, the General Plan Update would allow for future growth that could require new infrastructure or improvements to existing infrastructure, thereby resulting in the removal of some housing units. State and federal law requires just compensation for persons required to relocate as a result of redevelopment projects carried out by a city, particularly resulting from any projects that use federal or state funding. Any private development that may occur would pay the market price for any land or housing acquired for the development. Therefore, although displacement of persons or housing may result, just compensation would offset any cost-related effects. Furthermore, the General Plan Update designates additional areas for residential development and must provide for areas to accommodate affordable housing as part of meeting the City's RHNA. General Plan Update policies, and the Land Use Map, seek to ensure

adequate housing by providing a variety of housing choices suitable for all economic segments of the city. In order to plan for the remaining RHNA, Pinole will rezone at least the minimum number of acres necessary to allow for housing and/or increase the density of housing allowed at sites, particularly to allow for sites to meet the need for housing for very low- and low-income households, which must be zoned to accommodate at least 20 dwelling units per acre. The proposed General Plan Update, along with the Zoning Code Update and Specific Plan process, are partially intended to remove as many barriers as possible from potential housing development projects. As such, the General Plan Update is not expected to result in an overall reduction of housing units or displacement of substantial numbers of persons. Therefore, impacts related to a substantial displacement of housing units or people as a result of implementing the proposed General Plan Update are considered **less than significant**.

Three Corridors Specific Plan

Implementation of the proposed Three Corridors Specific Plan would consist of the revitalization of the San Pablo Avenue, Pinole Valley Road, and Appian Way corridors, which could include redevelopment of various urban uses and new or expanded infrastructure that could displace existing housing units. However, as the Three Corridors Specific Plan implements the proposed General Plan, redevelopment and infrastructure activities in the corridors would not result in any impacts beyond those analyzed for the proposed General Plan Update. Furthermore, the Three Corridors Specific Plan is intended to establish more housing choices within the city's commercial corridors and would thus not be expected to result in an overall reduction of housing units or displacement of substantial numbers of persons. The Specific Plan land use designations are not intended to force conversion of existing development and uses along the corridors, but to allow redevelopment to occur over time as land values increase and market conditions evolve. Therefore, impacts related to a substantial displacement of housing units or people as a result of implementing the proposed Three Corridors Specific Plan are considered **less than significant**.

Zoning Code Update

Adoption of the updated General Plan would require amendments to the Zoning Code for consistency with the General Plan land use designations and various General Plan policies. The City therefore plans to update its Zoning Code as part of the proposed General Plan Update project. These updates would involve the deletion, addition, and modification of certain zoning districts and development standards in order to make the Zoning Code consistent with the updated General Plan (see Section 3.0, Project Description, for more details). These updates would not result in any development activities beyond those analyzed for the proposed GPU. Therefore, the Zoning Code Update would have an impact similar to that for the General Plan Update as discussed above.

Proposed General Plan Policies and Action Items that Address the Displacement of a Substantial Number of Persons or Housing

The proposed General Plan does not include any policies and/or action items that address the displacement of substantial numbers of persons or housing.

The proposed Three Corridors Specific Plan does not include any policies that specifically address the displacement of substantial numbers of persons or housing. However, Section 6.0, *Land Use and Development Standards*, of the Three Corridors Specific Plan identifies goals, policies and objectives to create new residential development within the City rather than displacing substantial numbers of persons or housing. Specifically, Land Use Policies 1 and 2 provide for a variety of housing types throughout the Specific Plan areas and promote

residential units over commercial while Land Use Policy 4 ensures the development of "Opportunity Sites" with high quality mixed use or high density housing.

Mitigation Measures

None required.

4.2.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

Regionally, the City of Pinole is located within western Contra Costa County in the Bay Area of California. This cumulative setting includes Contra Costa County and the proposed and approved projects listed in **Table 4.0-1** of this DEIR. While the City of Pinole is almost built out and the General Plan Update planning horizon does not anticipate adding more than 3,775 persons and 1,306 housing units by the year 2030, growth may continue to occur in other parts of the Bay Area. Particularly, other jurisdictions in the ABAG region may continue to increase residential and employment projections beyond the year 2030. Development in the region, as identified in Section 4.0, would change the intensity of land uses in the region and would provide additional housing, employment, shopping, and recreational opportunities, which could result in significant environmental effects. The reader is referred to the other technical sections of the DEIR for a complete analysis of the anticipated cumulative environmental effects of anticipated regional growth in combination with the proposed project.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Population and Housing Increases

Impact 4.2.3 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would not result in substantial population, housing, and employment increases in Contra Costa County and the Bay Area. This is considered a **less than cumulatively considerable** impact.

As identified under Impact 4.2.1, the proposed General Plan Update and associated project components would result in a population of 23,875 after buildout of the General Plan Update and its associated project components. ABAG projects that the city will have a population of 21,800 in 2030. While population growth resulting from buildout of the city's vacant land and opportunity sites would exceed ABAG's regional growth projections, this differential is not significant and does not significantly affect the projections made by ABAG as part of the regional growth planning effort. ABAG estimates that the population of Contra Costa County will increase to 1,255,300 by 2030. If population in the city were to exceed ABAG projections by 2,075, this would represent an increase of less than 1 percent of the county's projected population. Therefore, the contribution of the proposed project to regional cumulative population and housing impacts is considered **less than cumulatively considerable**. The cumulative effects of this growth on the environment are addressed in the other technical sections of this Draft EIR.

Proposed General Plan Policies and Action Items that Address Cumulative Population and Housing Increases

The proposed General Plan incorporates the following policies and action items that further minimize impacts associated with population, housing, and employment growth. Since these policies and action items have been described in detail in prior impact discussions for this section, the following is limited to only listing the policy and action item numbers.

Land Use Element
Policy LU.1.1; Policy LU.1.6; Policy LU.2.3; Action LU.2.3.1; Policy LU.4.3; Policy LU.7.3; Action LU.7.3.1; Policy LU.7.4; Policy LU.8.3

Growth Management Element
Policy GM.4.2; Action GM.4.2.1

In addition, Land Use Policies 1, 2, 3, and 4 of the Three Corridors Specific Plan provide will further reduce this impact as discussed under Impacts 4.2.1 and 4.2.2. Furthermore, Chapter 17.32, *Affordable Housing Requirements*, of the Zoning Code Update contains specific regulations to implement the City's Housing Element and to ensure that adequate affordable housing is providing in the city.

Implementation of the General Plan Update and its associated project components would ensure that vacant lands and opportunity sites with the Planning Area are developed only when necessary to provide for growth within the Planning Area. Though this would in turn allow for an increase in population, housing units, and employment in the City of Pinole, this increase is less than 1 percent of projected county growth in 2030 and is not substantial enough to have significant cumulative impacts on the region's growth and population projections. Therefore, this impact is considered **less than cumulatively considerable**.

Mitigation Measures

None required.

REFERENCES

Association of Bay Area Governments (ABAG). 2007. *ABAG Projections 2007*. Oakland, California.

Association of Bay Area Governments (ABAG). 2008. *San Francisco Bay Area Housing Needs Plan, 2007–2014*. Oakland, California.

Association of Bay Area Governments (ABAG). 2010. http://www.abag.ca.gov/ (accessed February 26, 2010).

Bay Area Economics (BAE). 2008. *Appian Way, Pinole Valley Road, and San Pablo Avenue Specific Plans Economic Background Report*. Emeryville, California.

California Department of Finance (DOF). 2010. *E-5 Population and Housing Estimates for Cities, Counties and the State, 2001–2010, with 2000 Benchmark*. Sacramento, California.

California Department of Housing and Community Development (HCD). 2000. *Raising the Roof: California Housing Development Projections and Constraints, 1997–2020. Statewide Housing Plan Update*.

Contra Costa County, Department of Conservation and Development (CCCDCD). 2009. *Contra Costa Pipeline Project Draft Environmental Impact Report*.

Contra Costa Local Agency Formation Commission. *East Contra Costa County Sub-regional Municipal Service Review and Sphere of Influence Update*. Adopted December 10, 2008. http://www.contracostalafco.org/municipal_service_reviews.htm (accessed April 2010).

Metropolitan Transportation Commission (MTC), Planning Section. 2007. *Superdistrict and County Summaries of ABAG's Projections 2007, 2000–2035, Data Summary*. Oakland, California.

Pinole, City of. 2010. *Three Corridors Specific Plan*.

Trulia Real Estate Search. 2010. http://www.trulia.com/ (accessed February 23, 2010).

4.3 AIR QUALITY

This section of the Draft Environmental Impact Report (DEIR) examines the air quality in the General Plan Update (GPU) Planning Area and region, includes a summary of applicable air quality regulations, and analyzes potential air quality impacts associated with the proposed project. A climate change and greenhouse gas emissions discussion is also included in Section 4.13. This section is based on the *Air Quality Impact Assessment for the City of Pinole General Plan Update* prepared by Ambient Air Quality and Noise Consulting (2010) and included as **Appendix B** to this DEIR.

4.3.1 EXISTING SETTING

The proposed City of Pinole General Plan Update Planning Area is located in Contra Costa County and in the Bay Area Air Quality Management District (BAAQMD). The BAAQMD is the regional air quality agency for the San Francisco Bay Area Air Basin (SFBAAB), which comprises all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara counties, the southern portion of Sonoma County, and the southwestern portion of Solano County. The SFBAAB is depicted in **Figure 4.3-1**. Air quality in this area is determined by such natural factors as topography, meteorology, and climate, in addition to the presence of existing air pollution sources and ambient conditions (see **Appendix B**).

CLIMATE, TOPOGRAPHY, AIR POLLUTION POTENTIAL

The SFBAAB is characterized by complex terrain, consisting of coastal mountain ranges, inland valleys, and bays, which distort normal wind flow patterns. The Coast Range splits, resulting in a western coast gap and an eastern coast gap, which allow air to flow in and out of the SFBAAB and the Central Valley.

The climate is dominated by the strength and location of a semi-permanent, subtropical high pressure cell. During the summer, the Pacific high pressure cell is centered over the northeastern Pacific Ocean, resulting in stable meteorological conditions and a steady northwesterly wind flow.

In the winter, the Pacific high pressure cell weakens and shifts southward, resulting in wind flow offshore, the absence of upwelling, and the occurrence of storms.

High Pressure Cell

During the summer, the large-scale meteorological condition that dominates the West Coast is a semi-permanent high pressure cell centered over the northeastern Pacific Ocean. This high pressure cell keeps storms from affecting the California coast. Hence, the SFBAAB experiences little precipitation in the summer months. Winds tend to blow onshore from the north/northwest.

The steady northwesterly flow induces upwelling of cold water from below. This upwelling produces a band of cold water off the California coast. When air approaches the California coast, already cool and moisture-laden from its long journey over the Pacific, it is further cooled as it crosses this bank of cold water. This cooling often produces condensation, resulting in a high incidence of fog and stratus clouds along the Northern California coast in the summer.

Generally in the winter, the Pacific high weakens and shifts southward, winds tend to flow offshore, upwelling ceases, and storms occur. During the winter rainy periods, inversions (layers of warmer air over colder air; see below) are weak or nonexistent, winds are usually moderate, and air pollution potential is low. The Pacific high does periodically become dominant, bringing strong inversions, light winds, and high pollution potential.

Topography

The topography of the SFBAAB is characterized by complex terrain, consisting of coastal mountain ranges, inland valleys, and bays. This complex terrain, especially the higher elevations, distorts the normal wind flow patterns in the SFBAAB. The greatest distortion occurs when low-level inversions are present and the air beneath the inversion flows independently of air above the inversion, a condition that is common in the summer time (BAAQMD, 2010a).

The only major break in California's Coast Range occurs in the SFBAAB. Here the Coast Range splits into western and eastern ranges. Between the two ranges lies San Francisco Bay. The gap in the western coast range is known as the Golden Gate, and the gap in the eastern coast range is the Carquinez Strait. These gaps allow air to pass into and out of the SFBAAB and the Central Valley (BAAQMD, 2010a).

Wind Patterns

During the summer, winds flowing from the northwest are drawn inland through the Golden Gate and over the lower portions of the San Francisco Peninsula. Immediately south of Mount Tamalpais, the northwesterly winds accelerate considerably and come more directly from the west as they stream through the Golden Gate. This channeling of wind through the Golden Gate produces a jet that sweeps eastward and splits off to the northwest toward Richmond and to the southwest toward San Jose when it meets the East Bay hills (BAAQMD, 2010a).

Wind speeds may be strong locally in areas where air is channeled through a narrow opening, such as the Carquinez Strait, the Golden Gate, or the San Bruno gap. For example, the average wind speed at San Francisco International Airport in July is about 17 knots (from 3 p.m. to 4 p.m.), compared with only 7 knots at San Jose and less than 6 knots at the Farallon Islands. The air flowing in from the coast to the Central Valley, called the sea breeze, begins developing at or near ground level along the coast in late morning or early afternoon. As the day progresses, the sea breeze layer deepens and increases in velocity while spreading inland. The depth of the sea breeze depends in large part upon the height and strength of the inversion. If the inversion is low and strong, and hence stable, the flow of the sea breeze will be inhibited and stagnant conditions are likely to result (BAAQMD, 2010a).

In the winter, the SFBAAB frequently experiences stormy conditions with moderate to strong winds, as well as periods of stagnation with very light winds. Winter stagnation episodes are characterized by nighttime drainage flows in coastal valleys. Drainage is a reversal of the usual daytime air-flow patterns; air moves from the Central Valley toward the coast and back down toward the Bay from the smaller valleys within the SFBAAB (BAAQMD, 2010a).

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Source: BAAQMD 2010(a)

Figure 4.3-1

San Francisco Bay Area Air Basins

PMC®

Temperature

Summertime temperatures in the SFBAAB are determined in large part by the effect of differential heating between land and water surfaces. Because land tends to heat up and cool off more quickly than water, a large-scale gradient (differential) in temperature is often created between the coast and the Central Valley, and small-scale local gradients are often produced along the shorelines of the ocean and bays. The temperature gradient near the ocean is also exaggerated, especially in summer, because of the upwelling of cold ocean bottom water along the coast. On summer afternoons the temperatures at the coast can be 35°F cooler than temperatures 15 to 20 miles inland. At night this contrast usually decreases to less than 10°F (BAAQMD, 2010a).

In the winter, the relationship of minimum and maximum temperatures is reversed. During the daytime the temperature contrast between the coast and inland areas is small, whereas at night the variation in temperature is large (BAAQMD, 2010a).

Precipitation

The SFBAAB is characterized by moderately wet winters and dry summers. Winter rains account for about 75 percent of the average annual rainfall. The amount of annual precipitation can vary greatly from one part of the SFBAAB to another even within short distances. In general, total annual rainfall can reach 40 inches in the mountains, but it is often less than 16 inches in sheltered valleys (BAAQMD, 2010a).

During rainy periods, ventilation (rapid horizontal movement of air and injection of cleaner air) and vertical mixing are usually high, and thus pollution levels tend to be low. However, frequent dry periods occur during the winter where mixing and ventilation are low and pollutant levels build up (BAAQMD, 2010a).

Air Pollution Potential

The potential for high pollutant concentrations developing at a given location depends upon the quantity of pollutants emitted into the atmosphere in the surrounding area or upwind and the ability of the atmosphere to disperse the contaminated air. The topographic and climatological factors discussed above influence the atmospheric pollution potential of an area. Atmospheric pollution potential, as the term is used here, is independent of the location of emission sources and is instead a function of factors described below.

Wind Circulation

Low wind speed contributes to the buildup of air pollution because it allows more pollutants to be emitted into the air mass per unit of time. Light winds occur most frequently during periods of low sun (fall and winter, and early morning) and at night. These are also periods when air pollutant emissions from some sources are at their peak, namely, commute traffic (early morning) and wood-burning appliances (nighttime). The problem can be compounded in valleys, when weak flows carry the pollutants upvalley during the day and cold air drainage flows move the air mass downvalley at night. Such restricted movement of trapped air provides little opportunity for ventilation and leads to buildup of pollutants to potentially unhealthful levels (BAAQMD, 2010a).

Solar Radiation

The frequency of hot, sunny days during the summer months in the SFBAAB is another important factor that affects air pollution potential. It is at the higher temperatures that ozone is formed. In the presence of ultraviolet sunlight and warm temperatures, reactive organic gases and oxides of nitrogen react to form secondary photochemical pollutants, including ozone. Because temperatures in many of the SFBAAB inland valleys are so much higher than near the coast, the inland areas are especially prone to photochemical air pollution. In late fall and winter, solar angles are low, resulting in insufficient ultraviolet light and warming of the atmosphere to drive the photochemical reactions. Ozone concentrations do not reach significant levels in the SFBAAB during these seasons (BAAQMD, 2010a).

Inversions

An inversion is a layer of warmer air over a layer of cooler air. Inversions affect air quality conditions significantly because they influence the mixing depth, i.e., the vertical depth in the atmosphere available for diluting air contaminants near the ground. The highest air pollutant concentrations in the SFBAAB generally occur during inversions (BAAQMD, 2010a).

There are two types of inversions that occur regularly in the SFBAAB. One is more common in the summer and fall, while the other is most common during the winter. The frequent occurrence of elevated temperature inversions in summer and fall months acts to cap the mixing depth, limiting the depth of air available for dilution (BAAQMD, 2010a).

The inversions typical of winter, called radiation inversions, are formed as heat quickly radiates from the earth's surface after sunset, causing the air in contact with it to rapidly cool. Radiation inversions are strongest on clear, low-wind, cold winter nights, allowing the buildup of such pollutants as carbon monoxide and particulate matter. When wind speeds are low, there is little mechanical turbulence to mix the air, resulting in a layer of warm air over a layer of cooler air next to the ground. Mixing depths under these conditions can be as shallow as 50 to 100 meters (164 to 328 feet), particularly in rural areas. Urban areas usually have deeper minimum mixing layers because of heat island effects and increased surface roughness. During radiation inversions downwind transport is slow, the mixing depths are shallow, and turbulence is minimal (BAAQMD, 2010a).

Although each type of inversion is most common during a specific season, either inversion mechanism can occur at any time of the year. Sometimes both occur simultaneously. Moreover, the characteristics of an inversion often change throughout the course of a day. The terrain of the SFBAAB also induces significant variations among subregions (BAAQMD, 2010a).

Climatological Subregions

Although air pollution potential is strongly influenced by climate and topography, the air pollution that occurs in a location also depends on the amount of air pollutant emissions in the surrounding area or transported from more distant places. Air pollutant emissions generally are highest in areas that have high population densities, high motor vehicle use, and/or industrialization. The contaminants created by photochemical processes in the atmosphere, such as ozone, may result in high concentrations many miles downwind from the sources of their precursor pollutants (BAAQMD, 2010a).

Varying climatological and topographic conditions, the location of emission sources, and susceptibility to emissions transport can combine to result in substantial variations in air pollution potential within inhabited subregions of the SFBAAB (BAAQMD, 2010a).

Northern Alameda and Western Contra Costa Counties Subregion

Within the SFBAAB there are eleven major climatological subregions (BAAQMD, 2010a). The City of Pinole is located within the Northern Alameda and Western Contra Costa Counties Subregion. This climatological subregion stretches from Richmond to San Leandro. Its western boundary is defined by the Bay and its eastern boundary by the Oakland-Berkeley Hills. The Oakland-Berkeley Hills have a ridge line height of approximately 457 meters (1,500 feet), a significant barrier to air flow. The most densely populated area of the subregion lies in a strip of land between the Bay and the lower hills. In this area, marine air traveling through the Golden Gate, as well as across San Francisco and through the San Bruno Gap, is a dominant weather factor. The Oakland-Berkeley Hills cause the westerly flow of air to split off to the north and south of Oakland, which causes diminished wind speeds. The prevailing winds for most of this subregion are from the west. At the northern end, near Richmond, prevailing winds are from the south-southwest (BAAQMD, 2010a).

Temperatures in this subregion have a narrow range due to the proximity of the moderating marine air. Maximum temperatures during summer average in the mid 70s, with minimums in the mid 50s. Winter highs are in the mid to high 50s, with lows in the low to mid 40s. The air pollution potential is lowest for the parts of the subregion that are closest to the Bay, due largely to good ventilation and less influx of pollutants from upwind sources. The occurrence of light winds in the evenings and early mornings occasionally causes elevated pollutant levels. This subregion contains a variety of industrial air pollution sources. Some industries are quite close to residential areas. The subregion is also traversed by frequently congested major freeways. Traffic and congestion, and the motor vehicle emissions they generate, are increasing (BAAQMD, 2010a).

AMBIENT AIR QUALITY STANDARDS

Both the U.S. Environmental Protection Agency (USEPA) and California Air Resources Board (CARB) established ambient air quality standards for common air pollutants. These ambient air quality standards are levels of contaminants that represent safe levels that avoid specific adverse health effects associated with each pollutant. The ambient air quality standards cover what are called "criteria" pollutants because the health and other effects of each pollutant are described in criteria documents. The federal and state ambient standards were developed independently with differing purposes and methods, although both processes attempted to avoid health-related effects. As a result, federal and state standards differ in some cases. In general, California standards are more stringent. This is particularly true for nitrogen dioxide (NO_2) and coarse particulate matter (PM_{10}). The federal and California state ambient air quality standards and BAAQMD attainment status are summarized in **Table 4.3-1**.

TABLE 4.3-1
FEDERAL AND STATE AMBIENT AIR QUALITY STANDARDS AND ATTAINMENT STATUS

Pollutant	Averaging Time	State Standard	Attainment Status	Federal Primary Standard	Attainment Status
Ozone (O_3)	1-Hour 8-Hour	0.09 ppm 0.07 ppm	N (Serious) --	-- 0.075 ppm	-- N
Carbon Monoxide (CO)	1-Hour 8-Hour	20 ppm 9.0 ppm	A	35 ppm 9.0 ppm	U/A
Nitrogen Dioxide (NO_2)	Annual Average 1-Hour	0.03 ppm 0.18 ppm	-- A	0.053 ppm --	U/A --
Sulfur Dioxide (SO_2)	Annual Average 24-Hour 3-Hour 1-Hour	-- 0.04 ppm — 0.25 ppm	-- A — A	0.03 ppm 0.14 ppm -- --	A A A --
Respirable Particulate Matter (PM_{10})	Annual Average 24-Hour	20 $\mu g/m^3$ 50 $\mu g/m^3$	N	— 150 $\mu g/m^3$	U
Fine Particulate Matter ($PM_{2.5}$)	Annual Average 24-Hour	12 $\mu g/m^3$ —	N --	15 $\mu g/m^3$ 35 $\mu g/m^3$	N
Lead	30-day Average Calendar Quarter	1.5 $\mu g/m^3$ --	A --	-- 1.5 $\mu g/m^3$	-- --
Sulfates	24-Hour	25 $\mu g/m^3$	A	No National Standards	
Hydrogen Sulfide	1-hour	0.03 ppm	U		
Vinyl Chloride	24-hour	0.01 ppm	--		
Visibility Reducing Particulate Matter	8-hour	Extinction coefficient of 0.23 per kilometer-visibility of 10 miles or more	U		

Notes: ppm = parts per million, µg/m3 = micrograms per cubic meter. N = Nonattainment; A = Attainment; U = Unclassified
Source: BAAQMD, 2010a, 2010b

AMBIENT AIR QUALITY

The BAAQMD operates a regional air quality monitoring network that regularly measures the concentrations of the five major criteria air pollutants. Air quality conditions in the SFBAAB have improved significantly since the BAAQMD was created in 1955. Ambient concentrations and the number of days on which the region exceeds standards have declined dramatically. Neither state nor national ambient air quality standards have been violated in recent decades for nitrogen dioxide, sulfur dioxide, sulfates, lead, hydrogen sulfide, and vinyl chloride.

The nearest ambient air quality monitoring station is the San Pablo-Rumrill Boulevard monitoring station, located approximately 4 miles southwest of the City of Pinole. **Table 4.3-2** summarizes historical occurrences of pollutant levels for this monitoring station, based on the last three years of available data (i.e., 2007–2009). The number of days for which state and federal ambient air quality standards have been exceeded during this same monitoring period is also presented. As depicted, there have been no days during which measured concentrations of ozone, carbon monoxide, or nitrogen dioxide exceeded federal or state ambient air quality standards during the last three years of available data. The state standard for PM_{10} was exceeded on two days in 2007 and has not been exceeded since.

TABLE 4.3-2
AMBIENT AIR QUALITY MONITORING DATA

Pollutant Standards	2007	2008	2009
Ozone			
Max 1-hour concentration (ppm)	0.074	0.084	0.043
Max 8-hour concentration (ppm) (federal/state)	0.051/0.051	0.063/0.064	0.040/0.040
Number of days above state 1-hr standard	0	0	0
Number of days above state/federal 8-hour standard	0/0	0/0	0/0
Respirable Particulate Matter (PM_{10})			
Max 24-hour concentration (μg/m3) (federal/state)	54.4/57.4	41.8/44.3	32.0/34.0
Number of days above state/federal standard	2/0	0/0	0/0
Carbon Monoxide (CO)			
Max 1-hr/8-hr concentration (ppm)	2.4/1.23	2.5/1.30	–/0.78
Number of days above state/federal 8-hour standards	0	0	0
Number of days above state/federal 1-hour standard	0	0	0
Nitrogen Dioxide (NO_2)			
Max 1-Hour concentration (ppm)	0.052	0.067	0.041
Annual concentration (ppm)	0.012	0.012	–
Number of days above state standard	0	0	0

Based on ambient monitoring data obtained from the San Pablo-Rumrill Boulevard monitoring station.
– Insufficient or no data currently available to determine the value.
Source: CARB, 2010a, USEPA, 2010

AIR POLLUTANTS OF CONCERN AND HEALTH EFFECTS

The most problematic pollutants in the Planning Area include ozone and particulate matter. The health effects and major sources of these pollutants are described below. Toxic air contaminants are a separate class of pollutants and are discussed later in this section.

Ozone

Ground-level ozone (O_3), commonly referred to as smog, is greatest on warm, windless, sunny days. Ozone is not emitted directly into the environment, but is formed in the atmosphere by complex chemical reactions between reactive organic gases (ROG) and nitrogen oxide (NO_X) in the presence of sunlight. The main sources of NO_X and ROG, often referred to as ozone precursors, are combustion processes (including motor vehicle engines) the evaporation of solvents, paints, and fuels, and biogenic sources. Automobiles are the single largest source of ozone precursors in the SFBAAB. Tailpipe emissions of ROG are highest during cold starts, hard acceleration, stop-and-go conditions, and slow speeds. They decline as speeds increase up to about 50 mph, then increase again at high speeds and high engine loads. ROG emissions associated with evaporation of unburned fuel depend on vehicle and ambient temperature cycles. Nitrogen oxide emissions exhibit a different curve; emissions decrease as the vehicle approaches 30 mph and then begin to increase with increasing speeds (BAAQMD, 2010a).

Ozone levels usually build up during the day and peak in the afternoon hours. Short-term exposure can irritate the eyes and cause constriction of the airways. Besides causing shortness of breath, ozone can aggravate existing respiratory diseases such as asthma, bronchitis and emphysema. Chronic exposure to high ozone levels can permanently damage lung tissue. Ozone can also damage plants and trees, as well as materials such as rubber and fabrics (BAAQMD, 2010a).

Particulate Matter

Particulate matter (PM) can be divided into several size fractions. Coarse particles (PM_{10}) are between 2.5 and 10 microns in diameter and arise primarily from natural processes, such as wind-blown dust or soil. Fine particles ($PM_{2.5}$) are less than 2.5 microns in diameter and are produced mostly from combustion or burning activities. Fuel burned in cars and trucks, power plants, factories, fireplaces, and wood stoves produces fine particles.

The level of $PM_{2.5}$ in the air is a public health concern because it can bypass the body's natural filtration system more easily than larger particles and can lodge deep in the lungs. The health effects vary depending on a variety of factors, including the type and size of particles. Research has demonstrated a correlation between high PM concentrations and increased mortality rates. Elevated PM concentrations can also aggravate chronic respiratory illnesses such as bronchitis and asthma (BAAQMD, 2010a).

Carbon Monoxide

Carbon monoxide (CO) is an odorless, colorless gas that is formed by the incomplete combustion of fuels. At high concentrations, CO reduces the oxygen-carrying capacity of the blood and can cause dizziness, headaches, unconsciousness, and even death. CO can also aggravate cardiovascular disease. Relatively low concentrations of CO can significantly affect the amount of oxygen in the bloodstream because CO binds to hemoglobin more strongly than oxygen.

Elevated CO concentrations are usually localized and are often the result of a combination of high traffic volumes and traffic congestion. Elevated CO levels develop primarily during winter periods of light winds or calm conditions combined with the formation of ground-level temperature inversions. Wintertime CO concentrations are higher because of reduced dispersion of vehicle emissions and because CO emission rates from motor vehicles increase as temperature decreases. However, CO emissions and ambient concentrations have decreased significantly in recent years. These improvements are due largely to the introduction of cleaner burning motor vehicles and motor vehicle fuels. CO is still a pollutant that must be closely monitored, however, due to its severe effect on human health.

Nitrogen Dioxide

Nitrogen dioxide (NO_2) is a brownish, highly reactive gas that is present in all urban environments. The major human-made sources of NO_2 are combustion devices such as boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines. Construction devices emit primarily nitric oxide (NO), which reacts through oxidation in the atmosphere to form NO_2. The combined emissions of NO and NO_2 are referred to as NO_X. Because NO_2 is formed and depleted by reactions associated with ozone, the NO_2 concentration in a particular geographic area may not be representative of the local NO_X emission sources.

Inhalation is the most common route of exposure to NO_2. Because NO_2 has relatively low solubility in water, the principal site of toxicity is in the lower respiratory tract. The severity of adverse health effects depends primarily on the concentration inhaled rather than the duration of the exposure. Exposure can result in a variety of acute symptoms, including coughing, difficulty with breathing, vomiting, headache, and eye irritation. Symptoms that are more significant may include chemical pneumonitis or pulmonary edema with breathing abnormalities, cyanosis, chest pain, and rapid heartbeat.

Sulfur Dioxide

Sulfur dioxide (SO_2) is produced by such stationary sources as coal and oil combustion, steel mills, refineries, and pulp and paper mills. The major adverse health effects associated with exposure to SO_2 pertain to the upper respiratory tract. SO_2 is a respiratory irritant with constriction of the bronchioles occurring with inhalation of SO_2 at 5 parts per million (ppm) or more. On contact with the moist mucous membranes, SO_2 produces sulfurous acid, which is a direct irritant. Similar to NO_2, the severity of adverse health effects depends primarily on the concentration inhaled rather than the duration of the exposure. Exposure to high concentrations of SO_2 may result in edema of the lungs or glottis and respiratory paralysis.

Toxic Air Contaminants

In addition to the criteria pollutants discussed above, toxic air contaminants (TACs) are another group of pollutants of concern. TACs are considered either carcinogenic or noncarcinogenic based on the nature of the health effects associated with exposure to the pollutant. For regulatory purposes, carcinogenic TACs are assumed to have no safe threshold below which health impacts would not occur and cancer risk is expressed as excess cancer cases per one million exposed individuals. Noncarcinogenic TACs differ in that there is generally assumed to be a safe level of exposure below which no negative health impact is believed to occur. These levels are determined on a pollutant-by-pollutant basis.

There are many different types of TACs, with varying degrees of toxicity. Sources of TACs include industrial processes such as petroleum refining and chrome plating operations, commercial

operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Public exposure to TACs can result from emissions from normal operations, as well as from accidental releases of hazardous materials during upset conditions. The health effects of TACs include cancer, birth defects, neurological damage, and death. **Table 4.3-3** displays potential sources of TAC emissions for various land uses. No major sources of TAC emissions were identified in the City of Pinole or surrounding areas (CARB, 2010b). However, various smaller permitted sources of TACs are located in the city, including gasoline dispensing facilities and dry cleaning establishments.

TABLE 4.3-3
TOXIC AIR EMISSION BY LAND USE

Land Use	Toxic Air Emission
Auto Body Shop	Benzene, Toluene, Xylene
Auto Machine Shop	Asbestos
Chemical Manufacturing	Ethylene, Dichloride, Asbestos
Dry Cleaner	Perchloroethylene (phased out in 2011)
Electrical Manufacturing	Polychlorinated Biphenyls (PCBs), Cadmium, Chromium, Nickel
Funeral Home	Formaldehyde
Gasoline Station	Benzene
Hospital	Dioxin, Cadmium, Ethylene Oxide
Medical Equipment Sterilization	Ethylene Oxide
Printing Services	Ethyl Benzene, Ethylene Glycol, Xylene
Wastewater Treatment	Benzene, Carbon Tetrachloride, Ethylene Dichloride, Chloroform

Source: Ambient, 2010

Diesel Exhaust

Diesel exhaust is a TAC of growing concern in California. According to the California Almanac of Emissions and Air Quality (CARB, 2009), the majority of the estimated health risk from TACs can be attributed to relatively few compounds, the most important being PM from diesel-fueled engines (diesel particulate matter, or DPM). In 1998, CARB identified DPM as a TAC. DPM differs from other TACs in that it is not a single substance but rather a complex mixture of hundreds of substances. The exhaust from diesel engines contains hundreds of different gaseous and particulate components, many of which are toxic. Many of these compounds adhere to the particles, and because diesel particles are so small, they penetrate deep into the lungs. DPM has been identified as a human carcinogen. Mobile sources, such as trucks, buses, automobiles, trains, ships, and farm equipment, are by far the largest source of diesel emissions. Studies show that diesel particulate matter concentrations are much higher near heavily traveled highways and intersections. BAAQMD research indicates that mobile-source emissions of DPM represent a substantial portion of the ambient background risk from TACs in the SFBAAB (BAAQMD, 2010a).

Unlike criteria pollutants, there are no ambient air quality standards for TACs because no safe levels of TACs can be determined. Instead, TAC impacts are evaluated by calculating the health risks associated with a given exposure. Two types of risk are usually assessed: chronic noncancer risk and acute noncancer risk. Both the state and BAAQMD implement programs of identifying and reducing DPM health risks. These programs include implementation and

enforcement of new regulatory standards for all new on-road, off-road, and stationary diesel fueled engines and vehicles, new retrofit requirements for existing on-road, off-road, and stationary diesel-fueled engines and vehicles, and new diesel fuel regulations to reduce the sulfur content of diesel fuel as required by advanced diesel emission control systems. Land uses where individuals could be exposed to high levels of diesel exhaust include:

- Railroad operations
- Warehouses
- Schools with a high volume of bus traffic
- High volume highways (such as Interstate 80)
- High volume arterials and local roadways with a high level of diesel traffic

Land Use Compatibility with TAC Emission Sources

CARB published an informational guide entitled *Air Quality and Land Use Handbook: A Community Health Perspective* in 2005. The purpose of this guide is to provide information to aid local jurisdictions in addressing issues and concerns related to the placement of sensitive land uses near major sources of air pollution. The CARB handbook includes recommended separation distances for various land uses that are based on relatively conservative estimations of emissions based on source-specific information. However, these recommendations are not site-specific and should not be interpreted as defined "buffer zones." For informational purposes, it should be noted that the recommendations of the handbook are advisory and need to be balanced with other state and local policies (CARB, 2005). Depending on site- and project-specific conditions, an assessment of potential increases in exposure to TACs may be warranted for proposed development projects located within the distances identified. CARB-recommended separation distances for various sources of emissions are summarized in **Table 4.3-4**.

TABLE 4.3-4
RECOMMENDATIONS ON SITING NEW SENSITIVE LAND USES NEAR AIR POLLUTANT SOURCES

Source Category	Advisory Recommendations
Freeways and High-Traffic Roads	Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles per day, or rural roads with 50,000 vehicles per day.
Distribution Centers	Avoid siting new sensitive land uses within 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units (TRUs) per day, or where TRU unit operations exceed 300 hours per week).
	Take into account the configuration of existing distribution centers and avoid locating residences and other new sensitive land uses near entry and exit points.
Rail Yards	Avoid siting new sensitive land uses within 1,000 feet of a major service and maintenance rail yard.
	Within one mile of a rail yard, consider possible siting limitations and mitigation approaches.
Ports	Avoid siting of new sensitive land uses immediately downwind of ports in the most heavily impacted zones. Consult local air districts or CARB on the status of pending analyses of health risks.
Refineries	Avoid siting new sensitive land uses immediately downwind of petroleum refineries. Consult with local air districts and other local agencies to determine an appropriate separation.
Chrome Platers	Avoid siting new sensitive land uses within 1,000 feet of a chrome plater.

Source Category	Advisory Recommendations
Dry Cleaners Using Perchloroethylene	Avoid siting new sensitive land uses within 300 feet of any dry cleaning operation. For operations with two or more machines, provide 500 feet. For operations with 3 or more machines, consult with the local air district.
	Do not site new sensitive land uses in the same building with perchloroethylene dry cleaning operations.
Gasoline Dispensing Facilities	Avoid siting new sensitive land uses within 300 feet of a large gas station (defined as a facility with a throughput of 3.6 million gallons per year or greater). A 50-foot separation is recommended for typical gas dispensing facilities.

Source: CARB, 2005
Note: Recommendations are advisory, are not site-specific, and may not fully account for future reductions in emissions, including those resulting from compliance with existing/future regulatory requirements, such as reductions in diesel-exhaust emissions anticipated to occur with continued implementation of CARB's Diesel Risk Reduction Plan.

Wood Smoke

Wood smoke has long been identified as a significant source of pollutants in urban and suburban areas. Wood smoke contributes to particulate matter and CO concentrations, reduces visibility, and contains numerous TACs. Present controls on this source include the adoption of emission standards for wood stoves and fireplace inserts. In 2008, the BAAQMD adopted Regulation 6, Rule 3 (Wood-Burning Devices) to reduce harmful emissions associated with wood smoke (BAAQMD, 2010a).

Asbestos

Asbestos is the common name for a group of naturally-occurring fibrous silicate minerals that can separate into thin but strong and durable fibers. Naturally-occurring asbestos (NOA), which was identified as a TAC in 1986 by CARB, is located in many parts of California and is commonly associated with ultramafic rock. The City of Pinole is not located near any areas that are likely to contain ultramafic rock.

Odors

Typically odors are regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

With respect to odors, the human nose is the sole sensing device. The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; in fact, an odor that is offensive to one person (e.g., from a fast-food restaurant) may be perfectly acceptable to another. It is also important to note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor.

For example, a person may use the word "strong" to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air. When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

SENSITIVE RECEPTORS AND POLLUTION SOURCES

Sensitive receptors are facilities where sensitive receptor population groups (children, the elderly, the acutely ill, and the chronically ill) are likely to be located. These land uses include schools, retirement homes, convalescent homes, hospitals, and medical clinics.

4.3.2 REGULATORY FRAMEWORK

Air quality in the SFBAAB is addressed through the efforts of various federal, state, regional, and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, regulations, planning, policy making, education, and a variety of programs. The agencies primarily responsible for improving the air quality in the SFBAAB, including the City of Pinole, are discussed below along with their individual responsibilities.

FEDERAL

U.S. Environmental Protection Agency

The USEPA is responsible for enforcing the federal Clean Air Act and the 1990 amendments to it (CAAA), and the national ambient air quality standards (federal standards) that the USEPA establishes. These standards identify levels of air quality for six criteria pollutants, which are considered the maximum levels of ambient (background) air pollutants considered safe, with an adequate margin of safety, to protect public health and welfare. The six criteria pollutants include O_3, CO, NO_2, SO_2, PM_{10}, and lead. The USEPA also has regulatory and enforcement jurisdiction over emission sources beyond state waters (outer continental shelf) and sources that are under the exclusive authority of the federal government, such as aircraft, locomotives, and interstate trucking.

As part of its enforcement responsibilities, the USEPA requires each state with nonattainment areas to prepare and submit a State Implementation Plan (SIP) that demonstrates the means to attain the federal standards. The SIP must integrate federal, state, and local plan components and regulations to identify specific measures to reduce pollution in nonattainment areas, using a combination of performance standards and market-based programs.

Hazardous Air Pollutant Program

Title III of the federal Clean Air Act Amendments requires the USEPA to promulgate national emissions standards for hazardous air pollutants (NESHAPs). The NESHAP may differ for major sources than for area sources of HAPs. (Major sources are defined as stationary sources with potential to emit more than 10 tons per year (TPY) of any HAP or more than 25 TPY of any combination of HAPs; all other sources are considered area sources.) The emissions standards are to be promulgated in two phases. In the first phase (1992–2000), the USEPA developed technology-based emission standards designed to produce the maximum emission reduction

achievable. These standards are generally referred to as requiring maximum achievable control technologies (MACT). These federal rules are also commonly referred to as MACT standards, because they reflect the maximum achievable control technology. For area sources, the standards may be different, based on generally available control technology. In the second phase (2001–2008), the USEPA was required to promulgate health risk-based emissions standards, where deemed necessary, to address risks remaining after implementation of the technology-based NESHAP standards. The CAAA required the USEPA to promulgate vehicle or fuel standards containing reasonable requirements that control toxic emissions, at a minimum, to benzene and formaldehyde. Performance criteria were established to limit mobile-source emissions of toxics, including benzene, formaldehyde, and 1,3-butadiene. In addition, Section 219 required the use of reformulated gasoline in selected U.S. cities (those with the most severe ozone nonattainment conditions) to further reduce mobile-source emissions (BAAQMD, 2010a).

STATE

California Air Resources Board

CARB, a department of the California Environmental Protection Agency, oversees air quality planning and control throughout California. It is primarily responsible for ensuring implementation of the 1989 amendments to the California Clean Air Act (CCAA), responding to the federal CAAA requirements, and for regulating emissions from motor vehicles and consumer products within the state. CARB has established emission standards for vehicles sold in California and for various types of equipment available commercially. It also sets fuel specifications to further reduce vehicular emissions.

The amendments to the CCAA establish ambient air quality standards for the state (state standards) and a legal mandate to achieve these standards by the earliest practical date. These standards apply to the same six criteria pollutants as the federal CAA and also include sulfate, visibility, hydrogen sulfide, and vinyl chloride. They are more stringent than the federal standards and, in the case of PM_{10} and NO_2, far more stringent.

Toxic Air Contaminant Programs

California regulates TACs primarily through the Tanner Air Toxics Act (Assembly Bill (AB) 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588). The Tanner Act sets forth a formal procedure for CARB to designate substances as TACs. This includes research, public participation, and scientific peer review before CARB can designate a substance as a TAC. To date, CARB has identified over 21 TACs and adopted the USEPA's list of hazardous air pollutants (HAPs) as TACs. Most recently, diesel exhaust particulate was added to the CARB list of TACs. Once a TAC is identified, CARB then adopts an Airborne Toxics Control Measure for sources that emit that particular TAC. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If there is no safe threshold, the measure must incorporate toxic best available control technology (TBACT) to minimize emissions. None of the TACs identified by CARB have a safe threshold.

The Hot Spots Act requires that existing facilities that emit toxic substances above a specified level:

- Prepare a toxic emission inventory;
- Prepare a risk assessment if emissions are significant;
- Notify the public of significant risk levels;
- Prepare and implement risk reduction measures.

CARB has adopted diesel exhaust control measures and more stringent emission standards for various on-road mobile sources of emissions, including transit buses, and off-road diesel equipment (e.g., tractors, generators). In February 2000, CARB adopted a new public transit bus fleet rule and emission standards for new urban buses. These new rules and standards provide for (1) more stringent emission standards for some new urban bus engines beginning with 2002 model year engines, (2) zero-emission bus demonstration and purchase requirements applicable to transit agencies, and (3) reporting requirements with which transit agencies must demonstrate compliance with the urban transit bus fleet rule. Milestones include the low sulfur diesel fuel requirement and tighter emission standards for heavy-duty diesel trucks (2007) and off-road diesel equipment (2011) nationwide. Over time, the replacement of older vehicles will result in a vehicle fleet that produces substantially less TACs than under current conditions.

Mobile-source emissions of TACs (e.g., benzene, 1-3-butadiene, diesel PM) have been reduced significantly over the last decade and will be reduced further in California through a progression of regulatory measures (e.g., Low Emission Vehicle/Clean Fuels and Phase II reformulated gasoline regulations) and control technologies. With implementation of CARB's Risk Reduction Plan, it is expected that diesel PM concentrations will be reduced by 75 percent in 2010 and 85 percent in 2020 from the estimated year 2000 level. Adopted regulations are also expected to continue to reduce formaldehyde emissions from cars and light-duty trucks. As emissions are reduced, it is expected that risks associated with exposure to the emissions will also be reduced (BAAQMD, 2010a).

Senate Bill 656

In 2003, the California Legislature enacted Senate Bill (SB) 656 to reduce public exposure to PM_{10} and $PM_{2.5}$. CARB approved a list of the most readily available, feasible, and cost-effective control measures that can be employed by air districts to reduce PM_{10} and $PM_{2.5}$ (collectively referred to as PM) in 2004. The list is based on rules, regulations, and programs existing in California as of January 1, 2004, for stationary, area-wide, and mobile sources. In 2005, air districts adopted implementation schedules for selected measures from the list. The implementation schedules identify the appropriate subset of measures and the dates for final adoption, implementation, and the sequencing of selected control measures. In developing the implementation schedules, each air district prioritized measures based on the nature and severity of the PM problem in their area and cost-effectiveness. Consideration was also given to ongoing programs such as measures being adopted to meet national air quality standards or the state ozone planning process.

LOCAL

Bay Area Air Quality Management District

The BAAQMD attains and maintains air quality conditions in the San Francisco Bay Area Air Basin through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. The clean air strategy of the BAAQMD includes the preparation of plans for the attainment of ambient air quality standards, adoption and enforcement of rules and regulations concerning sources of air pollution, and issuance of permits for stationary sources of air pollution. The BAAQMD also inspects stationary sources of air pollution and responds to citizen complaints, monitors ambient air quality and meteorological conditions, and implements programs and regulations required by the CAA, CAAA, and the CCAA. The BAAQMD also limits emissions and public exposure to emissions, including TACs, through a number of programs. The BAAQMD prioritizes TAC-emitting stationary sources based on the quantity and toxicity of the TAC emissions and the proximity of the facilities to sensitive

receptors. In addition, the BAAQMD has adopted Regulation 11 Rules 2 and 14, which address asbestos demolition renovation, manufacturing, and standards for asbestos-containing serpentine (BAAQMD, 2010a).

BAAQMD CEQA Guidelines

In May 2010, the BAAQMD released the update to its California Environmental Quality Act (CEQA) Guidelines. This is an advisory document that provides the lead agency, consultants, and project applicants with uniform procedures for addressing air quality in environmental documents. The handbook contains the following applicable components (BAAQMD, 2010a):

- Criteria and thresholds for determining whether a project may have a significant adverse air quality impact;
- Specific procedures and modeling protocols for quantifying and analyzing air quality impacts;
- Methods available to mitigate air quality impacts;
- Information for use in air quality assessments and environmental documents that will be updated more frequently such as air quality data, regulatory setting, climate, topography.

2010 Clean Air Plan

As stated above, the BAAQMD prepares plans to attain ambient air quality standards in the SFBAAB. The BAAQMD prepares ozone attainment plans (OAP) for the national ozone standard and clean air plans (CAP) for the California standard both in coordination with the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG). With respect to applicable air quality plans, the BAAQMD prepared the *2010 Clean Air Plan* to address nonattainment of the national 1-hour ozone standard in the SFBAAB, as well as nonattainment of the California ambient air quality standards. The purpose of the 2010 Clean Air Plan is to (BAAQMD, 2010a):

- Update the Bay Area 2005 Ozone Strategy in accordance with the requirements of the California Clean Air Act to implement "all feasible measures" to reduce ozone;
- Consider the impacts of ozone control measures on particulate matter (PM), air toxics, and greenhouse gases in a single, integrated plan;
- Review progress in improving air quality in recent years;
- Establish emission control measures to be adopted or implemented in the 2009–2012 time frame.

4.3.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

Per Appendix G of the California Environmental Quality Act (CEQA) Guidelines and BAAQMD recommendations, air quality impacts are considered significant if implementation of the proposed project would:

1) Conflicts with or obstruct implementation of the applicable air quality plan.

2) Violates any air quality standard or contributes substantially to an existing or projected air quality violation.

3) Results in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).

4) Exposes sensitive receptors to substantial pollutant concentrations.

5) Creates objectionable odors affecting a substantial number of people.

As stated in Appendix G, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the above determinations. To assist local jurisdictions in the evaluation of air quality impacts, the BAAQMD has developed CEQA Guidelines, which were most recently updated in June 2010. The BAAQMD CEQA Guidelines include recommended significance thresholds to be applied for project-level and plan-level environmental documentation. In accordance with the BAAQMD's CEQA Guidelines (2010), the following plan-level significance thresholds were relied upon for determination of impact significance associated with the proposed City of Pinole General Plan Update (BAAQMD, 2010a):

Criteria Air Pollutants and Precursors

To meet the Threshold of Significance for operational-related criteria air pollutant and precursor impacts, a proposed plan must satisfy the following criteria:

1) Consistency with current air quality plan (AQP) control measures.

2) A proposed plan's projected vehicle miles traveled (VMT) or vehicle trips (VT) increase is less than or equal to its projected population increase.

Local Community Risk and Hazards

The BAAQMD-recommended thresholds of significance for plans with regard to community risk and hazard impacts are:

1) The land use diagram must identify: (a) Special overlay zones around existing and planned sources of TACs; and (b) Special overlay zones of at least 500 feet (or Air District-approved modeled distance) on each side of all freeways and high-volume roadways; and

2) The plan must also identify goals, policies, and objectives to minimize potential impacts and create overlay zones for sources of TACs and receptors.

Odors

For plans to have a less than significant impact, a plan must identify the location of existing and planned odor sources in the plan area. The plan must also include policies to reduce potential odor impacts in the plan area.

METHODOLOGY

Air quality impacts were assessed in accordance with methodologies recommended by the BAAQMD and in comparison to the recommended BAAQMD significance thresholds. Estimates of projected population and vehicle miles traveled for future conditions were obtained from the California Department of Finance and the Association of Bay Area Governments, respectively. For comparison purposes, long-term increase in emissions were quantified for both baseline future cumulative (year 2030) and future cumulative plus project conditions using the URBEMIS 2007 (v9.2.4) computer program. This program estimates pollutants from area and mobile emission sources associated with development projects, based on the specific types of land uses proposed for development. Use of this model for the General Plan Update and Three Corridors Specific Plan, where specific land uses have not yet been identified, may not fully account for site-specific conditions, but has been used to provide a reasonable estimation of emissions based on typical land use development conditions under the proposed General Plan Update and Three Corridors Specific Plan.

IMPACTS AND MITIGATION MEASURES

Conflict with the BAAQMD 2010 Clean Air Plan (Standard of Significance 1)

Impact 4.3.1 Subsequent land use activities associated with implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would result in increased population and vehicle miles traveled that would exceed assumptions used to create the BAAQMD's Clean Air Plan. This impact is considered to be **potentially significant.**

General Plan Update

Consistency with Ozone Strategy Population Projections

According to 2007 ABAG estimates, the City of Pinole's existing (year 2010) population is 20,100, and due to the city's development constraints, minimal growth is projected for future years. However, the proposed General Plan Update policy document and Land Use Map would accommodate some modification of uses and infill development that could increase population, housing, and employment in the city. Primarily the General Plan Update includes opportunities for some new development and redevelopment on the city's primary commercial corridors via the Three Corridors Specific Plan. Accordingly, population projections for the proposed project focus on the land use changes that increase development potential within the Specific Plan areas.

Under existing baseline conditions, 2007 ABAG projections estimate that Pinole will have a population of 21,800 in 2030 (within those portions of the Planning Area that are located within the city limits and excluding the areas in the City's Sphere of Influence, an increase of approximately 1,700 individuals or an overall increase of approximately 8.4 percent in comparison to existing conditions. Full buildout under the GPU could result in a 2030 population of approximately 23,875 in the city (excluding the Sphere of Influence), which would equate to an overall increase of approximately 3,775 individuals from the 2010 population and representing an increase of approximately 18.7 percent when compared to the 2010 population. The difference between the 2030 population estimate prepared by ABAG and the buildout figure for the GPU Planning Area, which anticipates population growth only in the area within the city limits, is 2,075 individuals, or approximately 9.5 percent. As shown, buildout of the proposed GPU Planning Area would result in population increases that would exceed ABAG

projections by 2,075.This increase in population was not considered during preparation of the air quality attainment plan, which is considered to be a substantial impact under CEQA Appendix G and the BAAQMD standards. Emissions attributable to future growth could potentially exceed those identified in the air quality plan.

Rate of VMT Growth in Excess of Population Growth

Based on information obtained from the traffic analysis prepared for this project (please see Section 4.4, Traffic and Circulation of this DEIR), existing annual vehicle miles traveled (VMT) was estimated at approximately 620,000 miles (Ambient, 2010). The VMT estimates were calculated utilizing the Contra Costa Transportation Authority's (CCTA) Travel Demand Model (TDM), based on land use data for existing and future conditions. Land use data for the proposed General Plan Update used in the CCTA's TDM was categorized into total households, single-family dwelling units, multi-family dwelling units, total employment, and employment by sector (retail, service, agriculture, manufacturing, wholesale, and other) by traffic analysis zones. Under existing baseline conditions, projected future (year 2030) annual VMT would increase to approximately 750,000 miles. With implementation of the proposed project, projected future (year 2030) annual VMT would increase to approximately 830,000 miles (Dowling Associates, 2010). In comparison to baseline future conditions, implementation of the proposed project would result in an overall increase in annual VMT of approximately 80,000 miles, or an increase of approximately 34 percent. Under future (year 2030) conditions, implementation of the proposed project would result in a slight increase in daily vehicle trips, due to projected increases in development, as well as a slight increase in average trip distances (i.e., approximately 0.02 miles per trip). The projected growth rate in VMT attributable to the proposed project (i.e., 34 percent) would be higher than the projected population growth identified for this same period (i.e., 18.7 percent) (Ambient, 2010). For additional information regarding projected VMT and population increases associated with implementation of the proposed General Plan Update, please refer to Sections 4.4 Traffic and Circulation and 4.2 Population and Housing of this DEIR, respectively.

Consistency with BAAQMD 2010 Clean Air Plan

The *2010 Clean Air Plan* includes numerous control measures related to reducing emissions from stationary and mobile sources of emissions. **Table 4.3-5** provides a summary of proposed General Plan Update policies that are supportive of control measures most applicable to local jurisdictions and development projects. A summary description of each Clean Air Plan control measure is included along with a listing of the most relevant General Plan Update policies that support Clean Air Plan control measures. It is important to note that **Table 4.3-5** only provides a summary of the most relevant proposed General Plan Update policies that relate to the Clean Air Plan control measures. The proposed General Plan Update contains numerous additional proposed policies, including those related to transportation, land use, energy conservation, and resource conservation that would also help to support these control measures and help to reduce emissions.

TABLE 4.3-5
CONSISTENCY WITH BAAQMD'S 2010 CLEAN AIR PLAN

2010 Clean Air Plan Control Strategies	General Plan Policies that Provide Consistency
MSM A-1 – Promote Clean, Fuel-Efficient Light and Medium-Duty Vehicles. **Brief Summary:** The Air District, in cooperation with local businesses, city and county governments, and state and federal agencies, will expand the use of Super Ultra-low	The City of Pinole supports these efforts by implementation of various policies, including, but not limited to, Action SE.7.3.3, Action SE.7.3.4, and Policy SE.8.10.

2010 Clean Air Plan Control Strategies	General Plan Policies that Provide Consistency
Emission (SULEV) and Partial-Zero (ZEV) emission light-duty passenger vehicles and trucks within the Bay Area.	
MSM A-2 – Zero Emission Vehicles (ZEV) and Plug-in Hybrids **Brief Summary:** The Air District, in cooperation with local businesses, city and county governments, and state and federal agencies, will expand the use of Zero Emission (ZEV) and Plug-in Hybrid (PHEV) passenger vehicles and light-duty trucks within the Bay Area.	
TCM C-1 – Voluntary Employer-Based Trip Reduction Programs **Brief Summary:** This measure will support voluntary efforts by Bay Area employers to encourage their employees to use alternative commute modes, such as transit, ridesharing, bicycling, walking, telecommuting, etc.	The City of Pinole supports these efforts by implementation of various policies, including, but not limited to, Action SE.7.3.5, Policy SE.7.4, Policy SE.7.5, Policy SE.7, Policy SE.8.1, Policy CE.6.2, Policy CE.6.3, and Policy CE.8.2.
TCM C-2 – Safe Routes to Schools and Safe Routes to Transit Programs **Brief Summary:** This measure will facilitate safe routes to schools and transit by providing funds and working with transportation agencies, local governments, schools, and communities to implement safe access for pedestrians and cyclists. Likely projects will include implementation of bicycle facilities, such as lanes, routes, paths, and parking, and improvements to pedestrian facilities, such as sidewalks/paths, benches, reduced street width, reduced intersection turning radii, crosswalks with activated signals, curb extensions/bulbs, buffers between sidewalks and traffic lanes and streets trees.	The City of Pinole supports these efforts by implementation of various policies, including, but not limited to, Policy SE.8.7, Policy CE.1.2, Policy CE.5.3, Policy CE.7.1, Policy CE.7.3, Policy CE.7.4, Policy CE.8.1, and Policy CE.8.3,
TCM C-3 – Ridesharing Services and Incentives **Brief Summary:** This measure will promote ridesharing services and incentives through the implementation of the 511 Regional Rideshare Program, as well as local rideshare programs implemented by Congestion Management Agencies. These activities will include marketing rideshare services, operating the rideshare information call center and website, and providing vanpool support services. In addition, this measure includes provisions for encouraging car- sharing programs where appropriate.	The City of Pinole supports these efforts by implementation of various policies, including, but not limited to, Policy CE.5.1, Policy CE.6.1, Policy CE.6.2, and Policy CE.5.3.
TCM D-1 – Bicycle Access and Facilities Improvements **Brief Summary:** TCM D-1 will expand bicycle facilities serving employment sites, educational and cultural facilities, residential areas, shopping districts, and other activity centers. Typical improvements include bike lanes, routes, paths, and bicycle parking facilities. This TCM also includes improving bicycle access to transit and supporting the annual Bike to Work event.	The City of Pinole supports these efforts by implementation of various policies, including, but not limited to, Policy CE.1.2, Policy CE.7.1, and Policy CE.7.2.
TCM D-2 – Pedestrian Access and Facilities Improvements **Brief Summary:** TCM D-2 will improve pedestrian	The City of Pinole supports these efforts by implementation of various policies, including, but not limited to, Policy CE.1.2, Policy CE.1.3, and Policy

2010 Clean Air Plan Control Strategies	General Plan Policies that Provide Consistency
facilities and encourage walking by funding projects that improve pedestrian access to transit, employment and major activity centers. Improvements may include sidewalks/paths, benches, reduced street width, reduced intersection turning radii, crosswalks with activated signals, curb extensions/bulbs, buffers between sidewalks and traffic lanes, and street trees.	CE.1.5.
TCM D-3 – Local Land Use Strategies **Brief Summary:** TCM D-3 will support and promote land use patterns, policies, and infrastructure investments that support higher density mixed-use, residential and employment development near transit in order to facilitate walking, bicycling and transit use.	The City of Pinole supports these efforts by implementation of various policies, including, but not limited to, Policy CE.1.1, Policy CE.1.3, Policy CE.1.4, Policy CE.1.6, Policy CE.6.2, Policy CE.7.1, Policy CE.7.3, Policy CE.8.1, Policy CE.8.3, Policy CE.8.4, Policy SE.8.2, Policy SE.8.3, Policy SE.8.4, and Policy SE.7.1.
TCM E-2 – Promote Parking Policies to Reduce Motor Vehicle Travel **Brief Summary:** Parking policies and practices have a profound impact on vehicle travel and mode choice, as well as land use patterns and the quality of the built environment. Parking policies are also an important tool in implementing focused growth strategies. This control measure outlines how the Air District, in cooperation with its regional agency partners, will (1) take actions at the regional level to implement parking policies that will benefit air quality, and (2) encourage and support local agency parking policies to reduce motor vehicle travel and promote focused growth.	The City of Pinole supports these efforts by implementation of various policies, including, but not limited to, Policy SE.8.6, Policy SE.8.7, Policy CE.5.4, Policy CE.6.1, and Policy CE.5.3.
ECM 1 – Energy Efficiency **Brief Summary:** This control measure consists of three components: (1) provide education and outreach to increase energy efficiency in residential and commercial buildings and industrial facilities, (2) provide technical assistance to local governments to adopt and enforce energy efficiency building codes, and (3) provide incentives for increasing energy efficiency at schools.	The City of Pinole supports these efforts by implementation of various policies, including, but not limited to, Policy SE.1.2, Policy SE.1.3, Policy SE.1.2, Policy SE.1.4, Policy SE.2.1, Policy SE.2.2, Policy SE.34.1, Policy SE.4.2, Policy SE.4.3, Policy SE.4.4, Policy SE.4.5, Policy SE.4.6, Policy SE.4.7, Policy SE.6.1, Policy SE.6.2, Policy SE.6.7, and Policy LU.4.2.
ECM 2 – Renewable Energy **Brief Summary:** This control measure consists of two components: (1) promote incorporation of renewable energy sources into new developments and redevelopment projects, and (2) foster innovative renewable energy projects through provision of incentives. Note: In addition, as part of the Further Study Measure entitled "Enhancement to Energy Measures," the District will evaluate the cost-effectiveness of solar thermal technology for consideration as a potential solar hot water heating rule.	The City of Pinole supports these efforts by implementation of various policies, including, but not limited to, Policy SE.6.6, Policy SE.34.1, Policy SE.4.2, Policy SE.4.3, Policy SE.4.4, Policy SE.4.5, Policy SE.4.6, and Policy SE.4.7.
ECM 3 – Urban Heat Island Mitigation **Brief Summary:** The control measure includes regulatory and educational approaches to reduce the "urban heat island" (UHI) phenomenon by increasing the application of "cool roofing" and "cool paving" technologies.	The City of Pinole supports these efforts by implementation of various policies, including, but not limited to, Policy SE.7.1, Policy SE.7.2, and Action SE.7.3.1
ECM 4 – Shade Tree Planting	The City of Pinole supports these efforts by implementation of various policies, including, but not

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Brief Summary: The control measure includes voluntary approaches to reduce the "urban heat island" phenomenon by increasing shading in urban and suburban communities through planting of (low VOC-emitting) trees and preservation of natural vegetation and ground cover.	limited to, Policy SE.4.5, and Policy SE.3.3.
FSM 13 – Energy Efficiency and Renewable Energy **Brief Summary:** Many agencies are already involved in issuing building standards and promoting energy efficiency and renewable energy. It is important to determine the proper role and added value that the District could bring to energy use in the buildings sector in light of constraints related to legal authority, potential enforcement mechanisms, in-house experience and expertise, available resources, and existing regulatory structures.	The City of Pinole supports these efforts by implementation of various policies, including, but not limited to, Policy SE.1.2, Policy SE.1.3, Policy SE.1.4, Policy SE.34.1, and Policy SE.4.2.

The proposed General Plan Update would be consistent with the control measures identified in the *2010 Clean Air Plan,* even though, as noted earlier in this impact discussion, the proposed General Plan Update would result in increased population and VMT that would exceed 2007 ABAG population projections for the 2030 assumed buildout year. Even though this condition is unlikely, the proposed project is inconsistent with the assumptions contained in the BAAQMD *2010 Clean Air Plan*. This impact would be considered **potentially significant**.

Three Corridors Specific Plan

Implementation of the proposed Three Corridors Specific Plan would consist of the revitalization of the San Pablo Avenue, Pinole Valley Road, and Appian Way corridors, which could include new development and/or redevelopment of various urban uses. The Three Corridors Specific Plan is intended to establish more housing choices and job opportunities within the city's commercial corridors. Due to the city's small supply of developable land as discussed above, the updated General Plan and the Three Corridors Specific Plan direct the majority of the city's future growth to sites designated for mixed and multiple-family use in the San Pablo Avenue, Pinole Valley Road, and Appian Way corridors. The Three Corridors Specific Plan also identifies opportunity sites for infill mixed-use development along the city's commercial corridors in close proximity to transit and other amenities. Such strategies seek to reduce the environmental impact of future land use development by limiting the amount of land consumed and increasing the viability of walking, biking, and transit by reinforcing the City's compact urban form by balancing growth and conservation objectives and managing where and how growth and conservation will occur (the reader is referred to Specific Plan Chapter 5.0, *Circulation*, for planned bicycle and pedestrian facility improvements and Circulation Policies 3 and 7 as well as Chapter 6.0, *Land Use Standards*, for land use standards promoting compact urban development). These smart growth strategies have well-documented benefits in terms of lower air pollutant emissions due to fewer and shorter vehicle trips since residents and employees of these areas have more home, work, and shopping opportunities within walking or biking distance. Transit is also a more viable form of transportation since these developments have a larger number of potential transit users and can support more frequent transit service to regional destinations. Nonetheless, given that buildout of the proposed General Plan update would result in projected population increases that could exceed ABAG projections, the impact is considered **potentially significant**.

Zoning Code Update

Updates to the Zoning Code areintended to further clarify the types and forms of uses permitted under particular land use designations, but would not result in any development activities beyond that analyzed for the proposed General Plan Update. These updates would not result in any development activities beyond those analyzed for the proposed GPU. Therefore, the Zoning Code Update would have an impact similar to that for the General Plan Update as discussed above.

Proposed General Plan Update Policies and Actions that Address Potential Conflicts with Current Air Quality Plan Control Measures

The proposed General Plan Update contains numerous policies and actions that include specific, enforceable requirements and/or restrictions and corresponding performance standards that address air quality impacts. A majority of the policies related to air quality are contained in the Sustainability Element and the Transportation and Circulation Element. Additional air quality-related policies are also included in various other proposed General Plan Elements. The following policies and actions are most applicable to this impact:

Policy SE.1.2 Conduct public outreach to Pinole businesses to inform them about rebates and other financial incentives for using ENERGY STAR® or equivalent energy-efficient appliances, lighting, and heating equipment.

Policy SE.1.3 Enhance the energy efficiency of all City facilities.

Action SE.1.3.1 Conduct energy audits for all public facilities, as feasible.

Action SE.1.3.2 Retrofit facilities for energy efficiency where feasible. Include items such as increased insulation, green or reflective roofs, and low-emissive window glass.

Action SE.1.3.3 Implement an energy tracking and management system for City departments and public facilities.

Action SE.1.3.4 Work with Public Works to install energy-efficient lighting retrofits and occupancy sensors on public facilities.

Policy SE.1.4 Require all newly constructed, purchased, or leased municipal buildings or facilities meet minimum standards for green building as appropriate.

Action SE.1.4.1 Consider setting standards for green building for public facilities that include a minimum LEED certification and integrate solar design, heat-minimizing features such as cool paving, landscaping, pervious surfaces, and other appropriate techniques.

Policy SE.2.1 Support the efforts of community groups, including the Pinole Valley High School Environmental Academy, to educate the public about sustainability and climate change.

Action SE.2.1.1 Assist in the creation of effective educational materials and outreach efforts relating to climate change.

Action SE.2.1.2 Support the development and implementation of a program to present educational information to schoolchildren about climate change and behaviors that reduce GHG emissions and mitigate the effects of climate change.

Action SE.2.1.3 Acknowledge outstanding local efforts (private and public) that support the City's sustainability goals, including the reduction of GHG emissions.

Action SE.2.1.4 Consider establishing and/or sponsor competitions, or contests that promote climate protection, reducing GHG emissions, or fund-raising to support community climate protection programs.

Action SE.2.1.5 Support student participation in local efforts to combat or raise awareness about climate change and GHG emissions.

Policy SE.2.2 Pinole should continue to encourage a vital economy that supports green businesses and green industry.

Action SE. 2.2.1 Through the Redevelopment Agency and education programs, create a "Green Jobs Incubator" to help create more green jobs and offer green job training opportunities.

Action SE.2.2.2 Join the Bay Area Green Business Program, a partnership of environmental agencies, professional associations, waste management agencies, utilities and a concerned public.

Action SE.2.2.3 Support and encourage conveniently located child care services with flexible hours.

Policy SE.3.3 Pinole will mitigate climate change by decreasing heat gain from pavement and other hard surfaces associated with infrastructure (i.e., heat island effect).

Action SE.3.3.1 Reduce heating and cooling loads by promoting light-colored roofs and paving materials, planting trees, and increasing vegetative cover.

Action SE.3.3.2 Where possible, use parkway strips to allow shading of streets by trees.

Action SE.3.3.3 Require the use of shade trees on south- and west-facing sides of structures, where possible.

Action SE.3.3.4 Include low-water landscaping in place of hardscaping around transportation infrastructure and in parking areas.

Action SE.3.3.5 Where feasible, require the use of pervious pavement options.

Action SE.3.3.6 Where feasible, require the use of edible landscaping and low-water landscaping.

Policy SE.4.1 Explore and promote opportunities for the City's use of sustainable energy sources (e.g. solar, wind, biomass, tidal energy generation, methane, geothermal, and hydropower).

Action SE.4.1.1 Utilize, where feasible, renewable energy and clean generation technologies such as solar, wind, biogas, tidal, cogeneration, and fuel cells to power City facilities using tax-free low-interest loans and other available financial options.

Action SE.4.1.2 Evaluate the feasibility of purchasing renewable energy certificates to reduce the City's contribution to greenhouse gas emissions.

Action SE.4.1.3 Designate suitable sites to prioritize their development for renewable energy generation.

Action SE.4.1.4 Adopt measures to protect the renewable energy use of the sites and their resources, such as utility easements, rights-of-way, and land set-asides.

Policy SE.4.2 Explore opportunities for citywide expansion of Programs and Facilities related to energy efficiency and conservation.

Action SE.4.2.1 Continue to identify and remove regulatory or procedural barriers to producing renewable energy in building and development codes, design guidelines, and zoning ordinances. Work with related agencies in areas such as fire, water, and health that may impact the use of alternative technologies. Actively participate in the development protocols for alternative energy storage such as biodiesel, hydrogen, and/or compressed air.

Action SE.4.2.2 Provide energy conservation information to the public.

Action SE.4.2.3 Provide information to planning and building staff and citizen review bodies regarding energy conservation and efficiency issues, including Pinole's energy conservation policies, and work with applicants to achieve energy conservation goals.

Action SE.4.2.4 Provide technical assistance to builders and developers to encourage sustainable and energy efficient building design.

Policy SE.4.3 Pinole will promote and require renewable energy generation and co-generation where feasible and appropriate.

Action SE. 4.3.1 Require that new office/retail/commercial or industrial development, or major rehabilitation (e.g. additions of 25,000 square feet commercial, or 100,000 square feet industrial) incorporate renewable energy generation either on- or off-site to provide 15% or more of the project's energy needs.

Policy SE.4.4 Identify opportunities for creating energy conservation and efficiency programs for application in Pinole facilities, residences, schools and local businesses.

Action SE.4.4.1 Utilize energy-efficient products for City equipment purchases where feasible.

Action SE.4.4.2 Continue to conduct energy audits of Pinole facilities and implement energy efficiency and retrofitting recommendations from those audits. Seek funding from available state sources and grant opportunities, as well as the CIP.

Action SE.4.4.3 Where feasible and appropriate, transition to LED/energy efficient lights in all City facilities and equipment.

Action SE.4.4.4 Set a target to meet a majority of the City's energy needs via renewable energy.

Action SE.4.4.5 Explore funding sources and mechanisms for energy efficiency improvements for residences. (ex: AB 811, which provides cities ways to fund energy efficiency improvements via assessments).

Policy SE.4.5 Pinole will continue to promote and support and require, where appropriate, the development of solar energy.

Action SE.4.5.1 Require that, where feasible, all new buildings be constructed for easy, cost-effective installation of solar energy systems. This should include requiring such features as optimal roof orientation, clear access without obstructions, and appropriate roof framing and wiring.

Action SE.4.5.3 Require that any building constructed in whole or in part with City funds incorporate passive solar design features such as daylighting and passive solar heating, where feasible.

Action SE.4.5.4 Pinole will protect active and passive solar design elements and systems from shading by neighboring structures and trees, as consistent with existing tree shading requirements.

Policy SE.4.6 Pursue and provide economic incentives and creative financing for renewable energy projects, as well as other support for community members or developers seeking funding for such projects.

Action SE.4.6.1 Provide, where possible, grants, rebates, and incentives for renewable energy projects, including reduced fees and expedited permit processing.

Action SE.4.6.2 Pinole will provide, where feasible, creative financing for renewable energy projects, including subsidized or other low-interest loans, and the option to pay for system installation through long-term assessments on individual property tax bills.

Action SE.4.6.3 Pinole will pursue partnerships with other governmental entities and with private companies and utilities to establish incentive programs for renewable energy.

Policy SE.4.7 Pinole will implement measures to support the purchase and use of renewable and alternative energy.

Action SE.4.7.1 Evaluate the feasibility and effectiveness of using Community Choice Aggregation as a model for providing renewable energy to meet Pinole's electricity needs, including potential partnerships with other jurisdictions.

Policy SE.6.1 Develop local green building and energy efficiency standards.

Action SE.6.1.1 Develop a Green Building Ordinance to require green building standards be utilized such as the use of renewable energy, efforts to improve air and water quality, and to conserve natural resources. Other areas to consider addressing in the Ordinance include building orientation and shading, landscaping, solar orientation, and sustainable building materials.

Action SE.6.1.2 Investigate sliding-scale building permit fees with rebates and/or expedited permit review for high-performance green buildings and higher fees for conventional buildings.

Policy SE.6.2 Explore the establishment of an energy plans examiner and a required field inspection of energy systems to ensure maximization of energy efficiency.

Action SE.6.2.1 Reduce energy consumption in buildings by balancing energy-efficient design with land use compatibility during the design review process.

Policy SE.6.6 Collaborate with other local jurisdictions to share resources, and develop sustainable and resource efficient building policies and programs that are optimized for the region. This approach may include the following:

- Optional or incentive-based sustainable building provisions to encourage compliance.
- Conservation of natural resources when planning site development.
- Use of resource efficient building materials, including recycled-content materials.
- Promotion of water efficiency and conservation measures, including low-impact development strategies.
- Increased energy efficiency in building and site designs.
- Promotion of the use of renewable energy in new development proposals.
- Improved indoor air quality that includes the use of formaldehyde-free, non-toxic construction materials.

Policy SE.6.7 Where feasible, install energy efficient and/or reflective roofing materials on existing or new City facilities.

Policy SE.7.1 Continue working with the Bay Area Air Quality Management District and other regional agencies to:

1. Improve air quality through pollution prevention methods.
2. Ensure enforcement of air emission standards.
3. Reduce local and regional traffic (the single largest source of air pollution in the city) and support public transit improvements.
4. Promote regional air pollution prevention plans for business and industry.

5. Promote strategies to reduce particulate pollution from residential fireplaces and wood-burning stoves.

6. Locate parking appropriately and provide adequate signage to reduce unnecessary "circling" and searching for parking.

7. Promote anti-idling policies and programs.

Policy SE.7.2 Support the expansion of tree planting and landscaping practices that encourage the use of trees, plants, and vegetation to improve air quality to enhance the scenic quality of the City.

Action SE.7.2.1 Establish tree planting targets in order to reduce or sequester greenhouse gas emissions, provide for energy efficiency, and to enhance the City's quality of life.

Action SE.7.2.2 Pursue funding for private and public park and street tree planting.

Action SE.7.2.3 Establish and maintain a Pinole tree planting guide to encourage tree planting, reduce long-term maintenance costs, reduce fire hazards, improve energy efficiency, and enhance the quality of the community over time.

Action SE.7.2.4 Develop landscape standards that require minimum planting and maintenance requirements for new and retrofit development and the use of native or drought-tolerant vegetation.

Policy SE.7.3 Support efforts to comprehensively address air quality issues through education, regulation, and innovation.

Action SE.7.3.1 Increase public awareness of air quality problems, rules and solutions through use of City publications and networks. Action SE.7.3.2 Reduce methane emissions released from waste disposal. Encourage recycling, decrease waste sent to landfills, require landfill methane recovery and promote methane recovery for energy production from other sources.

Action SE.7.3.3 Research and consider a set of standards that provide a set of voluntary measures to incorporate clean vehicles in private fleets and promote the use of clean alternative fuels.

Action SE.7.3.4 Continue to encourage innovative technologies and programs such as clean-fuel, electric and low-emission cars that reduce the air quality impacts of the automobile.

Action SE.7.3.5 Support alternate work schedules where feasible. Encourage employers to allow alternate work schedules for employees, telecommuting and other practices that reduce auto trips.

Policy SE.7.4 In order to reduce vehicle miles traveled and traffic congestion, new development within 1,000 feet of an existing or planned transit stops should be designed to encourage the usage of public transit and minimize the dependence on the automobile through the application of site design guidelines.

Action SE.7.4.1	Develop a TDM program for Pinole that includes such improvements as bike parking, showers for employees, etc.
Policy SE.7.5	Air quality will be maintained and improved by requiring project mitigation, such as Transportation Demand Management (TDM) techniques, where significant air quality impacts are identified.
Policy SE.7.6	Air quality should not decline from levels experienced during the early 1990s, when the community's growth capacity was last re-examined.
Policy SE.8.1	Encourage alternatives to single-occupancy vehicle use, including using public transit, carpooling, teleworking, bicycling and walking.
Action SE.8.1.1	Publicize and participate in campaigns to promote options to single-occupancy vehicle travel.
Action SE.8.1.2	Pursue funding opportunities for projects that increase pedestrian accessibility to transit stops, neighborhood shopping areas, schools, religious facilities, and parks.
Action SE.8.1.3	Provide maps highlighting alternative modes of transportation and preferred routes for those modes.
Action SE.8.1.4	Explore parking pricing to all appropriate commercial areas to reduce single-occupancy vehicle use.
Action SE.8.1.5	Educate all employees on fuel-efficient driving practices, such as avoiding unnecessary idling.
Action SE.8.1.6	Explore providing City employees with transit subsidies for travel on business to improve air quality and reduce greenhouse gas emissions.
Action SE.8.1.7	Include sidewalks, separated sidewalks whenever possible, on both sides of all new street improvement projects, except where there are severe topographic or natural resource constraints.
Action SE.8.1.8	Whenever feasible, ensure transit stops are safe and sheltered, with clean benches and adequate lighting.
Policy SE.8.2	Encourage development of a planning and zoning strategy to absorb all new growth in the city in areas that achieve transit-supportive densities through strategic development controls.
Action SE.8.2.1	Adopt a specific plan for Pinole's transit corridors.
Action SE.8.2.2	Ensure transportation centers are multi-modal to allow transportation modes to intersect.
Policy SE.8.3	Encourage housing opportunities for all income levels to ensure that workers in Pinole can live in the City and reduce the need for outbound commuting for employment.

Policy SE.8.4 Consider the creation of a citywide transportation business improvement district in which commercial property owners would fund a private transportation service, which would be operated by a nonprofit Transportation Management Association. The transportation service could operate a shuttle to provide essential connectivity to points within and outside Pinole while also helping to alleviate congestion.

Policy SE.8.6 Establish parking policies and requirements that capture the true costs of private vehicle use and support alternative modes of transportation.

Action SE.8.6.1 Encourage shared parking opportunities, such as movie theaters with primary parking needs in evenings and churches or other facilities with weekend-only parking needs.

Action SE.8.6.2 Consider reducing minimum parking requirements for new development.

Action SE.8.6.3 Continue to encourage shared parking programs in mixed-use and transit-oriented development.

Action SE.8.6.4 Consider using time limited/metered parking to discourage private vehicle use, especially at peak times.

Action SE.8.6.5 Require that new and fully renovated commercial and retail development provide preferential parking for electric vehicles and vehicles using alternative fuels.

Policy SE.8.7 Work to improve Pinole's pedestrian and bicycle infrastructure and to meet the needs of all pedestrians bicyclists.

Action SE.8.7.1 Implement public transit-, bicycle- and pedestrian-oriented land use and design strategies in new development, as described in the Land Use and Circulation Elements of the General Plan to reduce the number of single-occupant trips in fossil-fueled vehicles.

Action SE.8.7.2 Consider establishing a "free bicycle" program with bicycles that the public may borrow for trips around Pinole.

Action SE.8.7.3 Require new commercial, multi-family residential, and mixed-use development to provide secure bicycle parking.

Action SE.8.7.4 The City will set a deadline by which it will be assured that all city parks, schools, commercial districts, and other high-volume trip destinations within Pinole provide secure bicycle parking.

Action SE.8.7.5 Establish and implement standards that meet or exceed state law for "complete streets" that foster equal access by all users in the roadway system. Include standards that address connection of bicycle and pedestrian access to other areas, safe road crossings, adequate and secure bike parking at public and private facilities, and street standards as is feasible for bicycle infrastructure.

Action SE.8.7.6	Apply for regional, state, and federal grants for bicycle and pedestrian infrastructure projects.
Policy SE.8.9	Implement traffic and roadway management strategies to improve mobility and efficiency and reduce associated emissions. (See Circulation Element.)
Policy SE.8.10	Support and promote the use of low- and zero-emission vehicles, alternative fuels, and other measures to directly reduce emissions from motor vehicles.
Action SE.8.10.1	Develop the necessary infrastructure to encourage the use of zero-emission vehicles and clean alternative fuels, such as development of electric vehicles charging facilities and alternative fueling stations.
Action SE.8.10.2	Encourage new construction to include vehicle access to properly wired outdoor receptacles to accommodate plug-in vehicles.
Action SE.8.10.3	Establish incentives for use of alternative fuel, electric, or gas-electric hybrid vehicles.
Policy CE.1.1	Encourage strategic growth that concentrates future development along Pinole's three primary transit corridors (San Pablo Avenue, Appian Way and Pinole Valley Road).
Action CE.1.1.1	Adopt and implement the Three Corridors Specific Plan.
Action CE.1.1.2	Adopt a Resolution of Support for the designation of Appian Way, San Pablo Avenue and Pinole Valley Road as Preferred Development Areas (PDAs).
Action CE.1.1.3	Apply for grants and other funding, as appropriate to implement the PDAs.
Policy CE.1.2	Coordinate development of the circulation system with sustainable land use planning.
Action CE.1.2.1	Give priority to projects that will contribute to a reduction in vehicle miles traveled per capita, while maintaining economic vitality and sustainability.
Action CE.1.2.2	Require development to provide bus, bicycle, pedestrian and alternative fuel vehicle facilities, as appropriate.
Action CE.1.2.3	Provide safe and convenient access for pedestrians and bicyclists, wherever feasible.
Policy CE.1.3	Encourage development that is sensitive to both local and regional transit measures and that promotes the use of alternative modes of transportation.
Action CE.1.3.1	Consult with transit providers during review of development proposals.
Action CE.1.3.2	Include facilities that support alternative modes of transportation (pedestrian, bicycles, public transit, electric vehicles, etc.) where feasible.
Policy CE.1.4	Encourage maximum utilization of the existing public transit system and alternate modes of transportation in Pinole.

Action CE.1.4.1 Study the feasibility of increasing public transit frequency in areas currently served, and continue evaluating the possibility of expanding service to areas currently without service.

Action CE.1.4.2 Include links to public transit resources, bike trails maps, pedestrian trails maps and carpool/van pool information on the City's website.

Action CE.1.4.3 Pursue extension of rapid bus service to Pinole and enhance transit facilities that serve Pinole users.

Action CE.1.4.4 Support provision of wayfinding signage and markers for transit stops and multi-use trails.

Policy CE.1.5 Encourage transit facilities that will provide good access to major public facilities and employment centers in the city.

Action CE.1.5.1 Enhance existing and provide additional bus shelters and other amenities that support transit use, where feasible and appropriate.

Policy CE.1.6 Encourage transit services between major employment centers in each area of the city and surrounding communities.

Action CE.1.6.1 Coordinate the integration of local and regional transit with transportation agencies and other jurisdictions.

Action CE.1.6.2 Work with WestCAT, AC Transit and other transit providers to support expanded transit lines and increased frequency of service on major transit arterials.

Policy CE.5.1 Provide off-street parking to employees; however preferential parking at several locations in the city shall be made available to vanpools, carpools, alternative fuel vehicles and other transit users, where feasible and appropriate.

Action CE.5.1.1 Continue to encourage shared parking facilities for both private businesses and public agencies.

Action CE.5.1.2 Continue to maintain the Old Town parking district as described in Figure 7.5.

Policy CE.5.3 Work with various government agencies to provide secure parking at park-and-ride lots and transit stations.

Policy CE.5.4 Establish parking policies and requirements that support alternative modes of transportation.

Action CE.5.4.1 Allow reduction of minimum on-site parking requirements for development that includes exceptional features that support multiple modes of transportation.

Action CE.5.4.2 Encourage shared parking programs in mixed-use and transit-oriented development areas.

Policy CE.6.1	Encourage the use of carpooling and vanpooling to maintain an acceptable LOS on city streets and I-80.
Action CE.6.1.1	Designate a certain percentage of parking spaces for ride-sharing vehicles.
Action CE.6.1.2	Require the development of Transportation Management Associations (TMA) for large employers and commercial/industrial complexes. These TMAs would develop plans to encourage their employees to use some form of collective transportation to commute to and from work. These plans should not only include information regarding rideshare lists and available transit, but may also include provision of transit passes, preferential parking and other incentives to participating employees.
Policy CE.6.2	Implement transportation demand management strategies in conjunction with land uses in order to prevent future traffic congestion in the city.
Action CE.6.2.1	Coordinate with ride-sharing programs to provide up-to-date lists of potential riders and to educate the public on commuting options.
Action CE.6.2.2	Encourage the development of employer-funded vanpool and shuttle bus services to new employment centers.
Action CE.6.2.3	Encourage employer provision of information on alternative modes of transit.
Action CE.6.2.4	Encourage employers to offer flextime arrangements to their employees in order to reduce the percentage of trips made during peak hours.
Action CE.6.2.5	Work with schools to encourage carpooling and a flexible class schedule in order to reduce the percentage of trips made during peak hours.
Action CE.6.2.6	Establish and apply minimum carpool requirements for all nonresidential developments.
Policy CE.6.3	Strive to achieve a 30 percent reduction in the total number of peak period employee trips.
Action CE.6.3.1	Encourage and utilize shuttles to serve neighborhoods, employment centers and major destinations.
Action CE.6.3.2	Work with existing shuttle service providers to coordinate their services with other forms of transit, special events and work centers.
Action CE.6.3.3	Encourage home offices, live/work sites and satellite work centers in appropriate locations.
Action CE.6.3.4	Encourage telecommuting options through public outreach and with new and existing employers, as appropriate.
Action CE.6.3.5	Explore the potential for creation of a transportation assessment district to help fund transportation improvements and repairs throughout the city.

Action CE.6.3.6	Explore the creation of a network of park-and-ride facilities to support and encourage the use of regional transit.
Action CE.6.3.7	Identify and correct gaps in the pedestrian travel network, whenever feasible.
Policy CE.7.1	Enhance the city's bikeway network through the use of Class I, II and III bikeways.
Action CE.7.1.1	Develop street design and bikeway design standards to address all street users, autos, public transit, bicycles and pedestrians of all ages and abilities.
Action CE.7.1.2	Prepare and regularly update a Pinole bikeways map and make it available on the City's website.
Action CE.7.1.3	Provide safe access to public transportation and other non-motorized uses through construction of dedicated bicycle paths.
Policy CE.7.2	Establish standards for new development and redevelopment projects to support bicycle use.
Action CE.7.2.1	Establish engineering standards for pedestrian and bicycle facilities.
Action CE.7.2.2	Require provision of adequate, convenient, and secure bike parking in conjunction with private development.
Action CE.7.2.3	Provide public bike parking as funding is available.
Action CE.7.2.4	Require projects to include bicycle facilities, as appropriate.
Policy CE.7.3	Establish a network of multi-use paths to facilitate safe and direct off-street bicycle and pedestrian travel.
Action CE.7.3.1	Where feasible, provide bike racks along these trails at safe, lighted locations.
Action CE.7.3.2	Pursue enhanced funding for bicycle and pedestrian facilities and access projects.
Action CE.7.3.3	Adopt bicycle parking standards that encourage and facilitate bicycle travel.
Action CE.7.3.4	Minimize bicycle/pedestrian/motor vehicle conflicts by providing proper trail, street and intersection design and separation.
Policy CE.7.4	Establish bicycle safety as a priority through ongoing public education.
Action CE.7.4.1	Assist in the development and dissemination of public education programs to promote bicycle safety.
Policy CE.8.1	Require development to provide pedestrian walkways that are safe, interconnected, and accessible by all members of the community

Action CE.8.1.1 As feasible, ensure that all intersections in areas with pedestrian usage are signalized with curb ramps, bulbouts, high-contrast crosswalks and pedestrian actuation, and other safety measures.

Action CE.8.1.2 Where feasible, use landscaping or physical barriers on high-capacity arterials to separate vehicles and pedestrians.

Policy CE.8.2 Encourage the community to take advantage of Pinole's pedestrian facilities and recreational opportunities and increase non-motorized modes of transportation.

PolicyCE.8.3 Design access ways to school facilities that will ensure public safety.

Action CE.8.3.1 In conjunction with the public school system and other appropriate public facilities and programs, assist in developing public education programs to promote pedestrian safety.

Action CE.8.3.2 Ensure that all intersections near schools are signalized with curb ramps, high-contrast crosswalks and pedestrian actuation, where feasible.

Action CE.8.3.3 Actively support the Safe Routes to Schools program, including making use of available funding and technical assistance.

Policy CE.8.4 Encourage the location of basic shopping and services within walkable distances to residential areas.

Action CE.8.4.1 Use strategic planning to establish land use patterns that encourage mixed-use, walkable development. In addition to the policies and actions noted above, the proposed General Plan Update includes numerous additional goals, policies, and actions that would reduce VMT within the city and would promote energy and resource conservation. These goals, policies, and actions would reduce air quality impacts.

Furthermore, Chapter 5.0, *Circulation*, of the proposed Three Corridor Specific Plan contains Circulation Policies 3 and 7 that encourage pedestrian and bicycle transportation as well as planned roadway improvements that include additional bicycle travel lanes and sidewalks. Chapter 7.0, *Private Realm Standards and Design Guidelines*, and Section 8.0, *Public Realm Standards and Design Guidelines*, also contains guidelines encouraging clearly identified, well-connected, and safe pedestrian paths and attractive, easily accessible transit stops. Finally, Chapter 6.0, *Land Use Standards*, contains Land Use Policies 7 and 8 as well as landSpecific Plan areas.

However, given that projected future population and VMT associated with the proposed GPU would still be anticipated to conflict with projections used for air quality planning purposes, this impact is considered **significant and unavoidable** under CEQA Appendix G and the BAAQMD standards.

Mitigation Measures

None available.

Violate Air Quality Standard or Contribute Substantially to an Air Quality Violation: Short-Term, Construction Emissions (Standards of Significance 2 and 3)

Impact 4.3.2 Subsequent land use activities associated with implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could result in short-term construction emissions that could violate or substantially contribute to violations of federal and state ambient air quality standards. This impact is considered to be **potentially significant**.

General Plan Update

Implementation of the proposed General Plan Update will result in short-term emissions from construction activities associated with subsequent development, including site grading, asphalt paving, building construction, and architectural coating. Emissions commonly associated with construction activities include fugitive dust from soil disturbance, fuel combustion from mobile heavy-duty diesel- and gasoline-powered equipment, portable auxiliary equipment, and worker commute trips. During construction, fugitive dust, the dominant source of PM_{10} and $PM_{2.5}$ emissions, is generated when wheels or blades disturb surface materials. Uncontrolled dust from construction can become a nuisance and potential health hazard to those living and working nearby. Demolition and renovation of buildings can also generate PM_{10} and $PM_{2.5}$ emissions. Off-road construction equipment is often diesel-powered and can be a substantial source of NO_X emissions, in addition to PM_{10} and $PM_{2.5}$ emissions. Worker commute trips and architectural coatings are dominant sources of ROG emissions.

The amount of emissions generated would vary, by project, depending on numerous factors, including the size of the development and construction activities required. Furthermore, it is anticipated that multiple construction projects could occur simultaneously within a given year. Without detailed construction information (i.e., construction schedules, demolition, grading, excavation, and construction requirements), construction emissions for individual projects cannot be quantified. Given these limitations, construction-generated emissions associated with development that would occur as part of the General Plan Update cannot be quantified at this time. Although many of the individual construction projects would likely not generate construction emissions that would exceed BAAQMD's project-level significance thresholds, some development projects may be large enough such that the project-level significance thresholds would be exceeded. BAAQMD has developed as part of its CEQA Guidelines, screening criteria to provide lead agencies and project applicants with a conservative indication of whether the proposed project could result in potentially significant air quality impacts. If all of the screening criteria are met by a proposed project, then the lead agency or applicant would not need to perform a detailed air quality assessment of their project's air pollutant emissions. For example, a proposed residential construction project would not need to perform a detailed air quality assessment if it was proposing to construct less than 114 dwelling units (BAAQMD, 2010). It should be noted that all projects in the city would be subject to applicable BAAQMD rules and regulations in effect at the time of construction. In addition, future development would also be subject to subsequent environmental review. In the event that a significant impact is identified for an individual project, BAAQMD-recommended mitigation measures would be required to reduce project-related impacts. However, even with mitigation, it may not be possible to reduce potential emissions to levels below the BAAQMD thresholds. As a result, this impact would be considered **potentially significant**.

Three Corridors Specific Plan

The Three Corridors Specific Plan identifies sites for infill mixed-use development along San Pablo Avenue, Pinole Valley Road, and Appian Way in close proximity to transit and other amenities. Although many of the individual construction projects would likely not generate construction

emissions that would exceed BAAQMD's project-level significance thresholds, some development projects may be considered large enough by BAAQMD such that the project-level significance thresholds would be exceeded. This impact is considered **potentially significant**.

Zoning Code Update

Updates to the Zoning Code are intended to further clarify the types and forms of uses permitted under particular land use designations, but would not result in any development activities beyond that analyzed for the proposed General Plan Update. These updates would not result in any development activities beyond those analyzed for the proposed GPU. Therefore, the Zoning Code Update would have an impact similar to that for the General Plan Update as discussed above.

Proposed General Plan Update Policies and Actions that Address Short-term Construction Emissions

The proposed project contains no applicable policies or actions that specifically address short-term construction-related emissions.

The BAAQMD CEQA Air Quality Guidelines (BAAQMD, 2010a) established thresholds of significance for general plan projects in the San Francisco Bay Area Air Basin such as the proposed project. While there are no thresholds of significance for construction-related criteria air pollutant and precursor impacts associated with general plan projects, the BAAQMD recommends the implementation of all *Basic Construction Mitigation Measures* for all subsequent project-level proposals as a result of General Plan implementation whether or not construction-related emissions exceed applicable *Thresholds of Significance* (BAAQMD, 2010a). Therefore, the following mitigation is required.

Mitigation Measures

MM 4.3.2 The proposed General Plan Update shall include a policy that would require the use of BAAQMD-approved criteria air pollutant reducing *Basic Construction Mitigation Measures* to all future construction projects within the GPU Planning Area where feasible whether or not construction-related emissions exceed applicable *Thresholds of Significance*. These best management practices include the following:

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.

2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.

3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.

4. All vehicle speeds on unpaved roads shall be limited to 15 mph.

5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.

6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.

7. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.

8. Post a publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations (BAAQMD, 2010).

Due to the temporary nature of construction-related impacts and mitigation measure **MM 4.3.2**, which mandates that projects must be in compliance with BAAQMD rules and regulations, these impacts will not result in a violation of an air quality standard or in a substantial contribution to an existing or projected air quality violation. Thus, this impact is considered to be **less than significant** for construction emissions.

Violate Air Quality Standard or Contribute Substantially to an Air Quality Violation: Long-Term, Operational Emissions (Standards of Significance 2 and 3)

Impact 4.3.3 Subsequent land use activities associated with implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could result in long-term, operational emissions that could violate or substantially contribute to violations of federal and state ambient air quality standards. This impact is considered to be **potentially significant**.

General Plan Update

As discussed under Impact 4.3.1, implementation of the proposed General Plan Update would result in the development and operation of new land uses, which would generate increased air emissions. For comparison purposes, projected increases in emissions associated with projected future development, with and without implementation of the proposed project, are summarized in **Table 4.3-6**. As depicted, the proposed General Plan Update would result in net increases of approximately 15.71 tons per year of ROG, 20.92 tons per year of NO_X, 24.71 tons per year of PM_{10}, and 4.74 tons per year of $PM_{2.5}$. The emissions estimates are based on gross land use data and actual emissions may vary, depending on various factors, such as the type and size of the development proposed and emission reduction strategies incorporated. The estimates are useful, however, in providing an understanding of the City's emissions inventory and overall increases that could potentially occur associated with future development. According to these estimates, mobile sources are the largest contributor to the City's projected future emissions inventory. Future development attributable to the proposed General Plan Update would be anticipated to result in increased emissions from both area and mobile sources.

BAAQMD project-level thresholds of significance apply to individual development projects and do not apply to cumulative development or multiple development projects. As with construction-related impacts, supplemental project-specific air quality analyses would be required to analyze operational emissions of individual development projects, in comparison to BAAQMD-recommended project-level significance thresholds. Mitigation measures would also be required to reduce potentially significant impacts. However, given that a majority of operational emissions would be attributable to increases in VMT, it may not be possible to reduce potential emissions of individual projects to levels below the BAAQMD-recommended project-level significance thresholds, even with implementation of all available mitigation measures.

According to BAAQMD CEQA Air Quality Guidelines, in order to meet the *Threshold of Significance* for operational-related criteria air pollutant and precursor impacts for general plans, the proposed project's projected VMT increase must be less than or equal to its projected population increase. As noted in Impact 4.3.1, the proposed General Plan Update would result in an increase of VMTs that would exceed projected population increases under the General Plan Update. For these reasons, this impact would be considered **significant and unavoidable**.

TABLE 4.3-6
PROJECTED INCREASES IN AREA-SOURCE EMISSIONS

Scenario	Annual Emissions (tons/year)			
	ROG	NO_X	PM_{10}	$PM_{2.5}$
2030 Baseline				
Area Sources	12.28	6.16	0.01	0.01
Mobile Sources	108.63	162.96	235.86	45.14
Total	**120.91**	**169.12**	**235.87**	**45.15**
2030 with Proposed General Plan Update				
Area Sources	16.62	10.01	0.02	0.02
Mobile Sources	120.00	180.03	260.56	49.87
Total	**136.62**	**190.04**	**260.58**	**49.89**
Net Increase	**15.71**	**20.92**	**24.71**	**4.74**

Notes: Emissions were quantified using the URBEMIS2007 computer program. Area source emissions include emission associated with natural gas use, landscape maintenance, architectural coatings and consumer products. Based on the following assumptions:

- *2030 Baseline: Assumes 1,270 dwelling units, 1,122.14 KSF retail, 909.74 KSF office, and 476.283 KSF industrial; includes emissions associated with use of consumer projects assuming 0.0171 lbs/person, net increase of 2,417 individuals. Assumes 750,000 VMT/day.*
- *2030 with Preferred Project: Assumes 2,346 dwelling units, 1,553.23 KSF retail, 1,422.21 KSF office, and 472.58 KSF industrial; includes emissions associated with use of consumer projects assuming 0.0171 lbs/person, net increase of 2,970 individuals. Assumes 830,000 VMT/day.*

Three Corridors Specific Plan

Implementation of the proposed Three Corridors Specific Plan would establish more housing choices and job opportunities within the city's commercial corridors. As previously mentioned, the majority of the city's future growth will be directed into the Three Corridors Specific Plan area (San Pablo Avenue, Pinole Valley Road, and Appian Way corridors). The majority of operational emissions would be attributable to increases in VMT. Increases in VMT attributable to future development, and associated emissions, would be inconsistent with the BAAQMD's Clean Air Plan. For these reasons, this impact would be considered **significant and unavoidable**.

Zoning Code Update

Updates to the Zoning Code are intended to further clarify the types and forms of uses permitted under particular land use designations, but would not result in any development activities beyond that analyzed for the proposed General Plan Update. These updates would not result in any development activities beyond those analyzed for the proposed GPU. Therefore, the Zoning Code Update would have an impact similar to that for the General Plan Update as discussed above.

Proposed General Plan Update Policies and Actions that Address Long-term Operational Emissions

As noted previously, the General Plan Update includes a number of policies and actions that would reduce the potential impacts associated with long-term operation emissions. Applicable policies and actions are listed under Impact 4.3.1.

In addition, the proposed Three Corridors Specific Plan contains goals, policies and standards to help implement these General Plan policy provisions. The reader is referred to Specific Plan Chapter 5.0, *Circulation*, for planned bicycle and pedestrian facility improvements and Circulation Policies 3 and 7 which promote such improvements as well as Chapter 6.0, *Land Use Standards*, for land use standards that promote compact urban development. Finally, the reader is referred to Chapter 7.0, *Private Realm Standards and Design Guidelines*, and Chapter 8.0, *Public Realm Standards and Design Guidelines*, which contain guidelines encouraging clearly identified, well-connected, and safe pedestrian paths and attractive, easily accessible transit stops.Implementation of the above proposed General Plan Update policies and actions, as well as the Specific Plan standards and guidelines, would reduce potential long-term, operational air quality impacts. However, these actions would not fully offset long-term increases in emissions associated with buildout of the proposed project. According to BAAQMD CEQA Air Quality Guidelines, in order to meet the *Threshold of Significance* for operational-related criteria air pollutant and precursor impacts for general plans, the proposed project's projected VMT increase must be less than or equal to its projected population increase. The proposed General Plan Update would result in an increase in VMTs that would exceed population increases under the existing General Plan. Thus, this impact is considered **significant and unavoidable**.

Mitigation Measures

None available.

Exposure of Sensitive Receptors to Substantial Concentrations of Mobile-Source Carbon Monoxide (Standard of Significance 4)

Impact 4.3.4 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would result in increased population and employment that would result in level of service operations that would be inconsistent with the region's congestion management programAs a result, this is considered to be a **potentially significant** impact.

General Plan Update

Localized carbon monoxide (CO) concentrations near roadway intersections are a function of traffic volume, speed, and delay. Transport of CO is extremely limited because it disperses rapidly with distance from the source under normal meteorological conditions. Under specific

meteorological conditions, CO concentrations near roadways and/or intersections may reach unhealthy levels with respect to sensitive receptors, often referred to as a "CO hotspot."

The BAAQMD recommends use of a screening approach to determine if long-term, project operations would have the potential to create a violation of the ambient air quality standards for CO. Based on BAAQMD guidance, projects meeting the following screening criteria would be considered to have a less than significant impact to localized CO concentrations (BAAQMD, 2010a):

- Project is consistent with an applicable congestion management program established by the county congestion management agency for designated roads or highways, regional transportation plan, and local congestion management agency plans; and

- The project would not result in an affected intersection experiencing more than 44,000 vehicles per hour or 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway).

The Congestion Management Program (CMP) requires each jurisdiction to identify existing and future transportation facilities that would operate below an acceptable service level and provide mitigation where future growth would degrade that service level. The Contra Costa Transportation Authority (CCTA) serves as the Congestion Management Agency responsible for the CMP. As part of western Contra Costa County, the City of Pinole works with other west county jurisdictions through the West Contra Costa Transportation Advisory Committee (WCCTAC) to develop the West County Action Plan. The action plan identifies multimodal traffic service objectives (MTSOs) for routes of regional significance, which in Pinole include the freeway (Interstate 80) and arterial streets (San Pablo Avenue and Appian Way). On these arterials, the MTSO sets a target level of service. The West County Action Plan was adopted on July 31, 2009 (Dowling Associates, 2010).

Based on the traffic analysis peak hour volumes at several intersections along key corridors serving Pinole, such as San Pablo Avenue, Appian Way, and Pinole Valley Road, would approach or exceed the capacity of the intersection, resulting in unacceptable levels of service at four area intersections located along these roadway segments. Under General Plan buildout conditions, the intersections of Tennent Avenue at San Pablo Avenue, Pinole Valley Road at San Pablo Avenue, Pinole Valley Road at Interstate 80 (I-80) eastbound ramps, and John Street at San Pablo Avenue would be anticipated to be primarily affected, operating at levels of service of LOS E or worse. However, traffic volumes under peak-hour conditions at these intersections would not be projected to exceed the BAAQMD's screening criteria of 44,000 vehicles per hour since the GPU is not anticipated to add a significant amount of new traffic volume that would result in higher CO emissions. In addition, these intersections would not experience limitations with regard to vertical or horizontal mixing (e.g., tunnel, bridge underpass). However, as noted in the traffic analysis prepared for this project, implementation of the proposed General Plan Update would conflict with the objectives identified in the West County Action Plan. Implementation of proposed General Plan Update Action CE.3.1.1 would modify the level of service standards along the Old Town segment of San Pablo Avenue to LOS F. The West County Action Plan dictates that all signalized intersections along San Pablo Avenue shall maintain LOS E or better. Likewise the West County Action Plan calls for maintaining LOS D or better along Appian Way. Therefore, the project conflicts with the MTSOs established by the West County Action Plan (please refer to Impact 4.4.3 of Section 4.4 for an expanded discussion on the West County Action Plan. As a result, this impact is considered **potentially significant**.

Three Corridors Specific Plan

Implementation of the proposed Three Corridors Specific Plan would consist of the revitalization of the San Pablo Avenue, Pinole Valley Road, and Appian Way corridors, which could include new development and/or redevelopment of various urban uses. Based on the traffic analysis prepared for this project, peak hour volumes at several intersections along key corridors serving Pinole, such as San Pablo Avenue, Appian Way, and Pinole Valley Road, would approach or exceed the capacity of the intersection, resulting in unacceptable levels of service at four area intersections located along these roadway segments. Under General Plan Update buildout conditions, the intersections of Tennent Avenue at San Pablo Avenue, Pinole Valley Road at San Pablo Avenue, Pinole Valley Road at I-80 eastbound ramps, and John Street at San Pablo Avenue would be anticipated to be primarily affected, operating at levels of service of LOS E or worse. As a result, this impact is considered **potentially significant**.

Zoning Code Update

Updates to the Zoning Code will be administrative in nature to further clarify the types and forms of uses permitted under particular land use designations, but would not result in any development activities beyond that analyzed for the proposed General Plan Update. These updates would be legislative in nature and would not result in any development activities beyond those analyzed for the proposed GPU. Therefore, the Zoning Code Update would have an impact similar to that for the General Plan Update as discussed above.

Proposed General Plan Update Policies and Actions that Address Exposure of Sensitive Receptors to Substantial Concentrations of Mobile-Source Carbon Monoxide

The proposed General Plan Update contains the following policies and actions that include specific, enforceable requirements and/or restrictions and corresponding performance standards that address this impact.

Action 3.1.1 Work with WCCTAC and CCTA to revise the Action Plan level of service standard for San Pablo Avenue within Old Town to LOS F.

Action CE.3.1.1 of the proposed General Plan Update directs the City to work with WCCTAC and CCTA to revise the MTSO for San Pablo Avenue within Old Town to LOS F. This action provides mitigation to eliminate the conflict between the West County Action Plan and the proposed General Plan Update related to the Old Town segment of San Pablo Avenue.

Based on the traffic analysis prepared for this project, maintaining the existing level of service performance standards along San Pablo Avenue and Appian Way would ensure consistency with MTSO and would mitigate the project impact. To address the proposed LOS change for Appian Way, the traffic analysis recommends modification of the proposed Action CE.3.1.1 to include revisions to the Action Plan level of service standard for Appian Way between Mann Drive and I-80. With implementation of Action CE.3.1.1 and proposed traffic and circulation mitigation measure **MM 4.4.2**, the proposed project would be consistent with the BAAQMD's screening criteria. Furthermore, traffic volumes under peak-hour conditions at these intersections would not be projected to exceed the BAAQMD's screening criteria of 44,000 vehicles per hour. This impact would be considered **less than significant**.

Mitigation Measures

None required.

Exposure of Sensitive Receptors to Substantial Concentrations of Toxic Air Contaminant and/or Fine Particulate Matter (Standard of Significance 4)

Impact 4.3.5 Subsequent land use activities associated with implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could result in projects that would include sources of toxic air contaminants which could affect surrounding land use. Subsequent land use activities could also place sensitive land uses near existing sources of toxic air contaminants. These factors could result in the exposure of sensitive receptors to substantial concentrations of toxic air contaminants and/or fine particulate matter. This is considered a **potentially significant** impact.

General Plan Update

Short-Term Exposure

Construction projects can result in short-term increases of TACs, as well as emissions of airborne fugitive dust. Emissions of diesel particulate matter (DPM) emitted from diesel-fueled construction vehicles is of particular concern. Exposure to DPM results in a greater incidence of chronic noncancer health effects, such as cough, labored breathing, chest tightness, wheezing, and bronchitis. However, various other TACs from diesel exhaust also contribute to both cancer and noncancer health risks. Construction-generated emissions of fine particulate matter ($PM_{2.5}$) can also contribute to significant health impacts, particularly among the more sensitive population groups (i.e., children, the elderly, etc.).

The amount of TACs generated during construction of individual projects would vary depending on numerous factors, including the size of the development, the type, age, and number of pieces of equipment required, and hours of use. Furthermore, it is anticipated that multiple construction projects could occur simultaneously within a given year and within a given area. Without detailed construction information (i.e., construction schedules, demolition, grading, excavation, and construction requirements), construction-generated emissions of TACs for individual projects cannot be quantified at this time.

To assist local jurisdictions in the analysis of potential health risks associated with short-term construction projects, the BAAQMD has developed screening criteria that can be applied at the project level (BAAQMD, 2010a). BAAQMD has developed guidance for estimating risk and hazards impacts entitled *Recommended Methods for Screening and Modeling Local Risks and Hazards* (May 2010) which also includes recommendations for mitigation of significant risk and hazards impacts. BAAQMD has also developed a Construction Risk Calculator model that provides distances from a construction site, based on user-provided project date, where the risk impacts are estimated to be less than significant; sensitive receptors located within these distances would be considered to have potentially significant risk and hazards impacts from construction. The Construction Risk Calculator can be downloaded from the BAAQMD web site at: http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES.aspx.

Depending on the construction activities required and distances to nearby receptors, it is conceivable that some development projects may be large enough such that the project-level significance thresholds would be exceeded. In the event that a significant impact is identified for an individual project, BAAQMD-recommended mitigation measures would be required to reduce project-related impacts. However, even with mitigation, it may not be possible to reduce potential emissions of TACS and all health-related risks to nearby receptors to levels below the BAAQMD thresholds. As a result, this impact would be considered **potentially significant**.

Long-Term Exposure

Development of future land uses may include potential stationary sources of TACs, such as diesel-powered emergency-use power generators. The type and level of TAC emissions emitted would depend upon the nature of the land use and the specific methods and operations that involve toxic air emissions. Pursuant to BAAQMD rules and regulations, including BAAQMD Regulation 2, Rule 5 (new Source Review of Toxic Air Contaminants), major stationary sources having the potential to emit TACs are required to obtain permits from the BAAQMD. Permits may be granted to these operations provided they are constructed and operated in accordance with applicable BAAQMD rules and regulations. Given that compliance with applicable standards and regulations would be required, TAC emissions from new major stationary sources would not be anticipated to result in an increased risk to nearby sensitive receptors that would exceed applicable significance thresholds. However, some proposed projects may include the operation of other mobile sources of TAC and/or $PM_{2.5}$ emissions. For instance, projects that would attract high numbers of diesel-powered on-road haul trucks or use off-road diesel equipment on site, such as a distribution center or manufacturing facilities, could potentially expose receptors to substantial risk levels and/or health hazards (BAAQMD, 2010a).

In addition to long-term exposure to stationary emission sources, new land uses may also be exposed to emissions from mobile sources. To assist local jurisdictions in the evaluation of community risk and hazard impacts, the BAAQMD recommends that general plans: (1) establish special overlay zones around existing and planned land uses that emit TACs, (2) establish special overlay zones of at least 500 feet on each side of all freeways and high-volume roadways; and (3) identify goals, policies, and objectives to minimize potential impacts and create overlay zones for sources of TACs and receptors (BAAQMD, 2010a).

Within the City of Pinole, Interstate 80 is considered the major source of TAC emissions. To a lesser extent, trains traveling along the Union Pacific Rail Road (UPRR) and Burlington Northern Santa Fe (BNSF) railroad corridors also contribute to localized concentrations of TACs within the community. However, as noted in **Table 4.3-4**, CARB considers major service and maintenance rail yards as potential sources of TACs. The operation of rail lines outside of rail yards has not been identified as a major source of TACs that pose a significant risk to sensitive receptors. The nearest major rail yard is located near Point Richmond, approximately 6 miles southwest of the City of Pinole. No major stationary sources of TACs were identified within the General Plan Update Planning Area.

The proposed General Plan Update would include opportunities for new development and redevelopment on Pinole's primary commercial corridors. As a result, new development and/or redevelopment of various urban uses, including mixed and multiple-family uses, would be predominantly located along the San Pablo Avenue, Pinole Valley Road, and Appian Way corridors. Given that future development of sensitive land uses could potentially occur within 500 feet of I-80, or may involve the operation of other mobile sources of TACs/ $PM_{2.5}$, this impact would be considered **potentially significant**.

Three Corridors Specific Plan

Implementation of the proposed Three Corridors Specific Plan would consist of the revitalization of the San Pablo Avenue, Pinole Valley Road, and Appian Way corridors, which could include new development and/or redevelopment of various urban uses. The Three Corridors Specific Plan also identifies opportunity sites for infill mixed-use development along the city's commercial corridors in close proximity to transit and other amenities. Given that future development of

sensitive land uses could potentially occur within 500 feet of I-80, or may involve the operation of other mobile sources of TACs/ $PM_{2.5}$, this impact would be considered **potentially significant**.

Zoning Code Update

Updates to the Zoning Code are intended to further clarify the types and forms of uses permitted under particular land use designations, but would not result in any development activities beyond that analyzed for the proposed General Plan Update. These updates would not result in any development activities beyond those analyzed for the proposed GPU. Therefore, the Zoning Code Update would have an impact similar to that for the General Plan Update as discussed above.

Proposed General Plan Update Policies and Actions that Address Exposure of Sensitive Receptors to Substantial Concentrations of Toxic Air Contaminant and/or Fine Particulate Matter

The proposed General Plan Update contains the following policies and actions that include specific, enforceable requirements and/or restrictions and corresponding performance standards that address this impact.

Policy SE.7.1 Continue working with the Bay Area Air Quality Management District and other regional agencies to:

1. Improve air quality through pollution prevention methods.
2. Ensure enforcement of air emission standards.
3. Reduce local and regional traffic (the single largest source of air pollution in the city) and support public transit improvements.
4. Promote regional air pollution prevention plans for business and industry.
5. Promote strategies to reduce particulate pollution from residential fireplaces and wood-burning stoves.
6. Locate parking appropriately and provide adequate signage to reduce unnecessary "circling" and searching for parking.
7. Promote anti-idling policies and programs.

Policy SE.7.5 Air quality will be maintained and improved by requiring project mitigation, such as Transportation Demand Management (TDM) techniques, where significant air quality impacts are identified.

Policy LU.3.3 Require design review of commercial and industrial projects to ensure compatibility with adjacent or nearby land uses, including intensity, access, internal circulation, visual characteristics, noise, odors, fire hazards, vibrations, smoke, discharge of wastes and nighttime lighting.

In addition, Chapter 6.0, *Land Use Standards*, of the Three Corridor Specific Plan and Article II of the Zoning Code provide land use standards to implement the proposed General Plan policy provisions listed above, including permitted uses and building setbacks which may further reduce this impact.

Mitigation Measures

None available. Implementation of the above proposed General Plan Update policies and actions would require implementation of mitigation measures to reduce short- and long-term air quality impacts and would ensure enforcement of air emission standards through continued coordination with the BAAQMD. Existing sensitive receptors already exist within 500 feet of I-80 and the UPRR and BNSF lines and there are no feasible mitigation measures that could address this issue. Development of future sensitive land uses within overlay zones would be required to evaluate potential health risks in accordance with BAAQMD-recommended methodologies. In addition, implementation of the proposed policies, actions, would reduce potential health-related risks associated with future development. However, even with mitigation, it may not be possible to reduce potential emissions of TACS and all health-related risks to nearby receptors to levels below the BAAQMD thresholds. As a result, this impact would be considered **significant and unavoidable**.

Create Objectionable Odors Affecting a Substantial Number of People (Standard of Significance 5)

Impact 4.3.6 Subsequent land use activities associated with implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could include sources that could create objectionable odors affecting a substantial number of people or expose new residents to existing sources of odor. Thus, this impact is considered to be **potentially significant**.

Subsequent land use activities associated with implementation of the proposed General Plan Update could allow for the development of uses that have the potential to produce odorous emissions either during the construction or operation of future development. Additionally, subsequent land use activities may allow for the construction of sensitive land uses (e.g., residential development, schools, parks, offices) near existing or future sources of odorous emissions. Future construction activities could also result in odorous emissions from diesel exhaust associated with construction equipment. However, because of the temporary nature of these emissions and the highly diffusive properties of diesel exhaust, exposure of sensitive receptors to these emissions would be limited.

To assist local jurisdictions in the evaluation of odor-related impacts for general plans, the BAAQMD recommends that for the General Plan Update to have a less than significant impact, it must identify the location of existing and planned odor sources in the plan area. The plan must also include policies to reduce potential odor impacts in the plan area (BAAQMD, 2010a). Major sources of potential odors identified by the BAAQMD include wastewater treatment plants, wastewater pumping facilities, sanitary landfills, transfer stations, composting facilities, petroleum refineries, asphalt batch plants, chemical and fiberglass manufacturing, painting/coating operations, food processing facilities, and green waste and recycling operations. Major odor sources located within the City of Pinole include the Pinole/Hercules Water Pollution Control Plant, which is located adjacent to San Pablo Bay at the end of Tennant Avenue. Additional sources of potential odors within the city include various automotive body repair shops.

The proposed General Plan Update would include opportunities for new development and redevelopment on Pinole's primary commercial corridors. As a result, new development and/or redevelopment of various urban uses, including mixed and multiple-family uses, would be predominantly located along the San Pablo Avenue, Pinole Valley Road, and Appian Way corridors. Given that future development of sensitive land uses could potentially occur within

close proximity to existing or future odorous emission sources, this impact would be considered **potentially significant**.

Three Corridors Specific Plan

Implementation of the proposed Three Corridors Specific Plan would consist of the revitalization of the San Pablo Avenue, Pinole Valley Road, and Appian Way corridors, which could include new development and/or redevelopment of various urban uses. The Three Corridors Specific Plan also identifies opportunity sites for infill mixed-use development along the city's commercial corridors in close proximity to transit and other amenities. Given that future development of sensitive land uses could potentially occur within close proximity to existing or future odorous emission sources, this impact would be considered **potentially significant**.

Zoning Code Update

Updates to the Zoning Code are intended to further clarify the types and forms of uses permitted under particular land use designations, but would not result in any development activities beyond that analyzed for the proposed General Plan Update. These updates would not result in any development activities beyond those analyzed for the proposed GPU. Therefore, the Zoning Code Update would have an impact similar to that for the General Plan Update as discussed above.

Proposed General Plan Update Policies and Actions that Address Objectionable Odors

The proposed General Plan Update contains the following policies and actions that include specific, enforceable requirements and/or restrictions and corresponding performance standards that address this impact.

Policy SE.7.1 Continue working with the Bay Area Air Quality Management District and other regional agencies to:

1. Improve air quality through pollution prevention methods.
2. Ensure enforcement of air emission standards.
3. Reduce local and regional traffic (the single largest source of air pollution in the city) and support public transit improvements.
4. Promote regional air pollution prevention plans for business and industry.
5. Promote strategies to reduce particulate pollution from residential fireplaces and wood-burning stoves.
6. Locate parking appropriately and provide adequate signage to reduce unnecessary "circling" and searching for parking.
7. Promote anti-idling policies and programs.

Policy SE.7.5 Air quality will be maintained and improved by requiring project mitigation, such as Transportation Demand Management (TDM) techniques, where significant air quality impacts are identified.

Policy LU.3.3 Require design review of commercial and industrial projects to ensure compatibility with adjacent or nearby land uses, including intensity, access, internal circulation, visual characteristics, noise, odors, fire hazards, vibrations, smoke, discharge of wastes and nighttime lighting.

In addition, Chapter 6.0, *Land Use* Standards, Chapter 7.0, *Private Realm Standards and Design Guidelines*, and Chapter 8.0, *Public Realm Standards and Design Guidelines*, of the proposed Three Corridor Specific Plan contain land use standards including permitted uses and building setbacks as well as design guidelines for private and public development to ensure that appropriate and compatible uses are developed within the Plan areas. Furthermore, Article II, *Zoning Districts, Allowed Uses, and Development Standards*, and Article III, *Site Planning Standards* of the proposed Zoning Code provide detailed land use and development standards also to ensure land compatibility. These standards implement the proposed General Plan policy provisions listed above and would further reduce this impact.

The City of Pinole is largely developed, and projected future growth is anticipated to consist of a mix of land uses, consisting of predominantly commercial and residential land uses located along major transportation corridors. Development of major odor emission sources would not be anticipated with implementation of the proposed General Plan Update. However, exposure to existing sources of odors, such as the Pinole/Hercules Water Pollution Control Plant, could potentially occur. Implementation of the above proposed General Plan Update policies would require review of proposed development projects and implementation of mitigation measures to reduce potential odor impacts. The City of Pinole will also continue to work with the BAAQMD to improve local air quality for community residents. The following mitigation is required.

Mitigation Measures

MM 4.3.6a The proposed General Plan Update shall include an action item that shall require the city to update the Zoning Code to require the City to identify the location of existing odor sources in the city.

MM 4.3.6b The following policy shall be incorporated into the Sustainability Element of the General Plan:

- When new development that would be a source of odors is proposed near residences or sensitive receptors, either adequate buffer distances shall be provided (based on recommendations and requirements of the BAAQMD CEQA Air Quality Guidelines) or filters or other equipment/solutions shall be provided to reduce the potential exposure to acceptable levels. Potential mitigation associated with this policy requirement will be coordinated with any required permit conditions from BAAQMD.

- When new residential or other sensitive receptors are proposed near existing sources of odors, either adequate buffer distances shall be provided (based on recommendations and requirements of the BAAQMD CEQA Air Quality Guidelines) or filters or other equipment/solutions shall be provided to the source to reduce the potential exposure to acceptable levels.

Implementation of the above mitigation measure would set performance standards consistent with BAAQMD CEQA Air Quality Guidelines provisions that would reduce this impact to **less than significant**.

4.3.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The policies and actions in the proposed General Plan Update would provide direction for growth within the GPU Planning Area. The setting for this cumulative analysis consists of the San Francisco Bay Area Air Basin and associated growth and development anticipated in the SFBAAB.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Result in a Cumulatively Considerable Net Increase of Nonattainment Criteria Pollutants and Precursors (Standard of Significance 3)

Impact 4.3.7 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update), in combination with cumulative development in the SFBAAB, would result in a cumulatively considerable net increase of ozone and coarse and fine particulate matter. This is considered a **cumulatively considerable** impact.

As noted in Impact 4.3.1, the proposed General Plan Update would result in increased VMT that would increase at a greater rate than projected population growth and therefore would be inconsistent with the BAAQMD *2010 Clean Air Plan*. The proposed City of Pinole General Plan Update includes extensive policies and actions that would reduce emissions from area and mobile sources. However, the projected population and VMT could still exceed the underlying assumptions used for air planning and attainment efforts. As a result, future development associated with the proposed project may interfere with future attainment and/or maintenance of ambient air quality standards.

Proposed General Plan Update Policies and Actions that Address Cumulative Impacts from Nonattainment Criteria Pollutants and Precursors

The discussion under Impact 4.3.1 identifies those policy provisions that contain specific, enforceable requirements and/or restrictions and corresponding performance standards to directly address air quality.

Implementation of the proposed General Plan Update policies and actions would assist in reducing the proposed project's contribution to cumulative air quality impacts; however, the policies and actions may not be sufficient to reduce this impact to a less than significant level. While the City will continue to work with the BAAQMD to introduce best management practices, the contribution is still considered **cumulatively considerable** and thus a **significant and unavoidable** impact. There are no feasible mitigation measures that can completely offset air pollutant emissions from subsequent development under the proposed General Plan Update.

Mitigation Measures

None available.

REFERENCES

Ambient Air Quality and Noise Consulting. 2010. *Air Quality Impact Assessment for the City of Pinole General Plan Update*.

Bay Area Air Quality Management District (BAAQMD). 2010a. *California Environmental Quality Act Guidelines.*

Bay Area Air Quality Management District (BAAQMD). 2010b. http://hank.baaqmd.gov/pln/air_quality/ambient_air_quality.htm (accessed: May 7, 2010).

California Air Resources Board (CARB). 2005. *Air Quality and Land Use Handbook: A Community Health Perspective*.

California Air Resources Board (CARB). 2009. *The California Almanac of Emissions and Air Quality: 2009 Edition*.

California Air Resources Board (CARB). 2010a. http://www.arb.ca.gov/aqd/aqdpage.htm (accessed May 8, 2010).

California Air Resources Board (CARB). 2010b. *Community Health Air Pollution Information System*. http://www.arb.ca.gov/ch/chapis1.htm (accessed: May 8, 2010).

Dowling Associates, Inc. 2010. *City of Pinole General Plan Update Traffic and Circulation Analysis.*

El Dorado County. 2002. *Guide to Air Quality Assessment*.

U.S. Environmental Protection Agency (USEPA). 2010. *Monitor Values Report: Criteria Air Pollutants*. http://www.epa.gov/air/data/monvals.html (accessed May 8, 2010).

4.4 Traffic and Circulation

This section of the Draft Environmental Report (DEIR describes the existing transportation system in the GPU Planning Area and addresses the potential impacts to the circulation system resulting from the proposed project. The analysis evaluates impacts to level of service on study area roadways and intersections with the implementation of the proposed General Plan. Likewise impacts to safety, bicycle and pedestrian trails, and alternative forms of transportation are also discussed. This section has been prepared based on traffic analysis provided by Dowling Associates (2010) and included as **Appendix C** to this DEIR.

4.4.1 ENVIRONMENTAL SETTING

EXISTING CONDITIONS

The city's transportation system is made up of roadways, transit services, bicycle and pedestrian facilities, and related facilities such as parking and freight service. About 71 percent of the city's residents commute to work by driving alone and another 17.5 percent carpool. Around 6.4 percent of the residents use transit services including bus (2 percent), subway (4 percent), rail (0.09 percent), and ferry (0.05 percent). A very small percentage of residents commute using non-motorized transportation (about 0.22 percent travel by bicycle and just over 1 percent commute on foot) (CTPP, 2000).

ROADWAY DEFINITIONS

The city's roadway network is described by functional classifications that are described below and depicted in **Figure 4.4-1**. These classifications identify the purpose of the roadways relative to their overall function in the distribution of different types of trips using the facilities. The relevant classifications in the City of Pinole are as follows:

Freeways

Freeways serve both inter-regional and intra-regional circulation needs. These facilities are typically accessed by collector or arterial roadways and have no at-grade crossings. Bicyclists and pedestrians are prohibited from accessing these facilities, unless stated otherwise. These facilities have the highest auto vehicular carrying capacity with the maximum speed limits allowed by law and are owned and operated by the California Department of Transportation (Caltrans).

Interstate 80 (I-80) is an eight-lane divided freeway that bisects the city in an east-west direction. It provides regional access to San Francisco City and County, Alameda County, Contra Costa County, Solano County, and points beyond to the east. In the vicinity of Pinole, I-80 carries from 180,000 to 196,000 vehicles daily (Caltrans, 2005). Full access to the city is provided at interchanges with Richmond Parkway, Appian Way, and Pinole Valley Road. Access to the freeway is provided at Pinole Valley Road and at Appian Way. At Richmond Parkway, freeway access is provided by slip and loop ramps in addition to a direct off-ramp for the eastbound high occupancy vehicle (HOV) lane and a direct on-ramp for the westbound HOV lane.

Arterials

Arterials provide primary connections between major areas within the City of Pinole and also distribute traffic between adjacent communities. In addition, arterials provide considerable statewide and intercity circulation. Speed limits often range from 30 to 50 mph.

San Pablo Avenue is a four-lane, mostly divided arterial aligning east-west along the northern portion of Pinole and providing connections to the unincorporated community of Tara Hills to the

south and the City of Hercules to the north. San Pablo Avenue generally aligns north-south from the City of Oakland to the unincorporated community of Crockett. On-street parking is generally allowed along the segment in Pinole.

Fitzgerald Drive is a four-lane, east-west, divided arterial connecting Richmond Parkway and Appian Way on the southern side of I-80. On-street parking is prohibited.

Tara Hills Drive is a circuitous arterial connecting Appian Way to unincorporated communities on both sides of San Pablo Avenue. It's a four-lane roadway from Appian Way to Flannery Road, where it narrows to two lanes to its terminus in the unincorporated community of Bayview-Montalvin. On-street parking is generally allowed on the 4-lane section within Pinole.

Appian Way is a four-lane, north-south arterial between San Pablo Avenue and Michael Drive and then transitions between Michael Drive and Dalessi Drive to two lanes. On-street parking is allowed on some segments of the roadway.

Pinole Valley Road is a four-lane, north-south arterial from Henry Avenue through Seamus and two lanes everywhere else. From San Pablo Avenue to Henry Avenue, Pinole Valley Road is a two-lane collector. On-street parking is allowed on some segments of the roadway.

Tennent Avenue is a two-lane, north-south arterial from its southern terminus at Pinole Valley Road to San Pablo Avenue. From San Pablo Avenue to its northern terminus at Pinole Bayfront Park, Tennent Avenue serves as a collector. On-street parking is generally allowed.

Collectors

Collectors typically serve intracity rather than regional circulation needs. Their primary function is to provide access to adjacent properties and connections between local roads and other roadways that are higher in the hierarchy of classification. Travel speeds on collectors often range between 25 mph and 45 mph.

The following roadways are identified in the proposed General Plan Circulation Element as collectors:

- Allview Avenue
- Canyon Drive
- Del Monte Drive
- Estates Avenue
- Flannery Road
- Galbreth Road
- Henry Avenue
- Manor Road
- Marlesta Road
- Pinole Shores Drive
- Pinole Valley Road (between Tennent Avenue and San Pablo Avenue)
- Rancho Road
- Sarah Drive
- Shamrock Drive
- Shawn Drive
- Shea Drive
- Simas Avenue
- Sunnyview Drive
- Wright Avenue

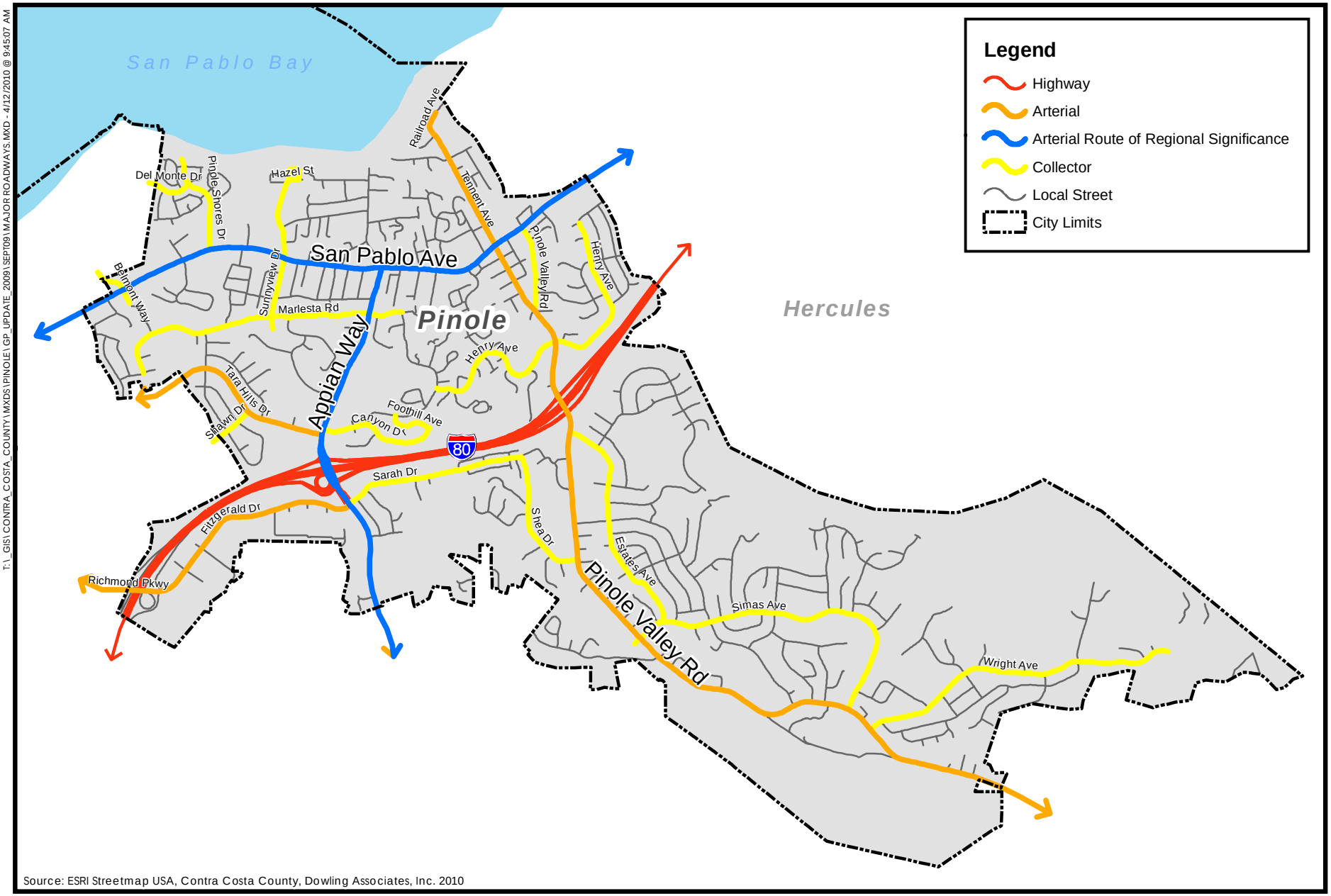

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Figure 4.4-1
Circulation and Roadway Classification

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Local Streets

Local roads provide access to adjacent properties, primarily residential uses, and distribute traffic to collectors. Travel speeds on local streets typically range from 25 to 35 mph.

All other roadways in Pinole are classified as local streets.

AUTOMOBILE AND TRUCK LEVEL OF SERVICE THRESHOLDS

The operating conditions experienced by motorists are described as levels of service (LOS). Level of service is a qualitative measure of the effect of a number of factors, including speed and travel time, traffic interruptions, freedom to maneuver, driving comfort, and convenience. Levels of service are designated A through F from best to worst, which cover the entire range of traffic operations that might occur. Levels of service A through E generally represent traffic volumes at less than roadway capacity, while LOS F represents overcapacity and/or forced flow conditions.

At signalized intersections, the level of service is determined in Pinole using the Contra Costa Transportation Authority's methodology, which calculates a ratio of the volume of vehicles to the capacity of the critical movements at the intersection, similar to the Circular 212 Planning Method. The intersection volumes at signalized intersections are depicted in **Figure 4.4-2** and the corresponding level of service at each intersection is shown in **Table 4.4-4**. Level of service is a convenient way to express the ratio between volume and capacity on a given link or at a given intersection and is expressed as a letter grade ranging from LOS A through LOS F. Each level of service for signalized intersections is generally described in **Table 4.4-1** below.

TABLE 4.4-1
INTERSECTION LEVEL OF SERVICE DEFINITIONS

Level of Service	Description
A	Free-flowing travel with an excellent level of comfort and convenience and freedom to maneuver.
B	Stable flow conditions, but the presence of other road users causes a noticeable, though slight, reduction in comfort, convenience and maneuvering freedom.
C	Stable flow conditions, but the operation of individual users is substantially affected by the interaction with others in the traffic stream.
D	High-density but stable flow. Users experience severe restrictions in speed and freedom to maneuver, with poor levels of comfort and convenience.
E	Operating conditions at or near capacity. Speeds are reduced to a low but relatively uniform value. Freedom to maneuver is difficult with users experiencing frustration and poor comfort and convenience. Unstable operation is frequent, and minor disturbances in traffic flow can cause breakdown conditions.
F	Forced or breakdown conditions. This condition exists whenever the volume of traffic exceeds the capacity of the roadway or when the amount of traffic approaching a point exceeds the amount that can traverse a point. Roadways store long queues behind such locations, with traffic advancing in stop-and-go "waves."

Source: City of Pinole, 2009a and 2009b

FREEWAY SEGMENTS

Three freeway mainline segments are evaluated in this DEIR. These segments are located within the GPU Planning Area. The segments were evaluated for both eastbound and westbound directions:

- I-80 west of Appian Way interchange
- I-80 between Appian Way and Pinole Valley Road interchanges
- I-80 east of Pinole Valley Road interchange

Highway Capacity Manual (HCM) 2000 procedures were used to calculate average peak hour capacities for each LOS threshold from A to F for freeway mainline segments. The LOS was determined using density. Density is the number of passenger vehicles per mile per lane for a transportation facility. Density is computed based on freeway geometrics, traffic volume, free-flow speed, and traffic composition of the facility. **Table 4.4-2** contains the density thresholds for freeway mainline LOS.

TABLE 4.4-2
FREEWAY MAINLINE – LEVEL OF SERVICE CRITERIA

Level of Service	Maximum Density (passenger vehicles per mile per lane)
A	11
B	18
C	26
D	35
E	45
F	>45

Source: Transportation Research Board, 2000

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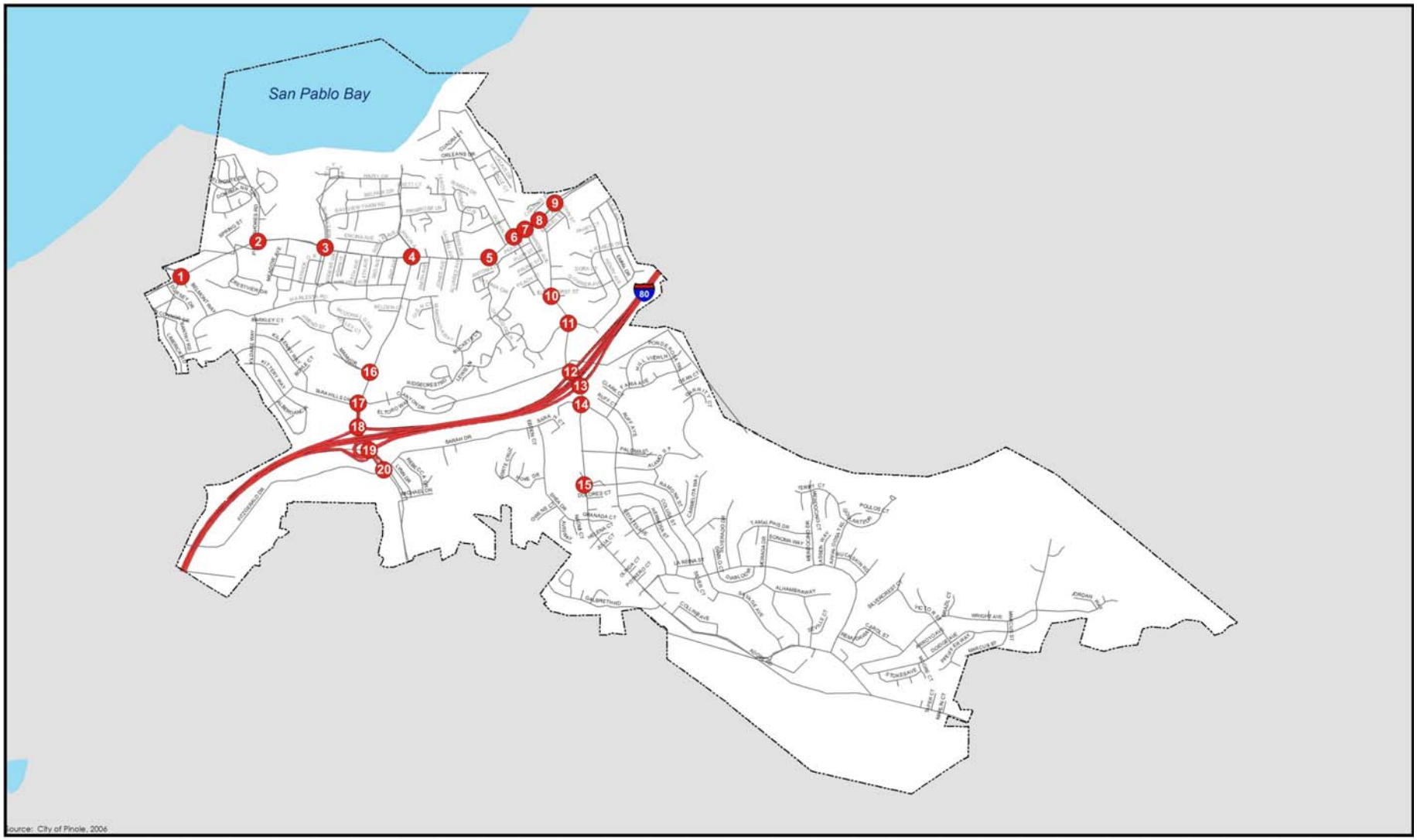

Source: Dowling Associates, Inc. 2010

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Figure 4.4-2
Study Intersections

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Existing volumes were obtained from Caltrans Census data, as well as PeMS database.[1] Results of existing freeway operations are shown in **Table 4.4-3**. I-80 westbound is the peak commute direction during AM peak hour, and I-80 eastbound is the peak commute direction during the PM peak hour. As noted in **Table 4.4-3**, a majority of existing traffic counts in the study area were constrained due to mainline bottlenecks and queues in the peak direction of travel, during both AM and PM peak hours. Since constrained low counts would yield unrealistically optimistic LOS using the standard deterministic HCM method, existing freeway LOS is instead reported based on congested freeway conditions and speeds observed for the peak direction, as noted in **Table 4.4-3**. The observed speeds were based on the PeMS database, which also recorded freeway mainline speeds in addition to traffic counts. In the westbound direction, all three freeway segments operate at LOS F with downstream bottlenecks and queuing conditions. In the eastbound direction, I-80 operates at LOS F from west of Appian Way to Pinole Valley Road and operates at LOS E east of Pinole Valley Road during PM peak hour. The freeway operates at LOS C or better in the off-peak direction of travel.

TABLE 4.4-3
EXISTING YEAR 2007 – FREEWAY MAINLINE LOS SUMMARY

Location	AM Peak Hour			PM Peak Hour		
	Volume	Density[1]	LOS[2]	Volume	Density[1]	LOS[2]
I-80 Eastbound						
West of Appian Way [3]	3,971	16.2	B	5,758	***>45***	***F***
Between Appian Way and Pinole Valley Road [3]	4,625	18.9	C	6,184	***>45***	***F***
East of Pinole Valley Road [4]	4,402	24.0	C	5,535	***>35 & <45***	***E***
I-80 Westbound						
East of Pinole Valley Road [3]	5,444	***>45***	***F***	4,889	20.0	C
Between Appian Way and Pinole Valley Road [3]	5,930	***>45***	***F***	5,087	20.8	C
West of Appian Way [3]	6,261	***>45***	***F***	4,897	20.0	C

Source: Dowling Associates, Inc., 2010
Note:
1 Density = passenger cars per mile per lane
2 LOS = level of service
3 Bold/italic cells highlighted in grey indicate locations where counts are constrained due to existing bottleneck and queuing conditions. LOS F is reported based on observed speeds of lower than 30 mph.
4 Bold/italic cells highlighted in grey indicate locations where counts are constrained due to existing bottleneck conditions.LOS E is reported based on observed speeds of between 40 and 50 mph. Density shown is over the range of LOS E conditions.

EXISTING TRAFFIC VOLUMES AND OPERATING CONDITIONS

Intersections

Intersection levels of service were evaluated at 20 key signalized intersections in Pinole for the AM and PM peak hours. The level of service was determined using the Contra Costa Transportation Authority's methodology, which calculates a ratio of the volume of vehicles to the capacity of the critical movements at the intersection, similar to the Circular 212 Planning

[1] PeMS (Performance Measurement System) is a project conducted by the Department of Electrical Engineering and Computer Sciences at the University of California, Berkeley, with the cooperation of the California Department of Transportation, California Partners for Advanced Transit and Highways, and Berkeley Transportation Systems.

Method. The intersection volumes at these locations are depicted in **Figure 4.4-3**, and the corresponding levels of service at the intersections are shown in **Table 4.4-4**.

TABLE 4.4-4
EXISTING YEAR 2007 – EXISTING CONDITIONS OF INTERSECTION LEVEL OF SERVICE

#	Intersection	Time Period	LOS	Volume-to-Capacity (V/C) Ratio
1	Del Monte Drive at San Pablo Avenue	AM	A	0.50
		PM	A	0.40
2	Pinole Shores Drive at San Pablo Avenue	AM	A	0.44
		PM	A	0.34
3	Sunnyview Drive at San Pablo Avenue	AM	A	0.39
		PM	A	0.38
4	Appian Way at San Pablo Avenue	AM	A	0.43
		PM	A	0.59
5	Oak Ridge Lane at San Pablo Avenue	AM	A	0.41
		PM	A	0.35
6	Tennent Avenue at San Pablo Avenue	AM	A	0.55
		PM	A	0.43
7	Fernandez Avenue at San Pablo Avenue	AM	A	0.41
		PM	A	0.34
8	Pinole Valley Road at San Pablo Avenue	AM	A	0.57
		PM	A	0.55
9	John Street at San Pablo Avenue	AM	A	0.44
		PM	A	0.38
10	Pinole Valley Road at Tennent Avenue	AM	A	0.42
		PM	A	0.32
11	Pinole Valley Road at Henry Avenue	AM	A	0.41
		PM	A	0.39
12	Pinole Valley Road at I-80 westbound ramps	AM	A	0.54
		PM	A	0.52
13	Pinole Valley Road at I-80 eastbound ramps	AM	B	0.69
		PM	C	0.71
14	Pinole Valley Road at Estates Avenue	AM	A	0.48
		PM	A	0.45
15	Pinole Valley Road at Ramona Street	AM	A	0.30
		PM	A	0.24

#	Intersection	Time Period	LOS	Volume-to-Capacity (V/C) Ratio
16	Appian Way at Mann Drive	AM	A	0.51
		PM	A	0.50
17	Appian Way at Tara Hills Drive-Canyon Drive	AM	B	0.67
		PM	A	0.55
18	Appian Way at I-80 westbound ramps	AM	B	0.67
		PM	A	0.60
19	Appian Way at I-80 eastbound ramps	AM	A	0.41
		PM	B	0.60
20	Appian Way at Fitzgerald Drive-Sara Drive	AM	A	0.50
		PM	A	0.54

Source: Dowling Associates, Inc., 2010

Under the existing conditions, all study intersections operate at LOS C or better during the AM and PM peak hours.

In addition to the level of service analysis, traffic conditions were observed in the field. Operations at the I-80 interchanges of Appian Way and Pinole Valley Road were observed for 15-minute periods during a weekday morning commute time. There was one observed instance at southbound Appian Way where the queue from the traffic signal at the northern leg of the interchange reached the preceding intersection and caused vehicle backups for right-turning vehicles from Tara Hills Drive. I-80 westbound vehicles could not get around the queue to access the uncontrolled on-ramp. No spillovers onto city roadways were observed at the I-80 interchange of Pinole Valley Road, but a large number of vehicles in the AM peak-hour exited I-80 using the westbound off-ramp, proceeded through the intersection, and re-entered I-80 in order to avoid this congested section of the freeway.

Lane utilization presents an issue at the Tara Hills-Canyon Drive and Appian Way intersection. Even though two eastbound right-turn lanes are provided, the outer turn lane, which leads directly to the I-80 westbound on-ramp just 300 feet south on Appian Way, is preferred by motorists in order to avoid the need to merge into the right-hand lane after the turn. The resulting congestion is particularly pronounced in the AM peak hour, when most of the turning traffic is destined for westbound I-80. Such operational issues may not be reflected in the level of service analysis.

Transit Systems

Transit systems provide a motorized alternative to private vehicles. They serve citizens who cannot drive or choose not to drive, including senior citizens, residents with limited mobility, people under the age of 16, residents with no driver's license or a suspended driver's license, and citizens opting to live a less car-dependent lifestyle.

Bus Service

Two bus transit agencies, the Western Contra Costa Transit Authority (WestCAT) and the Alameda Contra Costa Transit Authority (AC Transit), offer a total of nine fixed routes linking

Pinole with the greater Bay Area. The bus transit agencies also provide connection services to other transit services including passenger rail.

WestCAT operates seven fixed routes serving Pinole as shown in **Figure 4.4-4**. Additionally, WestCAT operates an express bus service, the JPX, to El Cerrito BART and an express bus service, the Lynx, to San Francisco from the Hercules Transit Center. WestCAT also operates a dial-a-ride paratransit service for seniors and the disabled. All fixed-route buses are equipped with front-loading racks that can hold up to two bicycles. WestCAT's portable route map contains information on bus stop locations, routes, and fixed-route bus schedules.

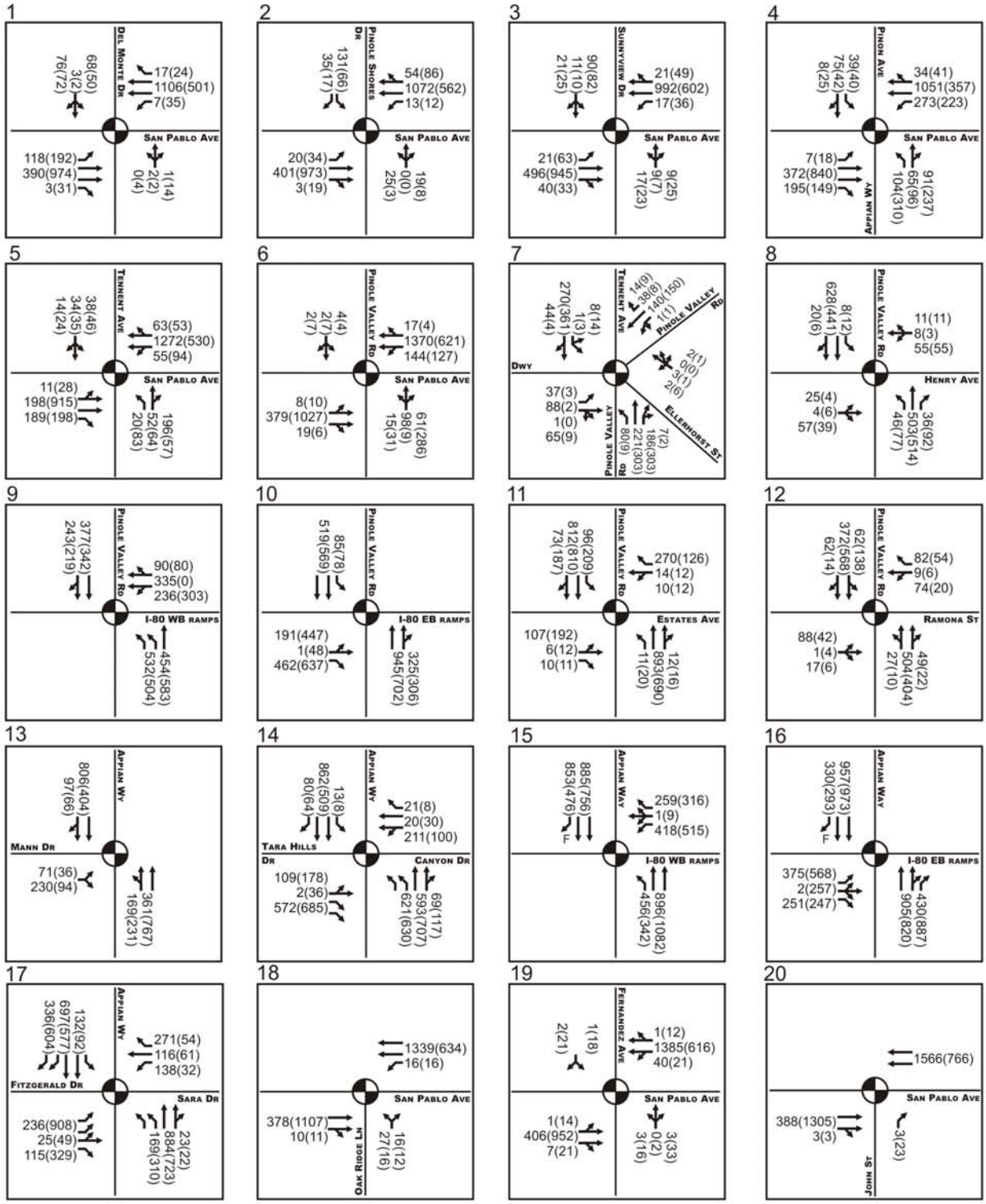
AC Transit operates two fixed-route services in southern Pinole, Route 70 and Route 376. AC Transit also operates dial-a-ride paratransit services for seniors and the disabled in southern Pinole. Buses are equipped with front-loading racks that can hold up to two bicycles.

Passenger Rail

BART

The San Francisco Bay Area Rapid Transit District (BART) provides passenger-rail, regional transit service to Alameda, San Francisco, Contra Costa, and San Mateo counties. Currently there is no BART service in Pinole. However, WestCAT operates the J bus route which connects to the BART station at El Cerrito del Norte. BART's direct service from this station includes the Richmond/Fremont line, with trains every 15 minutes during the weekday and every 20 minutes on the weekend. This passenger-rail line runs until 1:00 AM daily. Weekday service begins at 4:15 AM, Saturday at 6:00 AM, and Sunday at 8:00 AM. The Richmond/San Francisco line also runs with trains every 15 minutes during the weekday until 7:45 PM and every 20 minutes on Saturday until 6:00 PM. Connections to the Fremont/San Francisco line, Pittsburgh/Daly City line, and Dublin-Pleasanton/Millbrae line can be made at various points throughout the system.

BART also provides transit service to both San Francisco International Airport and Oakland International Airport. To get to Oakland International Airport, passengers can travel on the Fremont line or the Dublin-Pleasanton line, exit BART at the Oakland Coliseum BART station, and then take the AirBART shuttle (which departs every 15 minutes). To get to San Francisco International Airport, passengers can take the BART line directly to the BART station in the San Francisco International Terminal.



Source: Dowling Associates, Inc. 2010

Figure 4.4-3

Intersection Traffic Volume & Lane Geometry Existing Conditions

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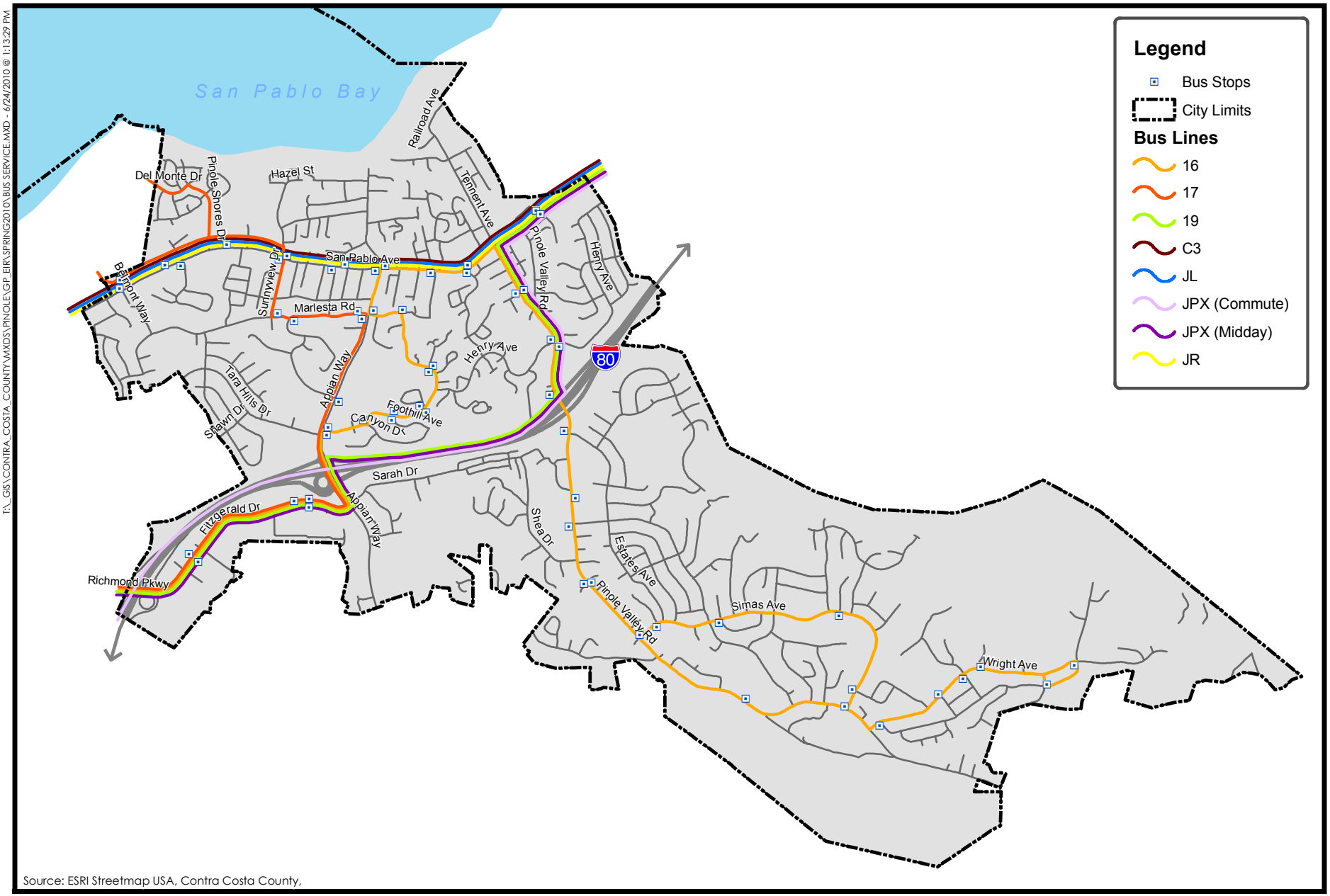

Source: ESRI Streetmap USA, Contra Costa County,

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Figure 4.4-4
WestCAT and AC Transit Bus Service in Pinole

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Amtrak

Amtrak operates passenger rail service for three routes that traverse western Contra Costa County. While there is no station in Pinole, the closest station is an unmanned Amtrak station at the Richmond BART station, and there are plans to build a ferry and Amtrak station in neighboring Hercules (WCCTAC, 2009). Two of Amtrak's routes that stop in Richmond are intrastate services, the Capitol Corridor serving Sacramento/San Jose and the San Joaquin serving Oakland/Bakersfield. The other route is the Zephyr, an interstate service serving Emeryville/Chicago.

Ferry Service

Currently no ferry service is offered in western Contra Costa County. Ferry service to San Francisco is provided by Baylink from Vallejo and by East Bay Ferry from Oakland. Weekday service is provided from about 5:30 AM into the evening hours at 30- to 100-minute intervals. Weekend service is provided from 9:00 AM into the evening hours at 60- to 120-minute intervals. There are plans to build a ferry station in Richmond and a multimodal ferry and Amtrak station in neighboring Hercules (WCCTAC, 2009).

For-Hire Passenger Services

Pinole is served by two taxi cab companies that provide passenger services for hire: Greyline Cab Company and Yellow Cab and Shuttle Services.

Bicycle and Pedestrian Facilities

Pinole is generally quite hilly from San Pablo Avenue to the south, which disrupts the ability to provide a grid system. As a result, many local streets do not provide a parallel lower-traffic-volume/lower-speed alternative to high-traffic arterial/collector roadways that can be used by bicyclists. Nonetheless, Pinole maintains a limited number of bicycle facilities as described below and shown in **Figure 4.4-5**.

The classification system for bikeways is as follows (City of Pinole General Plan Update, 2010):

- *Class I Multi-Use Path,* a paved right-of-way separate from any street or highway, is provided along Pinole Creek between I-80 and Railroad Avenue and at Bayfront Park. The Pinole Creek Trail provides connections to Pinole Valley Lanes Bowling Alley, Collins Elementary School, the Central Business District, Fernandez Park, residential areas, and the Bay Trail.[2] The trail at Bayfront Park provides a recreational cycling opportunity but is not yet connected to other segments of the Bay Trail. The undeveloped segment of Bay Trail between Bayfront Park and Pinole Shore Regional Park has been identified for future improvement by the Bay Trail Project.[3]
- *Class II Bike Lane* provides for a striped and stenciled lane for one-way travel on a street or highway. Currently, there are no bike lanes in Pinole. However, such a facility is proposed along San Pablo Avenue and Pinole Valley Road in the 2009 Contra Costa Countywide Bicycle and Pedestrian Plan adopted in October 2009. Further, the plan also

[2] The Bay Trail is a project of the Association of Bay Area Governments (ABAG) and is a planned recreational corridor that, when complete, will encircle San Francisco and San Pablo bays with a continuous 400-mile network of bicycling and hiking trails.

[3] The Bay Trail west of the loop is not complete, according to field work.

proposed the conversion of the existing Class III bike routes along Fitzgerald Drive and Appian Way to Class II bike lanes.

- *Class III Bike Route* provides for shared use of a street with motor vehicle traffic and may be identified only by signing and/or pavement legends. Bike routes are found on Fitzgerald Drive, San Pablo Avenue, and Appian Way.

The lack of bicycle designations on city streets does not preclude bicycle usage, as they are defined as a vehicle in the California Vehicle Code and subject to the same rules governing motor vehicles.

Bicyclists especially benefit from a continuous bikeway system. Bikeway facilities in Pinole are summarized in **Table 4.4-5** and shown on **Figure 4.4-5**.

TABLE 4.4-5
EXISTING BIKEWAY FACILITIES IN PINOLE

Bicycle Lane/Path Segment	Type of Facility	Length (Miles)
Pinole Creek Trail from Henry Avenue to Railroad Avenue – Bay Trail	Class I Multi-Use Path	1.15
Bayfront Park – Bay Trail loop near Tennent Avenue and Railroad Avenue	Class I Multi-Use Path	0.35
Class I Multi-Use Path Subtotal		**1.5**
Appian Way (I-80 Bikeway) from San Pablo Avenue to Dalessi Drive (city limit)	Class III Bike Route	0.95
Fitzgerald Drive from I-80 to Appian Way	Class III Bike Route	0.95
San Pablo Avenue from western to eastern city limits	Class III Bike Route	1.90
Class III Bike Route Subtotal		**3.8**
Total: 5.30 miles		

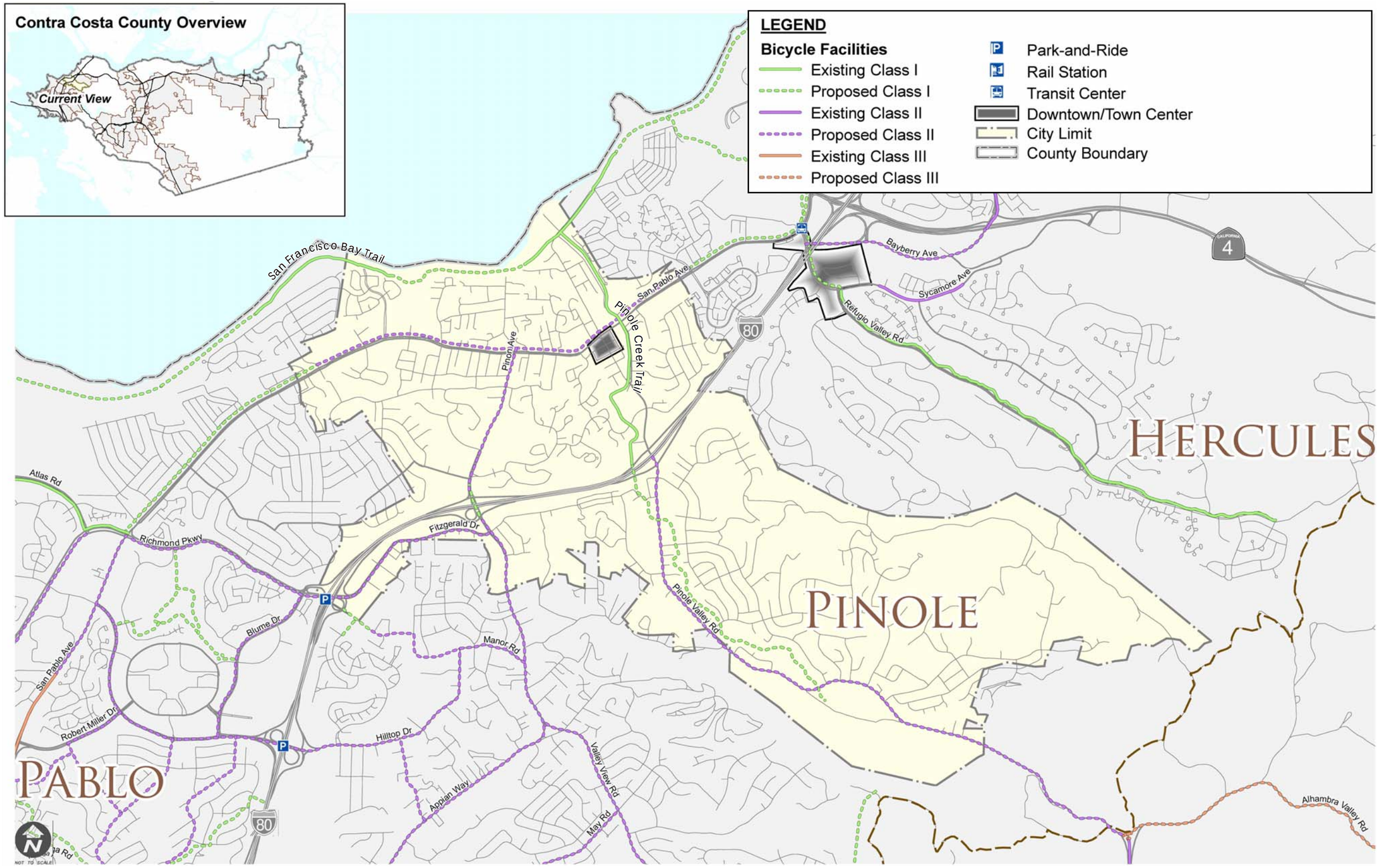
Source: Dowling Associates, Inc., 2010

While the Class I Multi-Use Path along Pinole Creek is a bit narrow to accommodate both bicyclists and pedestrians, it provides a safe recreational and commuter path. The Class I Multi-Use Path at Bayfront Park, which is part of the Bay Trail, provides a recreational cycling opportunity but is not yet connected to other segments of the Bay Trail. The undeveloped segment of Bay Trail has been identified for future improvement.

San Pablo Avenue is the east-west arterial and Pinole Valley Road is the north-south arterial with the gentlest grades, but of these two roads, only San Pablo Avenue is designated as a Class III bike route. Fitzgerald Drive is a designated Class III bike route intersecting several access points to a major retail mall.

High vehicle speeds and volumes, as well as a large number of turning movements to and from the mall, may discourage inexperienced bicyclists. Appian Way is also a designated Class III bike route, but high vehicle speeds and hilly terrain may serve to discourage bicycling for all but the fittest and most experienced bicyclists along this roadway.

Bicyclists need parking facilities to access various places and services. Bicycle rack parking is available at City Hall and Fernandez Park. According to the *Contra Costa Countywide Bicycle and Pedestrian Plan*, Pinole requires adequate bike parking facilities at transportation centers, public parks and buildings, recreational facilities, commercial centers, and large multi-family residential projects. WestCAT, the transit agency serving western Contra Costa County, has bike racks capable of holding two bicycles at a time installed on all fixed-route and express buses.



Source: Contra Costa County Countywide Bicycle and Pedestrian Plan 2009

Not to Scale

N

Figure 4.4-5
Bicycle Routes

PMC®

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Sidewalks and Paths

Sidewalks with raised curb and gutter are generally provided on all arterials and collectors. Most signalized intersections have marked crosswalks on all legs as well as pedestrian signal heads and actuation. Marked crosswalks are also generally found at unsignalized intersections on some legs. Pedestrian curb ramps are located at most intersections.

The city's multi-use paths along Pinole Creek and in Bayfront Park at the Bay Trail provide recreational and transportation opportunities to walkers, with Pinole Creek Trail providing connections to several activity centers. Pedestrians use the trails in significant numbers throughout the day.

The portion of the Central Business District, located on San Pablo Avenue from Quinan Street to Pinole Valley Road, contains pedestrian-oriented land uses, pedestrian-scaled lighting, and crossing aids at all intersections, such as marked, high-contrast crosswalks, intersection bulb-outs, directional curb ramps, and pedestrian signal heads.

Freight Rail Service

Union Pacific Railroad (UPRR) operates a freight service line that passes through Pinole. The UPRR tracks are located along the San Pablo Bay shoreline, which limits possible public access to the shoreline. Amtrak passenger trains share these tracks with the freight trains. The UPRR line operates from Oakland to Martinez. Burlington Northern Santa Fe (BNSF) railroad tracks align through Pinole parallel to the UPRR but further inland and operate from Richmond to Stockton.

Aviation

There are no public airports in Pinole. The closest public airports are the Oakland International Airport, which is 27 miles away, San Rafael Airport which is approximately 12 miles west, Buchanan Field Airport which is 13 miles east), and the and San Francisco International Airport, which is 34 miles away.

Parking

Parking in Pinole is generally readily available except in portions of the Central Business District including near City Hall. On-street parking is not metered. Parking along arterials varies. Both San Pablo Avenue and Appian Way limit the height and length of parking vehicles. Other arterials have entire sections where on-street parking is prohibited.

Transportation Programs

Transportation Demand Management Program

A transportation demand management program, 511 Contra Costa, has been created to promote alternatives to the single-occupant vehicle, such as carpooling, vanpooling, telecommuting, biking, transit, and walking in Contra Costa County. Information is available online at www.511contracosta.org. Pinole, as part of West Contra Costa Transportation Advisory Committee (WCCTAC), is represented by the office located in the City of San Pablo offices at 13831 San Pablo Avenue.

East Bay SMART Corridors Program

The City of Pinole is a partner of the East Bay SMART Corridors program, which has established goals to better manage congestion and incidents along regional routes, improve transportation mobility, efficiency and safety, and to provide timely, multimodal transportation information to agency transportation managers and to the public along major arterial corridors including the San Pablo Avenue corridor, which aligns through Pinole (East Bay SMART Corridors, 2009). The East Bay SMART Corridors program consists of two major arterial corridors in the east bay portion of the San Francisco Bay Area: the San Pablo Avenue (I-80) corridor and the Hesperian/International/East 14th Boulevard (I-880) corridor. The monitoring begins in Hercules and stretches both southwest and southeast throughout the Bay Area.

I-80 Integrated Corridor Mobility Project

The pending I-80 Integrated Corridor Mobility Project is sponsored by the Alameda County Congestion Management Agency, Contra Costa Transportation Authority (CCTA), West Contra Costa Transportation Advisory Committee (WCCTAC), Caltrans, Metropolitan Transportation Commission (MTC), local agencies including the City of Pinole, and local transit agencies in Alameda and Contra Costa counties. Its goal is to enhance the current transportation network along I-80 and its parallel arterials, such as San Pablo Avenue, between the Carquinez Bridge and the Bay Bridge by building an integrated system that would improve the safety and mobility of all users. The project entails seven components including freeway management system (ramp metering), arterial management system, transit management system, traveler information system, commercial vehicle operations, traffic surveillance and control system, and incident management system.

FOCUS

FOCUS, short for the Focusing Our Vision initiative, is a regional planning initiative undertaken by the Association of Bay Area Governments (ABAG) and the Metropolitan Transportation Commission in coordination with the Bay Area Air Quality Management District and Bay Conservation and Development Commission to support a regional development pattern that is compact and transit-oriented. The City of Pinole has designated as Priority Development Area (PDA) candidates the San Pablo Avenue, Tennent Avenue, and Pinole Valley Road corridors and Old Town Pinole.

4.4.2 REGULATORY FRAMEWORK

STATE

State of California Department of Transportation

The California Department of Transportation (Caltrans) is responsible for planning, design, construction, and maintenance of all state highways. I-80 is the only state highway that passes through the GPU Planning Area. Caltrans' jurisdictional interest extends to improvements to those local roadways at the interchange ramps serving area freeways. Any federally funded transportation improvements are subject to review by Caltrans staff and the California Transportation Commission.

The Guide for the Preparation of Traffic Impact Studies (Caltrans, 2002) provides consistent guidance for Caltrans staff who review local development and land use change proposals. The

guide also helps Caltrans staff, who inform local agencies of the information needed to analyze the traffic impacts to state highway facilities including freeway segments, on- or off-ramps, and signalized intersections.

REGIONAL

Contra Costa Transportation Authority

The Contra Costa Transportation Authority (CCTA) was established to implement Measure C and its overall goals. CCTA also serves as the Congestion Management Agency responsible for the Congestion Management Program. Local jurisdictions work through their respective Regional Transportation Planning Committees (RTPCs).

West Contra Costa Transportation Advisory Committee

As part of western Contra Costa County, the City of Pinole works with other west county municipalities and transit service providers through the West Contra Costa Transportation Advisory Committee (WCCTAC) to implement the West Contra Costa Action Plan for Routes of Regional Significance. The plan identifies multimodal traffic service objectives (MTSOs) for routes of regional significance, which in Pinole include the freeway (I-80) and arterial streets (San Pablo Avenue and Appian Way). On these arterials, the MTSO sets a target level of service. The West County Action Plan Update was adopted on July 31, 2009 (WCCTAC, 2009).

San Pablo Avenue MTSOs

1) Maintain LOS E or better at all signalized intersections along San Pablo Avenue

San Pablo Avenue Key Objectives

1) Improve pedestrian and bicycle access with related safety enhancements along the corridor.

2) Monitor and potentially expand San Pablo Avenue Rapid Bus.

3) Complete San Pablo Avenue Specific Plan in the cities of Richmond and El Cerrito, and expand to jurisdictions north of study area.

4) As a designated ABAG FOCUS Priority Development Area, monitor development and implement projects on or near the San Pablo Avenue, BART stations, and other transit hubs to facilitate transit-oriented development.

5) San Pablo Avenue SMART Corridors extension to Crockett.

6) Operations and Management funding for SMART Corridor.

San Pablo Avenue Actions

1) Study traffic improvement and management options to discourage diversion from I-80 and encourage diverted traffic to return to I-80 on the next downstream feeder road. Clearly identify feeder roads to motorists that will take them back to I-80, particularly at Appian Way, Hilltop Drive, El Portal Drive, and San Pablo Dam Road.

Include study of diversion traffic and reduction in diversion traffic as part of the I-80 ICM project and San Pablo SMART corridor.

2) Encourage the use of Appian Way from San Pablo Avenue as the major connecting arterial to I-80 rather than Tennent Avenue and Pinole Valley Road through improved signage and signalization.

3) Work with the CCTA and MTC to seek funding to:

- Develop bike route links to the Bay Trail such as the Richmond Greenway, Wildcat Creek Trail, Pinole Valley Road, and John Muir Parkway as alternate bicycle facilities to San Pablo Avenue.

- Improve bicycle and pedestrian access to the West County BART stations.

4) Seek funding for San Pablo Avenue Rapid Bus program expansion.

5) Complete a corridor-wide specific plan for San Pablo Avenue through coordination of each partner jurisdiction, building upon the specific plans prepared by the cities of Richmond and El Cerrito as well as the County of Contra Costa (and potentially San Pablo).

6) Partner with ABAG on development of San Pablo Avenue, El Cerrito del Norte BART station, Hercules New Town Center, and Hercules Waterfront as well as other Priority Development Areas.

7) Seek funding for construction of completed plans for San Pablo Avenue SMART Corridor extension to Crockett.

8) Seek funding for SMART Corridors O&M.

Metropolitan Transportation Commission (MTC)

Metropolitan Transportation Commission (MTC) is the regional organization responsible for prioritizing transportation projects in a Regional Transportation Improvement Program (RTIP) for federal and state funding. The process is based on evaluating each project for need, feasibility, and adherence to federal transportation policies and the local Congestion Management Program (CMP). The CMP requires each jurisdiction to identify existing and future transportation facilities that would operate below an acceptable service level and provide mitigation where future growth would degrade that service level.

LOCAL

Measure C

Standards for roadway operations in Pinole are defined on a countywide basis. In 1988, Contra Costa County voters passed Measure C, which raised the sales tax to provide funding for regional transportation improvements. Measure C required local jurisdictions to adopt and implement a growth control program in order to receive their share of funds for transportation projects including maintenance.

Measure C also included the Growth Management Program, which established a cooperative, multi-jurisdictional planning process requiring participation of all cities, towns, and the County in managing the impacts of growth in Contra Costa County. The program sets standards for the regional and non-regional routes in Contra Costa County, which the City of Pinole incorporated into the Circulation Element of the 1995 General Plan. These standards are tied to land use and provide for a tiered system of transportation systems in Pinole, with different standards used for different types of streets.

Measure J

Measure J, approved by the voters in 2004, authorized the extension of Measure C and establishes the Transportation Sales Tax Expenditure Plan that extends the transportation sales tax initially authorized by the passage of Contra Costa Measure C. It provides for $2 billion in funding for programs and projects. These expenditures are "for the construction and improvement of state highways, the construction, maintenance, improvement, and operation of local streets, roads, and highways, and the construction, improvement, and operation of public transit systems," including paratransit services (California Public Utilities Code Section 180205), and for specific efforts supporting such investments. Measure J's Growth Management Program simplifies Measure C's requirements; it also requires a binding Urban Limit Line for the county and all of the cities within the county.

4.4.3 IMPACTS AND MITIGATION MEASURES

This subsection describes the transportation analysis of the proposed General Plan Update and identifies potential impacts and mitigation measures that would be associated with the adoption of the proposed General Plan Update. Quantitative transportation impact analyses were conducted for the Year 2030 and assumed full buildout of the land uses proposed in the General Plan Update. In this manner, the full impact of the proposed General Plan is analyzed. However, because it is unlikely that full buildout condition would occur by Year 2030, the transportation analyses tend to be more conservative.

SIGNIFICANCE CRITERIA

The impact analysis provided below is based on the California Environmental Quality Act (CEQA) Guidelines Appendix G. A transportation/traffic impact is considered significant if implementation of the proposed General Plan would result in the following:

1) Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.

Specifically, the following LOS and volume-to-capacity ratios (v/c ratios) are stated as policies in the Circulation Element (See CE.3.1) of the proposed General Plan, and are applied in this section as the minimum acceptable standards at signalized intersections for automobiles and trucks:

Central Business District (LOS E+ or better, v/c ratio of 0.90 to 0.94)

Applicable roadways

- San Pablo Avenue from Oak Ridge Road to eastern city limits

Urban (LOS D- or better, v/c ratio of 0.85 to 0.89)

Applicable roadways

- San Pablo Avenue from Oak Ridge Road to western city limits
- Appian Way from San Pablo Avenue to southern city limits
- Pinole Valley Road from San Pablo Avenue to city limits
- Tennent Avenue from Pinole Valley Road to Railroad Avenue
- Fitzgerald Drive from Appian Way to 1,000 feet west of Appian Way
- Tara Hills Drive from Appian Way to 1,000 feet west of Appian Way

Suburban (LOS D+ or better, v/c ratio of 0.80 to 0.85)

Applicable roadways

- All roadways not listed above

1) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.

   Specifically, the relevant MTSOs of the West County Action Plan are:

   - Maintain a Delay Index of 3.0 or less during weekday morning and evening peak hour on Interstate 80

   - Maintain LOS "E" or better at all signalized intersections along San Pablo Avenue

   - Maintain LOS "D" or better at all signalized intersections on Appian Way

   - The relevant LOS standard from the Congestion Management Plan (CMP) is LOS F for I-80 between State Route 4 and San Pablo Dam Road in both eastbound and westbound directions. However, the CMP does not set a threshold of significance, if the freeway segment already operates at LOS F. For the purposes of this analysis, if the freeway segment operate at LOS F under baseline conditions, an increase in traffic volumes of more than three (3) percent was considered to be significant. This three percent was considered to be within normal daily fluctuations in traffic volumes.

2) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.

3) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

4) Result in inadequate emergency access.

5) Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

There are no air-related facilities in the existing city limits or in the general vicinity of the GPU Planning Area. Given the distance to San Rafael Airport (approximately 12 miles west) and Buchanan Field Airport (approximately 13 miles east), the proposed General Plan is not expected to result in a change to air traffic patterns because the facilities do not provide commuter or connecting services. Therefore, threshold of significance 3 above is not applicable.

METHODOLOGY

Transportation Analysis Methodology and Results

The transportation impact analysis is focused on potential LOS impacts on freeways and intersections that would occur from increased travel demand associated with new land development and roadway network modifications under the proposed General Plan.

The assessment of these components of the transportation system was conducted quantitatively using the process outlined in the Analysis Methodology subsection below. For the transit, bicycle, and pedestrian systems, the policies and implementation measures were evaluated against the significance thresholds.

Analysis Methodology

The Contra Costa Transportation Authority's Travel Demand Model was used to develop future traffic volume forecasts based on the proposed Land Use Map for the GPU Planning Area. The model was used to forecast the daily roadway volumes as well as the AM and PM peak hour intersection turning movement data. The following steps were taken in the analysis:

1. Roadway Networks. The latest available CCTA Model was reviewed to ensure that future regional roadway improvements are included as part of the future 2030 condition. For the 2030 baseline condition, this included the planned Appian Way widening from two lanes to four lanes between San Pablo Dam Road and Manor Road outside the city limit. For the proposed General Plan, modifications included the proposed narrowing of San Pablo Avenue between Oakridge Road and the eastern city limit.

2. Land Use Data. The CCTA model includes future development throughout the region. The 2030 forecasts are consistent with regional totals for growth projected by the Association of Bay Area Governments (ABAG) in their *Projections 2005* report. Therefore, the traffic forecasts reflect traffic from growth in Pinole as well as traffic in the region that may use the roadways in the City of Pinole.

3. The land use data for the proposed General Plan Update were developed. The land use data was categorized into total households, single-family dwelling units, multi-family dwelling units, total employment, and employment by sector (retail, service, agriculture, manufacturing, wholesale, and other) by traffic analysis zone (TAZ) for input to the model. TAZs are defined as groupings of land use bound by natural and man made borders such as waterways, topography, and roadways that represent homogenous

travel behavior. Model Forecasts. The model was used to produce traffic volume forecasts for 2030 baseline conditions and 2030 proposed General Plan Update conditions. The Gateway Capacity Constraint Methodology was applied in projecting the peak hour volumes. This methodology, consistent with the *West County Action Plan for Routes of Regional Significance – 2009 Update* (West County Action Plan), limits future peak hour volumes based on the capacity of major corridors (or gateways) that serve the area. The Bay Bridge serves as the gateway for to west Contra Costa County including Pinole. Both base year and future year forecasts were extracted and used to estimate the growth, which was applied to the existing counts.

4. Impact Analysis. The significance criteria were used to identify potential roadway network deficiencies. For the intersections, the future (2030) volumes were adjusted following the process established in the CCTA Technical Procedures, using the Furness method. Free-flow and congested speeds from the model were used to calculate the delay index. For the other transportation issues, the impacts were qualitatively assessed and the proposed General Plan policies were reviewed for conflicts with adopted plans and policies.

Model Forecasts Summary

Summaries of daily vehicles trips, average vehicle trip lengths, and vehicle miles traveled (VMT) for trips generated in Pinole from the model forecasts for year 2000 and 2030 baseline are presented in **Table 4.4-6**. The County model was modified to reflect the Three Corridors Specific Plan and its land use assumptions.

TABLE 4.4-6
MODEL FORECAST SUMMARY

Year	Households	Total Employment	Total Daily Vehicle Trips	VMT Generated (in miles)	Average Trip Length (in miles)
2000 Model	7,137	5,747	68,495	620,000	9.05
2030 Baseline	7,619	7,324	81,679	750,000	9.18

Source: Dowling Associates, Inc., 2010

Freeway Operations

2030 Baseline Conditions

Future freeway volumes are calculated based on adding incremental model growth to existing counts. The base year forecast model is 2000 and future year is 2030, which represent a total growth of 30 years. Existing traffic counts were obtained in 2007. Therefore, the growth was further adjusted by multiplying a factor of 23/30 years (or approximately 77 percent of the 30-year growth).

In 2030 under baseline conditions, the freeway would continue to operate with the same peak direction of travel as existing conditions – westbound in the AM peak hour and eastbound in the PM peak hour. Freeway mainline LOS for 2030 baseline conditions are shown in **Table 4.4-7**. All study segments would operate at LOS F in the peak commute directions.

TABLE 4.4-7
2030 BASELINE – FREEWAY MAINLINE LOS SUMMARY

Location	AM Peak Hour			PM Peak Hour		
	Volume	Density[1]	LOS[2]	Volume	Density[1]	LOS[2]
I-80 Eastbound						
West of Appian Way [3]	4,977	20.3	C	6,587	***>45***	***F***
Between Appian Way and Pinole Valley Road [3]	5,523	22.6	C	7,369	***>45***	***F***
East of Pinole Valley Road	5,326	29.9	D	6,996	***>45***	***F***
I-80 Westbound						
East of Pinole Valley Road [3]	6,947	***>45***	***F***	5,702	23.3	C
Between Appian Way and Pinole Valley Road [3]	7,196	***>45***	***F***	6,004	24.6	C
West of Appian Way [3]	7,302	***>45***	***F***	5,841	23.9	C

Source: Dowling Associates, Inc., 2010
Notes:
[1] *Density = passenger cars per mile per lane*
[2] *LOS = level of service*
[3] *Bold/italic cells highlighted in grey indicate locations where the freeway operates at LOS F in existing conditions. With traffic growth in 2030, the freeway would continue to operate at LOS F with increased delays and queues due to downstream bottlenecks.*

2030 Proposed Project Conditions

Freeway mainline LOS for 2030 proposed project conditions are shown in **Table 4.4-8**. The project would result in increased traffic volumes on the freeway mainline segments in the peak direction of travel in both AM and PM peak hours, i.e., westbound direction during the AM peak and eastbound direction during the PM peak.

TABLE 4.4-8
2030 PROPOSED PROJECT – FREEWAY MAINLINE LOS SUMMARY

Location	AM Peak Hour			PM Peak Hour		
	Volume	Density[1]	LOS[2]	Volume	Density[1]	LOS[2]
I-80 Eastbound						
West of Appian Way [3]	5,067	20.7	C	6,689	***>45***	***F***
Between Appian Way and Pinole Valley Road [3]	5,763	23.6	C	7,663	***>45***	***F***
East of Pinole Valley Road	5,588	32.0	D	7,376	***>45***	***F***
I-80 Westbound						
East of Pinole Valley Road [3]	7,263	***>45***	***F***	6,064	24.8	C
Between Appian Way and Pinole Valley Road [3]	7,432	***>45***	***F***	6,252	25.7	C
West of Appian Way [3]	7,423	***>45***	***F***	5,976	24.5	C

Source: Dowling Associates, Inc., 2010
Notes:
[1] *Density = passenger cars per mile per lane*
[2] *LOS = level of service*
[3] *Bold/italic cells highlighted in grey indicate locations where the freeway operates at LOS F in existing conditions. With traffic growth in 2030, the freeway would continue to operate at LOS F with increased delays and queues due to downstream bottlenecks.*

IMPACTS AND MITIGATION MEASURES

Impacts to Freeway Mainline (Standard of Significance 1)

Impact 4.4.1 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would result in an increase in freeway mainline volumes during the AM and PM peak hours. This is considered a **significant impact**.

General Plan Update

Implementation of the land use development and roadway modifications proposed in the General Plan Update would result in increased traffic volumes for all three I-80 freeway segments. The segments are currently predicted to operate at LOS F in the peak direction under 2030 Baseline Conditions as shown in Table 4.4-8. Development within the GPU Planning Area would add more trips to these freeway segments which would increase density and result in the segments continuing to operate at LOF F. For segments that are already operating at an unacceptable LOS, the threshold of significance of three percent increase in volume over baseline. Of the three segments, both freeway segments east of Pinole Valley Road and between Appian Way and Pinole Valley Road exceed this threshold and therefore, this is considered a **significant impact**.

Based on a comparison of the traffic volumes for the proposed project without the narrowing of a portion of San Pablo Avenue within Pinole (see **Table 4.4-9**), the added freeway trips are primarily a result of the proposed road narrowing on San Pablo Avenue. The travel model forecasts that the narrowing of San Pablo Avenue would result in vehicles shifting to use the freeway mainline as an alternative to traveling through the City. While the increased volume of traffic does not result in densities in the LOS F range, the low travel speeds of the traffic along these segments (due to the downstream bottlenecks along the I-80 corridor) will worsen the projected LOS F condition.

2030 Proposed Project Without Road Narrowing Conditions

As an alternative to the proposed project, freeway mainline LOS for year 2030 without the narrowing of San Pablo Avenue was examined (see **Table 4.4-9**). Without the proposed narrowing, the project would result in a minimal increase traffic volumes on the freeway mainline segments in the peak direction of travel in both AM and PM peak hours. Both westbound traffic during the AM peak and eastbound traffic during the PM peak would be impacted as the project would add more trips to the freeway that would already operate at LOS F. However, without the road narrowing, the increase in traffic volumes on these three segments of I-80 in the peak direction would not exceed the three percent threshold used to establish a significant impact.

Without the narrowing, the traffic volumes on the local streets, particularly San Pablo Avenue, would continue to increase. During the peak hours in the peak direction, the travel demand model show as much as 73 and 82 percent of the traffic on San Pablo in Old Town to be regional trips traveling through the city. The impacts to local circulation without the narrowing of San Pablo Avenue are described below under the intersection analysis.

TABLE 4.4-9
2030 PROPOSED PROJECT WITHOUT ROAD NARROWING – FREEWAY MAINLINE LOS SUMMARY

Location	AM Peak Hour			PM Peak Hour		
	Volume	Density[1]	LOS[2]	Volume	Density[1]	LOS[2]
I-80 Eastbound						
West of Appian Way [3]	4,985	20.4	C	6,685	***>45***	***F***
Between Appian Way and Pinole Valley Road [3]	5,531	22.6	C	7,443	***>45***	***F***
East of Pinole Valley Road	5,333	30.0	D	7,082	***>45***	***F***
I-80 Westbound						
East of Pinole Valley Road [3]	6,986	***>45***	***F***	5,700	23.3	C
Between Appian Way and Pinole Valley Road [3]	7,243	***>45***	***F***	5,997	24.5	C
West of Appian Way [3]	7,374	***>45***	***F***	5,828	23.8	C

Source: Dowling Associates, Inc., 2010
Notes:
1 Density = passenger cars per mile per lane
2 LOS = level of service
3 Bold/italic cells highlighted in grey indicate locations where the freeway operates at LOS F in existing conditions. With traffic growth in 2030, the freeway would continue to operate at LOS F with increased delays and queues.

Three Corridors Specific Plan

Implementation of the proposed Three Corridors Specific Plan would consist of the revitalization of the San Pablo Avenue, Pinole Valley Road, and Appian Way corridors, which could include new development and/or redevelopment of various urban uses. The Three Corridors Specific Plan directs the majority of the city's future growth to sites designated for mixed and multiple-family use in the San Pablo Avenue, Pinole Valley Road, and Appian Way corridors. The Three Corridors Specific Plan also identifies opportunity sites for infill mixed-use development along the city's commercial corridors in close proximity to transit and other amenities. The overall result of revitalizing these corridors would be more intense land uses, which would potentially result in increased traffic volumes within the Specific Plan area as well as on Interstate 80. This is considered a **significant** impact.

Zoning Code Update

Updates to the Zoning Code are further clarify the types and forms of uses permitted under particular land use designations, but would not result in any development activities beyond that analyzed for the proposed General Plan Update. Therefore, the Zoning Code Update would have an impact similar to that for the General Plan Update as discussed above.

Proposed General Plan Policies and Action Items That Address Impacts to Freeway Mainline

The proposed General Plan Update incorporates the following policies and actions that guide the development of the proposed circulation system and reduce potential impacts to I-80.

Policy CE.1.2 Coordinate development of the circulation system with sustainable land use planning.

Action CE.1.2.1	Give priority to projects that will contribute to a reduction in vehicle miles traveled per capita, while maintaining economic vitality and sustainability.
Action CE.1.2.2	Require development to provide bus, bicycle, pedestrian and alternative fuel vehicle facilities, as appropriate.
Policy CE.1.6	Encourage transit services between major employment centers in each area of the city and surrounding communities.
Action CE.1.6.1	The City shall continue to work cooperatively with local and regional transit service providers with transportation agencies, and other municipal jurisdictions such as BART, WCCTAC, WestCAT, AC Transit, Contra Costa County, West County cities, CCTA, EBRPD, and Railroads, to maximize connectivity betweenexisting or proposed transit stations, schools, parks, employment opportunities, and housing within the GPU Planning Area and region.
Action CE.1.6.2	Work with WestCAT, AC Transit and other transit providers to support expanded transit lines and increased frequency of service on major transit arterials.
Policy CE.2.2	Identify needed improvements to the highway/interstate facilities in the city and in order to aid Caltrans in implementing necessary programs on the state highway system and its interchanges/intersections with local roadways.
Action CE.2.2.1	Work with Caltrans and adjacent jurisdictions to improve the operational performance of I-80 and local transit corridors designated Priority Development Areas (San Pablo Avenue, Appian Way and Pinole Valley Road).
Action CE.2.2.2	Work with Caltrans in analyzing the performance of freeway interchanges located in the General Plan area and seek appropriate improvements.
Policy CE.3.3	All projects shall pay their fair share of the cost for project impacts on the circulation network in order to ensure that established levels of service are met.
Action CE.3.3.1	Establish a mechanism for collecting appropriate fees from development projects that will offset negative impacts on LOS thresholds.
Action CE.3.3.2	Adopt traffic impact fees that are based upon peak hour trip generation.
Policy CE.6.1	Encourage the use of carpooling and vanpooling to maintain an acceptable LOS on city streets and I-80.

In addition, Three Corridors Specific Plan Circulation Policies 3 and 7, as well as transit, bicycle, and pedestrian facilities identified in Section 5.0, *Circulation*, of the Specific Plan, facilitate the creation of a pedestrian friendly environment throughout the Specific Plan areas. These policies and facilities may mitigate a portion of increased traffic volumes within the Specific Plan area as well as on Interstate 80.

Mitigation Measures

Several planning efforts are under way to address this regional issue. They include the I-80 Corridor Study by the Sacramento Council of Governments, the Association of Bay Area Governments, the Metropolitan Transportation Commission (MTC), and Solano Transportation Authority, and the I-80 Integrated Corridor Mobility Project by the Alameda County Congestion Management Agency, WCCTAC, the Contra Costa Transportation Authority, Caltrans, local agencies including the City of Pinole, and local transit agencies in Alameda and Contra Costa counties. Further, the WCCTAC Action Plan includes objectives such as increasing High Occupancy Vehicle (HOV) lane use, improving transit service, increasing the size and number of park and ride lots, and additional interchanges to help alleviate congestion along the I-80 corridor. The update to the plan was adopted in July 2009. Despite these efforts, no feasible mitigation measures are available to improve the projected LOS to levels below the threshold of significance; therefore, impacts would remain **significant and unavoidable**.

While the 2030 proposed project without road narrowing conditions alternative would reduce this freeway impact to less than significant, the effects on local circulation and access for vehicles as well as pedestrians and bicyclists in the city, particularly in Old Town, would not support the goals and policies of the proposed GP. Therefore, impacts would remain significant and unavoidable.

Conflicts with Acceptable Volume-to-Capacity Ratios (Standard of Significance 1)

Impact 4.4.2 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would result in an increase in volume-to-capacity (v/c) ratios and a decrease in LOS on study intersections during the AM and PM peak hours. This is considered a **significant** impact.

General Plan Update

The forecast intersection traffic volume for Year 2030 baseline conditions is shown **Figure 4.4-6**. **Figure 4.4-7** depicts forecast intersection traffic volume for the proposed General Plan Update with the narrowing of San Pablo Avenue. **Figure 4.4-8** depicts forecasted intersection traffic volume for the proposed General Plan Update without the narrowing of San Pablo Avenue. The intersection levels of service under both 2030 conditions are summarized in **Table 4.4-10.** The peak hour volumes at several intersections along key corridors serving Pinole, such as San Pablo Avenue, Appian Way, and Pinole Valley Road, would approach or exceed the capacity of the intersections, resulting in substandard conditions as identified in bold in the table.

TABLE 4.4-10
YEAR 2030 PEAK HOUR INTERSECTION LEVELS OF SERVICE
BASELINE AND PROPOSED GENERAL PLAN UPDATE

			2030 Baseline		Proposed GP Update		Proposed GP Update Without the Narrowing of San Pablo	
#	Intersection	Time Period	LOS	v/c Ratio	LOS	v/c Ratio	LOS	v/c Ratio
1	Del Monte Drive at San Pablo Avenue	AM	B	0.610	A	0.570	B	0.620
		PM	A	0.550	A	0.460	A	0.550

			2030 Baseline		Proposed GP Update		Proposed GP Update Without the Narrowing of San Pablo	
#	Intersection	Time Period	LOS	v/c Ratio	LOS	v/c Ratio	LOS	v/c Ratio
2	Pinole Shores Drive at San Pablo Avenue	AM	A	0.560	A	0.510	A	0.560
		PM	A	0.440	A	0.370	A	0.440
3	Sunnyview Drive at San Pablo Avenue	AM	A	0.510	A	0.470	A	0.520
		PM	A	0.500	A	0.430	A	0.510
4	Appian Way at San Pablo Avenue	AM	D	0.850	B	0.630	**E**	**0.900**
		PM	**F**	**1.060**	C	0.740	**F**	**1.110**
5	Oak Ridge Lane at San Pablo Avenue	AM	A	0.570	D	0.810	A	0.570
		PM	A	0.530	B	0.670	A	0.550
6	Tennent Avenue at San Pablo Avenue	AM	C	0.780	**E**	**0.980**	D	0.810
		PM	B	0.680	D	0.830	B	0.680
7	Fernandez Avenue at San Pablo Avenue	AM	B	0.600	C	0.780	A	0.600
		PM	A	0.590	B	0.600	B	0.610
8	Pinole Valley Road at San Pablo Avenue	AM	C	0.780	**E**	**0.950**	D	0.850
		PM	D	0.830	**F**	**1.060**	D	0.850
9	John Street at San Pablo Avenue	AM	B	0.690	**E**	**0.910**	C	0.700
		PM	A	0.580	C	0.740	A	0.580
10	Pinole Valley Road at Tennent Avenue	AM	B	0.610	B	0.670	B	0.670
		PM	A	0.380	A	0.450	A	0.380
11	Pinole Valley Road at Henry Avenue	AM	A	0.540	B	0.610	A	0.570
		PM	A	0.530	C	0.700	A	0.560
12	Pinole Valley Road at I-80 westbound ramps	AM	B	0.660	B	0.680	B	0.680
		PM	A	0.560	B	0.640	A	0.580
13	Pinole Valley Road at I-80 eastbound ramps	AM	C	0.700	B	0.700	C	0.710
		PM	**D**	**0.900**	**E**	**0.930**	D	0.880
14	Pinole Valley Road at Estates Avenue	AM	A	0.490	A	0.480	A	0.490
		PM	A	0.470	A	0.460	A	0.490
15	Pinole Valley Road at Ramona Street	AM	A	0.320	A	0.330	A	0.340
		PM	A	0.280	A	0.300	A	0.300
16	Appian Way at Mann Drive	AM	A	0.540	A	0.530	A	0.550
		PM	A	0.460	A	0.400	A	0.470

			2030 Baseline		Proposed GP Update		Proposed GP Update Without the Narrowing of San Pablo	
#	Intersection	Time Period	LOS	v/c Ratio	LOS	v/c Ratio	LOS	v/c Ratio
17	Appian Way at Tara Hills Drive-Canyon Drive	AM	**E**	**0.910**	D	0.880	**E**	**0.950**
		PM	B	0.680	C	0.710	C	0.700
18	Appian Way at I-80 westbound ramps	AM	**D**	**0.900**	D	0.870	**E**	**0.940**
		PM	C	0.710	C	0.720	C	0.720
19	Appian Way at I-80 eastbound ramps	AM	B	0.650	A	0.560	B	0.680
		PM	C	0.760	C	0.740	C	0.750
20	Appian Way at Fitzgerald Drive-Sara Drive	AM	B	0.700	C	0.760	C	0.730
		PM	D	0.820	D	0.870	D	0.860

Source: Dowling Associates, Inc., 2010
Note: Bold indicates facilities that would not meet current standard; shaded cells indicate significant impacts.

The 2030 conditions at these intersections represent increase traffic volumes due to growth in the GPU Planning Area as well as in adjacent communities. In addition, San Pablo Avenue, as a parallel arterial to the congested I-80 corridor, and Appian Way, providing access to the freeway, serve not only local traffic, but regional traffic along the I-80 corridor. Under the proposed General Plan Update with the narrowing of San Pablo Avenue, some of the traffic on San Pablo Avenue would shift back to I-80, but the reduced capacity due to the lane reduction on San Pablo Avenue would result in increased v/c at the intersection with John Street, Pinole Valley Road and Tennent Avenue. The narrowing also results in lower traffic volumes on San Pablo Avenue south of the narrowing at Appian Way as well as on Appian Way between San Pablo Avenue and I-80. At these locations the LOS improves to LOS D or better.

When compared to the General Plan Update without the narrowing of San Pablo Avenue, the v/c ratios would increase at the intersections along Appian Way. The lower v/c ratios along San Pablo Avenue are attributed to reduced capacity due to the lane reduction.

Implementation of the land use development and roadway modifications proposed in the General Plan Update would cause four study intersections to operate below City level of service standards as shown in **Table 4.4-10**. The San Pablo Avenue intersections with Tennent Avenue, Pinole Valley Road, and John Street would degrade to LOS E or LOS F during one or both peak hours. The deterioration in operation at these intersections can be attributed to the proposed narrowing of San Pablo Avenue from the existing four travel lanes to two travel lanes through the Old Town area. In addition, the intersection of Pinole Valley Road and the I-80 eastbound ramp would continue to operate at a substandard level with an increase in v/c by 0.03 for the General Plan Update (and a decrease in v/c by 0.02 for the General Plan Update without narrowing of San Pablo Avenue) and level of service degrade from a high LOS D to a low LOS E. This is considered a **significant** impact.

Without the narrowing, the impacts shift to Appian Way, where the LOS at three intersections would be below the acceptable standard. At the intersections of Appian Way with San Pablo Avenue, Tara Hill Drive-Canyon Drive, and I-80 westbound ramps, the v/c ratio increases resulting in LOS E or F conditions.

Three Corridors Specific Plan

The proposed project also includes development of a Specific Plan that covers three major city corridors. The Three Corridors Specific Plan covers major areas of redevelopment under consideration in the San Pablo Avenue, Pinole Valley Road, and Appian Way corridors. The overall result of revitalizing these corridors would be more intense land uses, which would potentially result in increased traffic volumes within the Specific Plan area. As shown in **Table 4.4-10**, several intersections with San Pablo Avenue and Pinole Valley Road would be impacted, with resulting decreases in LOS and increases in v/c ratio. This is considered a **significant** impact.

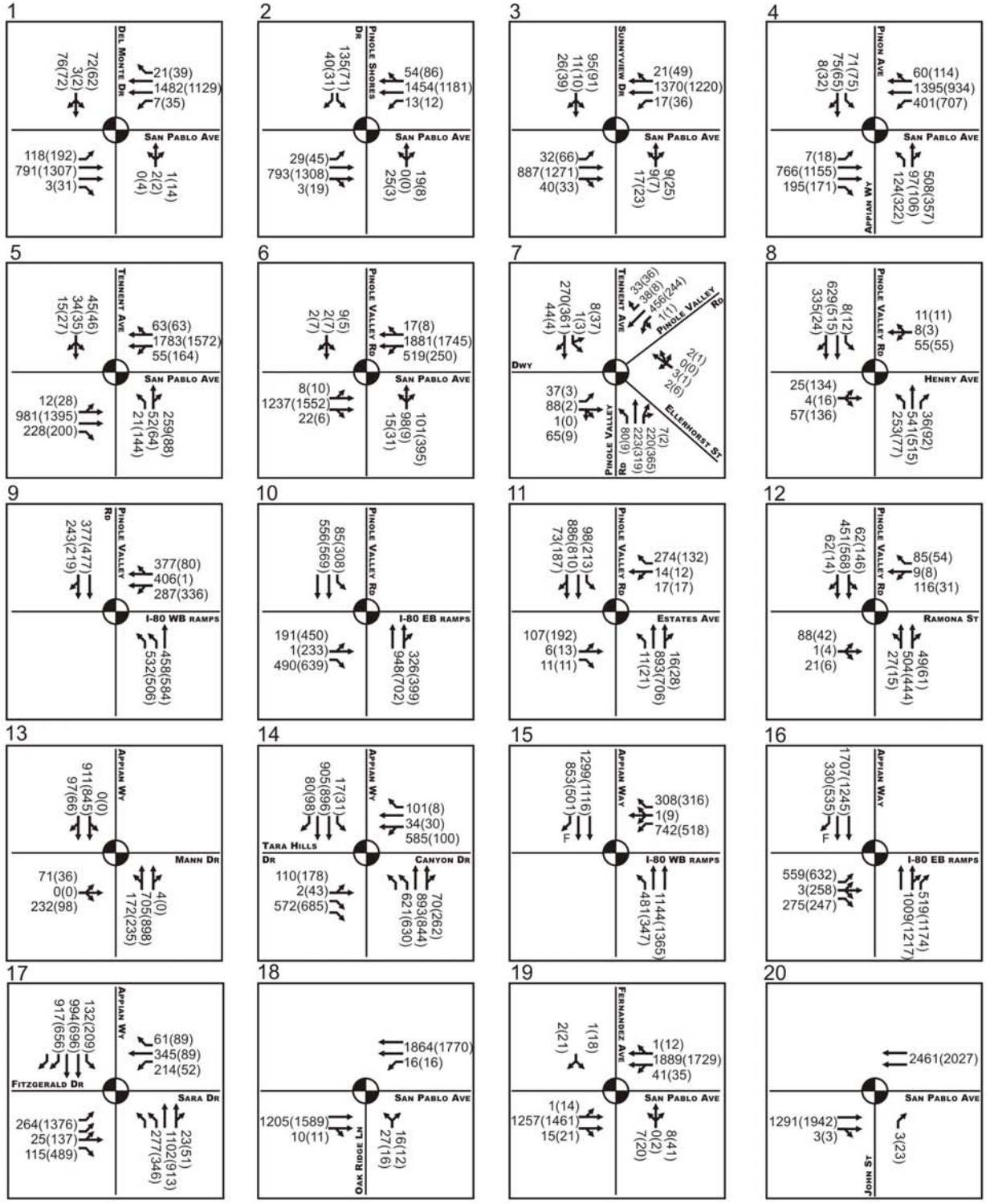
Zoning Code Update

Updates to the Zoning Code are intended to urther clarify the types and forms of uses permitted under particular land use designations, but would not result in any development activities beyond that analyzed for the proposed General Plan Update. Therefore, the Zoning Code Update would have an impact similar to that for the General Plan Update as discussed above.

Proposed General Plan Policies and Action Items that Address Conflicts with V/C Ratio

The proposed General Plan Update incorporates the following policies and actions that guide the development of the proposed circulation system and reduce potential level of service impacts to study roadway segments and intersections.

Policy CE.1.2	Coordinate development of the circulation system with sustainable land use planning.
Action CE.1.2.1	Give priority to projects that will contribute to a reduction in vehicle miles traveled per capita, while maintaining economic vitality and sustainability.
Action CE.1.2.2	Require development to provide bus, bicycle, pedestrian and alternative fuel vehicle facilities, as appropriate.
Action CE.1.2.3	Provide safe and convenient access for pedestrians and bicyclists, wherever feasible.
Policy CE.1.6	Encourage transit services between major employment centers in each area of the city and surrounding communities.
Action CE.1.6.1	The City shall continue to work cooperatively with local and regional transit with transportation agencies and other jurisdictions such as BART, WCCTAC, Transit Providers, West County Jurisdictions, CCTA, Railroads, to maximize connectivity to existing or proposed transit stations within the GPU Planning Area.
Action CE.1.6.2	Work with WestCAT, AC Transit and other transit providers to support expanded transit lines and increased frequency of service on major transit arterials.



Source: Dowling Associates, Inc. 2010

Figure 4.4-6

Intersection Traffic Volume & Lane Geometry 2030 Baseline Conditions

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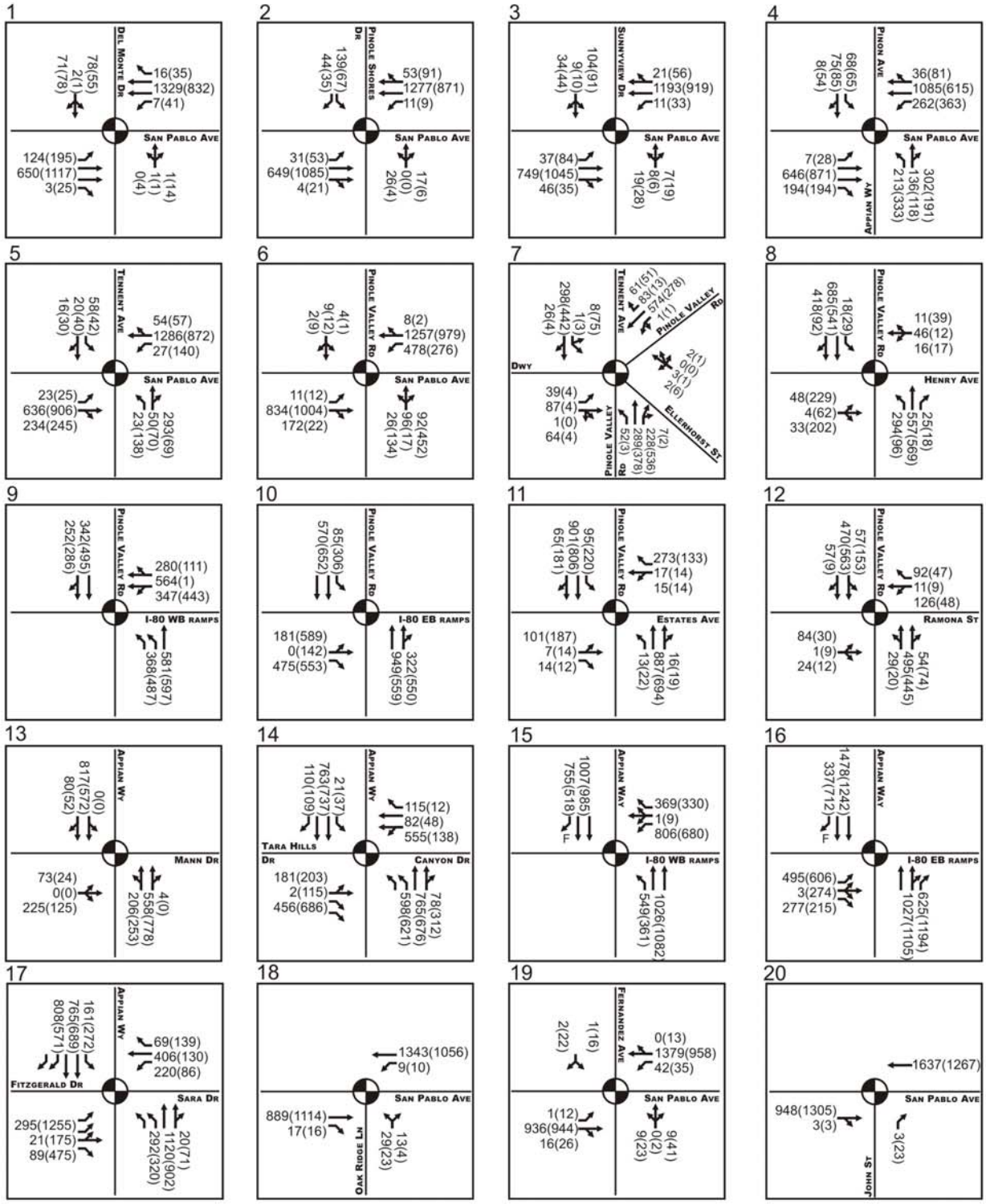

Source: Dowling Associates, Inc. 2010

Figure 4.4-7

Intersection Traffic Volume & Lane Geometry Existing Conditions Proposed General Plan Update with San Pablo Avenue Narrowing

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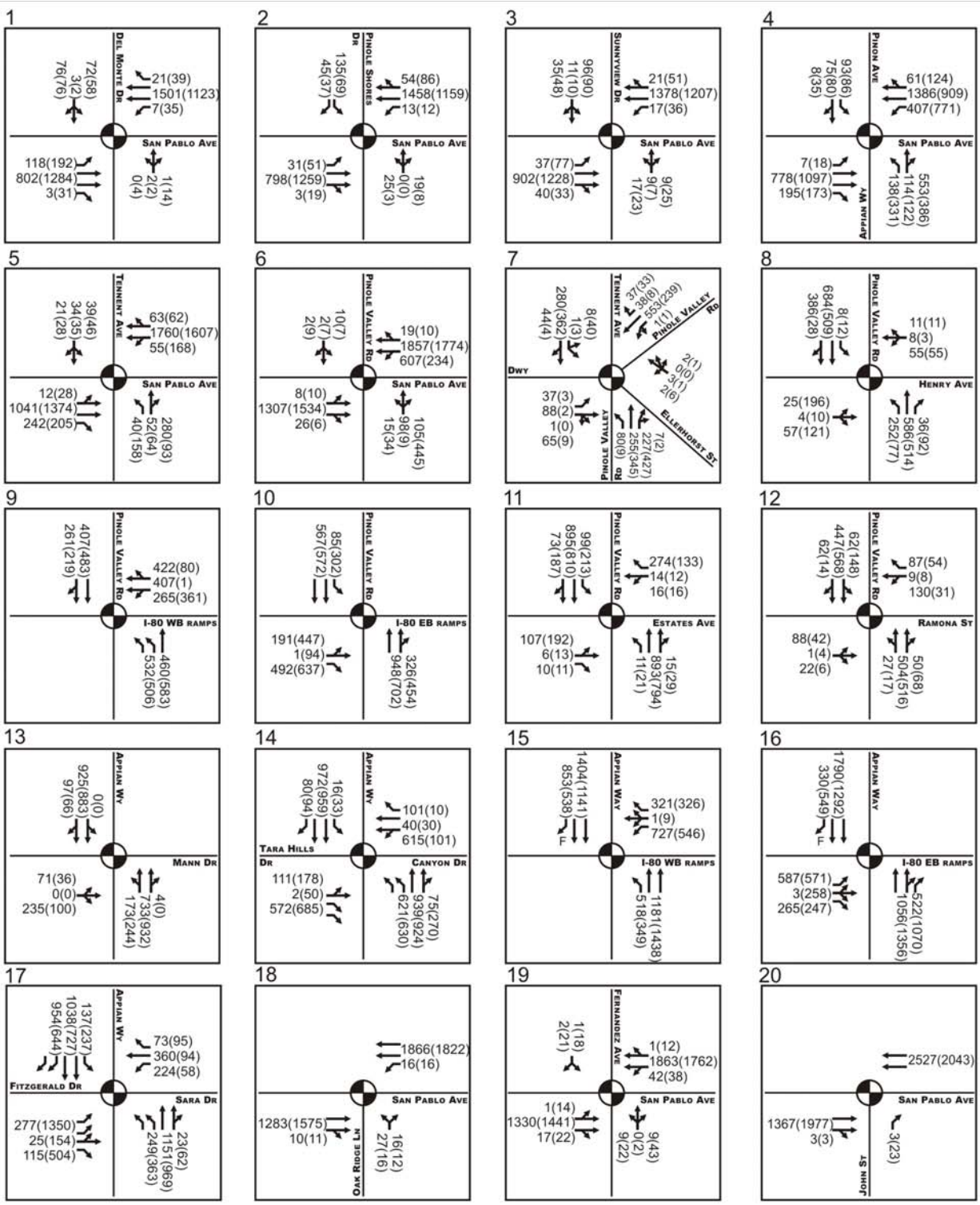

Source: Dowling Associates, Inc. 2010

Figure 4.4-8

Intersection Traffic Volume & Lane Geometry Existing Conditions Proposed General Plan Update without San Pablo Avenue Narrowing

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Policy CE.3.1 Apply the traffic service objectives indicated on Figure 7.4 [of the Circulation Element] for the identified roadways. LOS (level of service) and volume to capacity (V/C) thresholds are defined as follows:

Level of Service A (50 to 59 V/C): Indicates a relatively free flow of traffic, with little or no limitation on vehicle movement or speed.

Level of Service B (60 to 69 V/C): Describes a steady flow of traffic, with only slight delays in vehicle movement and speed. All queues clear in a single signal cycle.

Level of Service C (70 to 79 V/C): Denotes a reasonably steady, high-volume flow of traffic, with some limitations on movement and speed, and occasional backups on critical approaches. LOS C+ = 70 to 75 V/C. LOS C- = 75 to 79 V/C.

Level of Service D (80 to 89 V/C): Denotes the level where traffic nears an unstable flow. Intersections still function, but short queues develop and cars may have to wait through one cycle during short peaks. LOS D+ = 80 to 85 V/C. LOS D- = 85 to 89 V/C.

Level of Service E (90 to 99 V/C): Describes traffic characterized by slow movement and frequent (although momentary) stoppages. This type of congestion is considered severe, but is not uncommon at peak traffic hours, with frequent stopping, long-standing queues, and blocked intersections. LOS E+ = 90 to 94 V/C.

Level of Service F (100+ V/C): Describes stop-and-go traffic characterized by traffic jams and stoppages of long duration. Vehicles at signalized intersections usually have to wait through one or more signal changes, and "upstream" intersections may be blocked by the long queues.

Action CE.3.1.1 Work with WCCTAC and CCTA to revise the Action Plan level of service standard for San Pablo Avenue within Old Town to LOS F to create a more pedestrian-friendly environment and facilitate pedestrian and bicycle access and circulation.

Action CE.3.1.2 Project applicants shall provide a traffic study forecasting traffic impacts, identifying deficient roadways and intersections, and providing an implementation plan for needed improvements to the satisfaction of the Public Works Director/City Engineer.

Action CE.3.1.3 The City shall develop a Roadway/Trail Master plan to improve the sidewalk, bike trail, pedestrian trail and roadway system, as necessary for buildout of the General Plan.

Policy CE.3.2 Maintain roadway network at or above established LOS thresholds.

Policy CE.3.3 All projects shall pay their fair share of the cost for project impacts on the circulation network in order to ensure that established levels of service are met.

Action CE.3.3.1 Establish a mechanism for collecting appropriate fees from development projects that will offset negative impacts on LOS thresholds.

Action CE.3.3.2 Adopt traffic impact fees that are based upon peak hour trip generation.

Policy CE.3.4 Reduce traffic congestion at key intersections throughout the city, as appropriate and in line with the overall sustainability goals of the City.

Action CE.3.4.1 Construct necessary improvements to intersections to ensure that the applicable levels of service mentioned in Policy CE.3.1 are achieved.

In addition, Three Corridors Specific Plan Circulation Policies 3 and 7, as well as transit, bicycle, and pedestrian facilities identified in Section 5.0, *Circulation*, of the Specific Plan, facilitate the creation of a pedestrian friendly environment throughout the Specific Plan areas. These policies and facilities may mitigate a portion of increased traffic volumes within the Specific Plan area.

Mitigation Measures

Widening of the intersection of Pinole Valley Road and I-80 eastbound ramps would be required to reduce the v/c to meet the LOS standard. However, since this intersection is at the freeway ramps, an alternative analysis was performed using the Highway Capacity Manual methodology required by Caltrans. This methodology takes into considerations the signal timing and operations of the intersection and establishes the LOS based on delays at the intersection. With this methodology the intersection would operate at LOS D with a delay of 48.4 seconds during the PM peak hour. This LOS D would be similar to that for the No Project and proposed project without the narrowing when using the HCM methodology.

The proposed project exceeds the adopted LOS standards for the intersections on portions of San Pablo Avenue in Old Town. Maintaining the intersections with the additional travel lane to accommodate automobiles and trucks would address only one facet of transportation within the GPU Planning Area. The proposed project seeks to amend the LOS established by policy to a less restrictive standard. Because about 75 percent of the traffic on this roadway originates from outside of the GPU Planning Area and uses the roadway as a convenient by-pass for the freeway, the City would prefer a more balanced transportation corridor and seeks to redirect inter-regional traffic back to the freeway, or to alternative modes of transportation such as bicycles, buses, and rail. This modification to the policy would eliminate the need to construct certain improvements at the intersections and result in a **less than significant** impact. Note that the impacts to the mainline freeway are only marginally worsened as a result of this approach. See Table 4.4-9.

Conflict with an Applicable Congestion Management Plan (Standard of Significance 3)

Impact 4.4.3 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would conflict with the multimodal transportation service objectives (MTSOs) identified in the West County Action Plan. This is considered a **significant** impact.

As summarized in **Table 4.4-11**, the delay index for I-80 between the Alameda county line and the Carquinez Bridge would be maintained at less than 3.0 with and without the proposed General Plan Update.

TABLE 4.4-11
DELAY INDEX FOR INTERSTATE 80 BETWEEN ALAMEDA COUNTY LINE AND CARQUINEZ BRIDGE
2030 BASELINE AND PROPOSED GENERAL PLAN UPDATE

Scenario	Direction	Distance (miles)	AM Delay Index	PM Delay Index
2030 Baseline	I-80 NB	13.802	1.61	2.33
	I-80 SB	13.807	2.47	1.82
Proposed General Plan Update	I-80 NB	13.802	1.64	2.51
	I-80 SB	13.807	2.63	1.87

Source: Dowling Associates, Inc., 2010

Implementation of the proposed General Plan Update would not exceed the MTSOs outlined in the West County Action Plan for I-80. However, implementation of proposed General Plan Update Action CE.3.1.1 would modify the level of service standards along the Old Town segment of San Pablo Avenue to LOS F. The West County Action Plan dictates that all signalized intersections along San Pablo Avenue shall maintain LOS E or better. Likewise the West County Action Plan calls for maintaining LOS D or better along Appian Way. As shown in the intersection analysis above, the change in LOS standard for Appian Way is not needed for the proposed project with the narrowing, since regional traffic would shift back to the freeway. Therefore, the project conflicts with the MTSOs established by the West County Action Plan. This is considered a **significant** impact.

General Plan Update

The City of Pinole is largely built out with opportunities for infill housing and commercial development. Proposed Action CE.3.1.1 would modify the level of service standards along the Old Town segment of San Pablo Avenue to LOS F. These proposed levels of service would exceed thresholds established by the West County Action Plan for signalized intersections along San Pablo Avenue. Therefore, this is considered a **significant** impact.

Three Corridors Specific Plan

The proposed project also includes development of a Specific Plan that covers three major city corridors. The Three Corridors Specific Plan covers major areas of redevelopment under consideration in the San Pablo Avenue, Pinole Valley Road, and Appian Way corridors. Implementation of the proposed Three Corridors Specific Plan would consist of revitalization in these areas. Focus would be on replacing vacated and underutilized commercial areas with new residential and commercial mixed-use developments and increasing the density in residential areas. The overall result would be more intense land uses, which would potentially result in increased traffic volumes within the Specific Plan area. As the corridors involved are addressed in the West County Action Plan, this impact is considered **significant**.

Zoning Code Update

Updates to the Zoning Code are intended to further clarify the types and forms of uses permitted under particular land use designations, but would not result in any development activities beyond that analyzed for the proposed General Plan Update. This would not conflict with the multimodal transportation service objectives (MTSOs) identified in the West County Action Plan.

Therefore, the Zoning Code Update would have an impact similar to that for the General Plan Update as discussed above.

Proposed General Plan Policies and Action Items that Address Conflict with an Applicable Congestion Management Plan

Action CE.3.1.1 Work with WCCTAC and CCTA to revise the Action Plan level of service standard for San Pablo Avenue within Old Town to LOS F to create a more pedestrian-friendly environment and facilitate pedestrian and bicycle access and circulation.

The above action of the proposed General Plan Update directs the City to work with WCCTAC and CCTA to revise the MTSO for San Pablo Avenue within Old Town to LOS F. This action provides mitigation to eliminate the conflict between the West County Action Plan and the proposed General Plan Update related to the Old Town segment of San Pablo Avenue.

Mitigation Measures

Maintaining the existing level of service performance standards along San Pablo Avenue and Appian Way, which are consistent with the MTSO, would mitigate the proposed project's impact. However, the proposed modification in level of service standards reflects greater emphasis on alternative modes of transportation and allows for more sustainable growth in the city. The implementation of the General Plan Update would better balance the needs of all roadway users despite its conflict with the West County Action Plan's MTSOs.

To address the proposed LOS change for Appian Way, the following modification to the proposed Action CE.3.1.1 should be included in the Circulation Element.

MM 4.4.3 Action CE.3.1.1 of the Circulation Element of the General Plan shall be revised to read: Work with WCCTAC and CCTA to revise the Action Plan level of service standard for San Pablo Avenue within Old Town to LOS F and for Appian Way between Mann Drive and I-80 to LOS E as well as new MTSO's that reflect non-motorized LOS.

If the City is able to work with WCCTAC and CCTA to revise the West County Action Plan, or the City modifies the proposed Circulation Element to be consistent with the adopted West County Action Plan, the project impact would be less than significant. However, since the outcome of the revision is dependent upon an action by another independent agency, this impact is considered **significant and unavoidable**.

Roadway Hazards or Incompatible Uses (Standard of Significance 3)

Impact 4.4.4 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would result in changes to the circulation network. However, the changes would not increase hazards due to a design feature or incompatible uses. Therefore, the project impact is considered to be **less than significant**.

Subsequent land use activities associated with implementation of the proposed General Plan Update may require new roadway construction or modification to the existing circulation network associated with specific projects. The design of any new roadways or modifications

would be required to meet the City's roadway design standards. Adherence to such standards would preclude the construction of any unsafe design features. Therefore, the project is anticipated to result in **less than significant** impacts with regard to roadway hazards or incompatible uses.

General Plan Update

Implementation of the roadway modifications proposed in the General Plan Update would be designed to meet the City's roadway design standards. Therefore, General Plan Update land use changes and roadway modifications are considered to have a **less than significant** impact with regard to roadway hazards or incompatible uses.

Three Corridors Specific Plan

The proposed project includes development of a Specific Plan that covers the San Pablo Avenue, Pinole Valley Road, and Appian Way corridors. Any roadway improvements necessary within the Specific Plan would be designed to meet the City's roadway design standards. Therefore, roadway hazards and land use incompatibilities associated with the Three Corridors Specific Plan are anticipated to result in **less than significant** impacts.

Zoning Code Update

The Zoning Code establishes zoning districts based on the General Plan land use designations. Adoption of the General Plan will require amendments to the Zoning Code for consistency with the new land designations provided by the Three Corridors Specific Plan. These updates would not result in any development activities beyond those analyzed for the proposed GPU. Therefore, the Zoning Code Update would have an impact similar to that for the General Plan Update as discussed above.

Proposed General Plan Policies and Action Items that Address Roadway Hazards

The proposed General Plan Update includes the following policies and actions that address safety and roadway hazards.

Action CE.2.1.3 Work with emergency service providers to ensure the transportation system facilitates efficient service delivery and protects public safety.

Action CE.4.4.2 Roadways experiencing or forecast to experience worse than applicable level of service conditions (unstable or forced traffic flows) shall be improved, unless economic conditions, community character issues or public health, safety or welfare factors are such that needed improvements would be detrimental to other City goals and objectives.

Action CE.7.3.4 Minimize bicycle/pedestrian/motor vehicle conflicts by providing proper trail, street and intersection design and separation.

Policy CE.7.4 Establish bicycle safety as a priority through ongoing public education.

Action CE.7.4.1 Assist in the development and dissemination of public education programs to promote bicycle safety.

Action CE.8.1.1 As feasible, ensure that all intersections in areas with pedestrian usage are signalized with curb ramps, bulbouts, high-contrast crosswalks and pedestrian actuation, and other safety measures.

Policy CE.8.3 Design access ways to school facilities that will ensure public safety.

Action LU.8.1.1 Utilize the Three Corridors Specific Plan to encourage attractive mixed-use development along San Pablo Avenue while retaining Pinole's important view corridors; providing a safe circulation plan that includes traffic calming measures, enhanced transit, bicycle, and pedestrian facilities as well as to encourage sustainable and green building environment.

Action LU.8.2.1 Adopt and implement the Three Corridors Specific Plan for the Pinole Valley Road transportation corridor (Action LU.1.1.1) to include design guidelines that are appropriate for this area and still retain Pinole's character; a circulation plan that includes traffic calming measures, transit options, and improved bicycle and pedestrian facilities; and sustainable, green building policies.

Action LU.8.3.1 Adopt and implement the Three Corridors Specific Plan for the Appian Way transportation corridor (Action LU.1.1.1) to include design guidelines that are appropriate for this area and still retain Pinole's character; a circulation plan that includes traffic calming measures, streetscaping, signage, transit options, and improved bicycle and pedestrian facilities; and sustainable, green building policies.

In addition, Three Corridors Specific Plan Circulation Policy 1 provides for the safe and efficient movement of people and goods within and through the Specific Plan areas while Circulation Policy 2 requires all future roadway and intersection improvements to consider pedestrian and traffic safety first and foremost. Circulation Policies 7 and 8 provide for safe passage of pedestrians and bicyclists, as well as for people who are disabled or impaired, using San Pablo Avenue, Pinole Valley Road and Appian Way. These policies further address safety and roadway hazards resulting from the proposed project.

Mitigation Measures

None required.

Emergency Access (Standard of Significance 4)

Impact 4.4.5 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would result in an increase in vehicular traffic and changes to the roadway network, which may potentially increase emergency access conflicts. This is considered a **less than significant** impact.

Implementation of the proposed General Plan would increase the amount of vehicle traffic and modify the roadway network. However, the proposed General Plan Update is designed to provide and maintain a comprehensive circulation system within the city that would provide adequate roadway connections and emergency access options. The proposed narrowing of San Pablo Avenue in the Old Town area and the resulting degradation of level of service between Tennent Avenue and John Street may cause delays along San Pablo Avenue during

the morning and evening peak periods. Bike lanes and striped medians are proposed on the roadway that would allow vehicles to pull over to the right and allow emergency response vehicles to pass on the left. The roadway design for the narrowing would be reviewed by the City's police and fire departments to ensure compliance with established standards and emergency requirements. Therefore, the project impact is anticipated to be **less than significant**.

General Plan Update

The proposed General Plan Update is designed with adequate roadway connections and emergency access options. Therefore, impacts to emergency access resulting from the General Plan Update are considered **less than significant**.

Three Corridors Specific Plan

The proposed project includes development of a Specific Plan that covers the San Pablo Avenue, Pinole Valley Road, and Appian Way corridors. Any roadway improvements necessary within the Specific Plan area would be designed to meet the City's roadway design standards, including provision of adequate emergency access. Therefore, impacts to emergency access associated with the Three Corridors Specific Plan are considered **less than significant**.

Zoning Code Update

The Zoning Code establishes zoning districts based on the General Plan land use designations. Adoption of the General Plan will require amendments to the Zoning Code for consistency with the new land designations provided by the Three Corridors Specific Plan. These updates would not result in any development activities beyond those analyzed for the proposed GPU. Therefore, the Zoning Code Update would have an impact similar to that for the General Plan Update as discussed above.

Proposed General Plan Policies and Action Items that Address Emergency Access

The proposed General Plan Update includes the following policies and actions that address emergency access.

Action CE.2.1.3 Work with emergency service providers to ensure the transportation system facilitates efficient service delivery and protects public safety.

Action CS.2.5.5 Develop Evacuation Plans. Work with agencies that provide emergency preparedness, response and recovery services to formulate definitive plans and procedures for evacuation of hazard-prone areas.

In addition, Chapter 7.0, *Private Realm Standards and Design Guidelines*, of the proposed Three Corridor Specific Plan requires site circulation to allow for and facilitate emergency access to the site and all buildings.

Mitigation Measures

None required.

Conflicts with Programs Supporting Alternative Transportation (Standard of Significance 5)

Impact 4.4.6 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would support continued and expanded transit use, bicycling, and walking throughout the city, although changes to the roadway network may potentially affect bus operations. This is considered a **less than significant** impact.

The General Plan Update supports bicycle use and walking as forms of non-motorized transportation by establishing goals and related policies to enhance bicycle and pedestrian infrastructures throughout the city (Goal CE.7 and CE.8). For example, the proposed narrowing of San Pablo Avenue through Old Town would allow for the construction of bike lanes and provision of curb bulb-outs that would shorten the crossing distance and minimize exposure for pedestrians. As such, the General Plan Update would have positive impacts on bicycle and pedestrian facilities.

Regarding public transit, the narrowing of San Pablo Avenue may result in nominal delay for bus service during the peak commute periods. Furthermore, even though currently there is no bus stop in Old Town between John Street and Oak Ridge Avenue, stopped buses may inhibit through traffic if bus stops are added in the future. The proposed pedestrian bulb-outs would also require buses to pull into and out of the parking lane to load and unload passengers, which results in additional delays. Similar to emergency access discussed under Impact 4.4.5, the availability of bike lanes and striped medians would allow through traffic to pass on the left of the stopped bus. The City will work with WestCAT to design a narrowing plan compatible with the transit agency's needs, such as longer bulb-outs that can accommodate buses.

General Plan Update

Goal CE.7 and CE.8 of the General Plan Update establish goals and related policies to support bicycle use and walking as forms of non-motorized transportation throughout the city. Therefore, the General Plan Update would not conflict with plans supporting alternative transportation, and this impact is considered **less than significant**.

Three Corridors Specific Plan

The Three Corridors Specific Plan covers major areas of redevelopment under consideration in the San Pablo Avenue, Pinole Valley Road, and Appian Way corridors. The narrowing of San Pablo Avenue may result in nominal delay for bus service during the peak commute periods, but would not substantially impact service along San Pablo Avenue within the Three Corridors Specific Plan area. Bicycle and pedestrian infrastructure is provided throughout the area and identified in Action CE.1.2.2. Therefore, the Three Corridors Specific Plan would not conflict with plans supporting alternative transportation. This impact is considered **less than significant**.

Zoning Code Update

The project requires a Zoning Code Update to amend the Zoning Code for consistency with the new land designations provided by the Three Corridors Specific Plan. The proposed Zoning Code updates are largely intended to clarify the types of uses that are permitted under a particular land use designation. This would not conflict with plans supporting alternative modes of transportation. therefore, the Zoning Code Update would have an impact similar to that for the General Plan Update as discussed above resulting in **no impact**.

Proposed General Plan Policies and Action Items that Address Conflicts with Programs Supporting Alternative Transportation

The proposed General Plan Update includes the following policies and actions that support alternative modes of transportation.

Policy CE.1.3	Encourage development that is sensitive to both local and regional transit measures and that promotes the use of alternative modes of transportation.
Action CE.1.3.1	Consult with transit providers during review of development proposals.
Action CE.1.3.2	Include facilities that support alternative modes of transportation (pedestrian, bicycles, public transit, electric vehicles, etc.) where feasible.
Policy CE.1.4	Encourage maximum utilization of the existing public transit system and alternate modes of transportation in Pinole.
Action CE.1.4.1	Study the feasibility of increasing public transit frequency in areas currently served, and continue evaluating the possibility of expanding service to areas currently without service.
Action CE.1.4.2	Include links to public transit resources, bike trails maps, pedestrian trails maps and carpool/van pool information on the City's website.
Action CE.1.4.3	Pursue extension of rapid bus service to Pinole and enhance transit facilities that serve Pinole users.
Action CE.1.4.4	Support provision of wayfinding signage and markers for transit stops and multi-use trails.
Policy CE.1.5	Encourage transit facilities that will provide good access to major public facilities and employment centers in the city.
Action CE.1.5.1	Enhance existing and provide additional bus shelters and other amenities that support transit use, where feasible and appropriate.
Policy CE.1.6	Encourage transit services between major employment centers in each area of the city and surrounding communities.
Action CE.1.6.1	The City shall continue to work cooperatively with local and regional transit with transportation agencies and other jurisdictions such as BART, WCCTAC, Transit Providers, West County Jurisdictions, CCTA, Railroads, to maximize connectivity to existing or proposed transit stations within the GPU Planning Area.
Action CE.1.6.2	Work with WestCAT, AC Transit and other transit providers to support expanded transit lines and increased frequency of service on major transit arterials.

The reader is referred to Chapter 5.0, *Circulation*, of the proposed Three Corridor Specific Plan which contains goals and policies (Circulation Policies 2, 3, 7, and 8) that support the

development and safety of bicycle and pedestrian facilities. The reader is also referred to Chapter 7.0, *Private Realm Standards and Design Guidelines*, of the Specific Plan which encourages numerous site design techniques to create clearly identifiable, well-connected, and safe pedestrian paths as well as easily accessible transit stops that are sited close to commercial uses. Furthermore, the reader is referred to Section 17.48.110 of the proposed Zoning Code Update which contains minimum bicycle parking requirements by land use category. These policies, standards and design guidelines help to implement the proposed General Plan policy provisions listed above and would further reduce this impact.

Mitigation Measures

None required.

4.4.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The geographic extent of the cumulative setting for traffic and circulation consists of the GPU Planning Area and pending or approved major projects within the city, as well as consideration of regional activities and attributes (e.g., regional traffic volumes and patterns). Cumulative (Year 2030) traffic forecasts for this study were based on information obtained from the Contra Costa Transportation Authority's Travel Demand Model and information provided by the City of Pinole.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Transportation Impacts

Impact 4.4.7 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would result in cumulative transportation impacts. This impact is considered **cumulatively considerable**.

The project's contribution to potential cumulative impacts to local and regional transportation facilities would be consistent with the impacts discussed under Impact 4.2.2. The traffic modeling analysis addressed the project's contribution to traffic conditions projected in 2030. The 2030 analysis represents the cumulative condition as it includes the background growth in the traffic forecasts. Summaries of daily vehicles trips, average vehicle trip lengths, and vehicle miles traveled for trips generated in Pinole from the model forecasts for cumulative with the proposed project are presented in **Table 4.4-12**.

TABLE 4.4-12
CUMULATIVE MODEL FORECAST SUMMARY

Year	Households	Total Employment	Total Daily Vehicle Trips	VMT Generated (in miles)	Average Trip Length (in miles)
Cumulative with Proposed Project	8,651	8,093	90,234	830,000	9.20

Source: Dowling Associates, Inc., 2010

No new impacts or increase in significance of impacts is expected other than the impacts addressed under Impact 4.2.2. As identified in Impact 4.2.2, cumulatively considerable impacts would occur at city intersections. These intersection impacts would be reduced to less than cumulatively considerable with implementation of the proposed policies.

As identified above, the changes to the city's roadway network as proposed in the Circulation Element would affect travel patterns within the city and along Interstate 80. Modifications of regional facilities, such as the proposed narrowing of San Pablo Avenue between Oakridge Road and the eastern city limit, were captured in the CCTA Model. Thus, no cumulatively considerable impacts are expected outside of the GPU Planning Area. In fact, implementation of the Circulation Element's policies regarding alternative modes of transportation and trip reduction should have a beneficial impact on neighboring jurisdictions.

As identified in Impact 4.4.2 (**Table 4.4-10**), cumulatively considerable impacts would occur at four city intersections, with resulting decreases in LOS and increases in v/c ratio. These intersection impacts would be reduced to less than significant with implementation of the proposed General Plan Circulation Element policies. Therefore, this impact is considered **less than cumulatively considerable** impact.

Proposed General Plan Policies and Action Items that Address Cumulative Transportation Impacts

The proposed General Plan Update incorporates the following policies and actions that guide the development of the proposed circulation system and reduce potential level of service impacts to study roadway segments and intersections. Since these policies and action items have been described in detail in prior impact discussions for this section, the following is limited to only listing the policy and action item numbers.

1) Circulation Element

Policy CE.1.2, Action CE.1.2.1, Action CE.1.2.2, Action CE.1.2.3, Policy CE.1.6, Action CE.1.6.1, Action CE.1.6.2, Policy CE.3.1, Action CE.3.1.1, Action CE.3.1.2, Action CE.3.1.3, Policy CE.3.2, Policy CE.3.3, Action CE.3.3.1, Action CE.3.3.2, Policy CE.3.4, Action CE.3.4.1

In addition, Three Corridors Specific Plan Circulation Policies 3 and 7, as well as transit, bicycle, and pedestrian facilities identified in Section 5.0, *Circulation*, of the Specific Plan, facilitate the creation of a pedestrian friendly environment throughout the Specific Plan areas. These policies and facilities may mitigate a portion of cumulative traffic volumes resulting from implementation of the project.

Mitigation Measures

As identified under Impact 4.4.3, a modification, per mitigation measure **MM 4.4.3**, should be made to proposed Action CE.3.1.1 to revise the Action Plan level of service standard for San Pablo Avenue within Old Town to LOS F and for Appian Way between Mann Drive and I-80 to LOS E. If the City is able to work with WCCTAC and CCTA to revise the West County Action Plan, or the City modifies the proposed Circulation Element to be consistent with the adopted West County Action Plan, the impact would be **less than cumulatively considerable**.

Cumulative Conflicts with an Applicable Congestion Management Plan

Impact 4.4.8 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would conflict with the

multimodal transportation service objectives (MTSOs) identified in the West County Action Plan. This is considered a **cumulatively considerable** impact.

As summarized in **Table 4.4-11** above, the delay index for I-80 between the Alameda county line and the Carquinez Bridge would be maintained at less than 3.0 with and without the proposed General Plan Update. Implementation of the General Plan Update, in combination with other pending or approved major projects within the city and other regional activities, would increase traffic volumes. Action CE.3.1.1 would modify the level of service standards along the Old Town segment of San Pablo Avenue to LOS F. The West County Action Plan requires that all signalized intersections along San Pablo Avenue maintain LOS E or better. Likewise the West County Action Plan calls for maintaining LOS D or better along Appian Way. Therefore, the General Plan Update conflicts with the MTSOs established by the West County Action Plan.

The City of Pinole is largely built out with opportunities for infill housing and commercial development. Under cumulative conditions, pending or approved major projects within the city, in combination with other regional activities, would increase traffic volumes through the Planning Area. Action CE.3.1.1 would modify the level of service standards along the Old Town segment of San Pablo Avenue to LOS F. These proposed levels of service would exceed thresholds established by the West County Action Plan for signalized intersections along San Pablo Avenue and Appian Way.

Proposed General Plan Policies and Action Items that Address Cumulative Conflicts with an Applicable Congestion Management Plan

Action CE.3.1.1 of the proposed General Plan Update directs the City to work with WCCTAC and CCTA to revise the MTSO for San Pablo Avenue within Old Town to LOS F. This action provides mitigation to eliminate the conflict between the West County Action Plan and the proposed General Plan Update related to the Old Town segment of San Pablo Avenue.

Mitigation Measures

Maintaining the existing level of service performance standards along San Pablo Avenue and Appian Way, which are consistent with the MTSO, would mitigate the cumulative impacts to the West County Action Plan. However, the proposed modification in level of service standards reflects greater emphasis on alternative modes of transportation and allows for more sustainable growth in the city. The implementation of the General Plan Update would better balance the needs of all roadway users despite its conflict with the West County Action Plan's MTSOs. Refer to mitigation measure **MM 4.4.3**, above, regarding modification to the proposed Action CE.3.1.1 of the Circulation Element.

If the City is able to work with WCCTAC and CCTA to revise the West County Action Plan, or the City modifies the proposed Circulation Element to be consistent with the adopted West County Action Plan, the project impact would be less than significant. However, since the outcome of the revision is dependent upon an action by another independent agency, this impact is considered **significant and unavoidable** and **cumulatively considerable**.

Cumulative Roadway Hazards or Incompatible Uses

Impact 4.4.9 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update), in combination with pending or approved major projects within the city as well as consideration of

regional activities, would result in changes to the circulation network. The changes are not anticipated to increase hazards due to a design feature or incompatible uses. Therefore, this impact is considered to be **less than cumulatively considerable**.

Subsequent land use activities associated with implementation of the proposed project, as well as regional activities, may require new roadway construction or modification to the existing circulation network associated with specific projects. The design of any new roadways or modifications would be required to meet applicable City, County, or Caltrans roadway design standards. Adherence to such standards would preclude the construction of any unsafe design features. Therefore, the project is anticipated to result in **less than cumulatively considerable** impacts with regard to roadway hazards or incompatible uses.

Implementation of the roadway modifications proposed in the General Plan Update, as well as other improvements outside the City's jurisdiction, would be designed to meet applicable (City, County, or Caltrans) roadway design standards. Therefore, General Plan Update land use changes and roadway modifications, in combination with cumulative development, are considered to be **less than cumulatively considerable** with regard to roadway hazards or incompatible uses.

Proposed General Plan Policies and Action Items that Address Roadway Hazards

The proposed General Plan Update includes the following policies and actions that address safety and roadway hazards. Since these policies and action items have been described in detail in prior impact discussions for this section, the following is limited to only listing the policy and action item numbers.

Action CE.2.1.3, Action CE4.4.2, Action CE.7.3.4, Policy CE.7.4, Action CE.7.4.1, Action CE.8.1.1, Policy CE.8.3, Action LU.8.1.1, Action LU.8.2.1, Action LU.8.3.1

In addition, as discussed above, Three Corridors Specific Plan Circulation Policies 1, 2, 7, and 8 further address safety and roadway hazards resulting from the proposed project.

Mitigation Measures

None required.

Cumulative Emergency Access

Impact 4.4.10 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update), in combination with pending or approved major projects within the city as well as consideration of regional activities, would result in an increase in vehicular traffic and changes to the roadway network, which may potentially increase emergency access conflicts. This is considered a **less than cumulatively considerable** impact.

Implementation of the proposed project, in combination with pending or approved major projects within the city as well as consideration of regional activities, would increase the amount of vehicle traffic and modify the roadway network. The proposed General Plan Update is designed to provide and maintain a comprehensive circulation system within the city that would provide adequate roadway connections and emergency access options under cumulative

conditions as described under Impact 4.4.5. Therefore, impacts to emergency access are considered **less than cumulatively considerable**.

The proposed General Plan Update, in combination with pending or approved major projects within the city, as well as consideration of regional activities, is designed with adequate roadway connections and emergency access options. Therefore, cumulative impacts to emergency access resulting from the General Plan Update are considered **less than cumulatively considerable**.

Proposed General Plan Policies and Action Items that Address Cumulative Emergency Access

The proposed General Plan Update includes the following policies and actions that address emergency access. Since these policies and action items have been described in detail in prior impact discussions for this section, the following is limited to only listing the policy and action item numbers.

Action CE.2.1.3, Action CS.2.5.5

In addition, Chapter 7.0, *Private Realm Standards and Design Guidelines*, of the proposed Three Corridor Specific Plan requires site circulation to allow for and facilitate emergency access to the site and all buildings.

Mitigation Measures

None required.

Cumulative Conflicts with Programs Supporting Alternative Transportation

Impact 4.4.11 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) in combination with pending or approved major projects within the city as well as consideration of regional activities, would support continued and expanded transit use, bicycling, and walking throughout the city, although changes to the roadway network may potentially affect bus operations. This is considered a **cumulatively considerable** impact.

As described under Impact 4.4.6, the General Plan Update supports bicycle use and walking as forms of non-motorized transportation by establishing goals and related policies to enhance bicycle and pedestrian infrastructures throughout the city (Goal CE.7 and CE.8).

The narrowing of San Pablo Avenue may result in nominal delay for bus service during the peak commute periods. Similar to emergency access discussed under Impact 4.4.5, the availability of bike lanes and striped medians would allow through traffic to pass on the left of the stopped bus. The City will work with WestCAT to design a narrowing plan compatible with the transit agency's existing and future needs, such as longer bulb-outs that can accommodate buses.

Goal CE.7 and CE.8 of the General Plan Update establish goals and related policies to support bicycle use and walking as forms of non-motorized transportation throughout the city. Therefore, the General Plan Update, in combination with pending or approved major projects within the city as well as consideration of regional activities, would not conflict with plans supporting alternative transportation. This impact is considered **cumulatively considerable**.

Proposed General Plan Policies and Action Items that Address Cumulative Conflicts with Programs Supporting Alternative Transportation

The proposed General Plan Update includes the following policies and actions that support alternative modes of transportation. Since these policies and action items have been described in detail in prior impact discussions for this section, the following is limited to only listing the policy and action item numbers.

Policy CE.1.3, Action CE.1.3.1, Action CE.1.3.2, Policy CE.1.4, Action CE.1.4.1, Action CE.1.4.2, Action CE.1.4.3, Action CE.1.4.4, Policy CE.1.5, Action CE.1.5.1, Policy CE.1.6, Action CE.1.6.1, Action CE.1.6.2

The reader is referred to Chapter 5.0, *Circulation*, of the proposed Three Corridor Specific Plan which contains goals and policies (Circulation Policies 2, 3, 7, and 8) that support the development and safety of bicycle and pedestrian facilities. The reader is also referred to Chapter 7.0, *Private Realm Standards and Design Guidelines*, of the Specific Plan which encourages numerous site design techniques to create clearly identifiable, well-connected, and safe pedestrian paths as well as easily accessible transit stops that are sited close to commercial uses. Furthermore, the reader is referred to Section 17.48.110 of the proposed Zoning Code Update which contains minimum bicycle parking requirements by land use category. These policies, standards and design guidelines help to implement the proposed General Plan policy provisions listed above and would further reduce this impact.

Mitigation Measures

The following mitigation measure shall be included under the Circulation Element of the General Plan Update:

MM 4.4.11 Work with WestCAT and AC Transit to construct additional bus turnouts along the following Pinole Roadways: San Pablo Avenue, Pinole Valley Road, Appian Way & Fitzgerald Drive.

With the implementation of the above proposed General Plan policies, the appropriate Specific Plan policies and strategies, as well as the addition of the proposed mitigation measure above, this impact would be reduced to a **less than cumulatively considerable** level.

REFERENCES

California Department of Transportation (Caltrans). 2002. *Guide for the Preparation of Traffic Impact Studies*.

California Department of Transportation (Caltrans). 2005. Traffic Operations Program. All Traffic Volumes on California State Highway System. http://traffic-counts.dot.ca.gov/2005all/r071-80i.htm.

California Department of Transportation (Caltrans) District 4, Office of Highway Operations. 2010.

Census Transportation Planning Package (CTTP). 2000. Part 3 http://www.mtc.ca.gov/ maps_and_data/ Datamart/census/ctpp2000/.

Dowling Associates, Inc. 2010. *City of Pinole General Plan Update Traffic and Circulation Analysis.*

East Bay SMART Corridors. 2009. http://www.smartcorridors.net/about.php (accessed September 4, 2009).

Pinole, City of. 2010. Draft General Plan Update.

Pinole, City of. 2009a. *Background Report, Chapter 5, Circulation.*

Pinole, City of. 2009b. *Draft General Plan. Circulation Element.*

Transportation Research Board. 2000. *Highway Capacity Manual.*

West Contra Costa Transportation Advisory Committee (WCCTAC). 2009. *West County Action Plan for Routes of Regional Significance – 2009 Update*

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4.5 Noise

This section of the Draft Environmental Impact Report (DEIR) discusses and analyzes the ambient noise environment of the proposed City of Pinole General Plan Update Planning Area. Short- and long-term construction noise, traffic noise, operational noise, and other noise impacts associated with implementation of the proposed General Plan Update are analyzed. The information provided in this section is based on a technical assessment by Ambient Air Quality and Noise Consulting (2010) presented in **Appendix D**.

4.5.1 EXISTING SETTING

TECHNICAL BACKGROUND

Acoustic Fundamentals

Noise is generally defined as sound that is loud, disagreeable, or unexpected. Sound is mechanical energy transmitted in the form of a wave because of a disturbance or vibration. Sound levels are described in terms of both amplitude and frequency. Amplitude is defined as the difference between ambient air pressure and the peak pressure of the sound wave. Amplitude is measured in decibels (dB) on a logarithmic scale. For example, a 65 dB source of sound, such as a truck, when joined by another 65 dB source results in a sound amplitude of 68 dB, not 130 dB (i.e., doubling the source strength increases the sound pressure by 3 dB). Amplitude is interpreted by the ear as corresponding to different degrees of loudness. Laboratory measurements correlate a 10 dB increase in amplitude with a perceived doubling of loudness and establish a 3 dB change in amplitude as the minimum audible difference perceptible to the average person.

The frequency of a sound is defined as the number of fluctuations of the pressure wave per second. The unit of frequency is the Hertz (Hz). One Hz equals one cycle per second. The human ear is not equally sensitive to sound of different frequencies. For instance, the human ear is more sensitive to sound in the higher portion of this range than in the lower, and sound waves below 16 Hz or above 20,000 Hz cannot be heard at all. To approximate the sensitivity of the human ear to changes in frequency, environmental sound is usually measured in what is referred to as "A-weighted decibels" (dBA). On this scale, the normal range of human hearing extends from about 10 dBA to about 140 dBA (Ambient, 2010). Common community noise sources and associated noise levels, in dBA, are depicted in **Figure 4.5-1**.

Noise can be generated by a number of sources, including mobile sources, such as automobiles, trucks and airplanes, and stationary sources, such as construction sites, machinery, and industrial operations. Noise generated by mobile sources typically attenuates at a rate between 3.0 and 4.5 dBA per doubling of distance. The rate depends on the ground surface and the number or type of objects between the noise source and the receiver. Mobile transportation sources, such as highways, hard and flat surfaces, such as concrete or asphalt, have an attenuation rate of 3.0 dBA per doubling of distance. Soft surfaces, such as uneven or vegetated terrain, have an attenuation rate of about 4.5 dBA per doubling of distance from the source. Noise generated by stationary sources typically attenuates at a rate of approximately 6.0 to 7.5 dBA per doubling of distance from the source (Ambient, 2010).

Noise Descriptors

The intensity of environmental noise fluctuates over time, and several descriptors of time-averaged noise levels are used. The three most commonly used descriptors are L_{eq}, L_{dn}, and CNEL. The energy-equivalent noise level, L_{eq}, is a measure of the average energy content (intensity) of noise over any given period. Many communities use 24-hour descriptors of noise

levels to regulate noise. The day-night average noise level, L_{dn}, is the 24-hour average of the noise intensity, with a 10 dBA "penalty" added for nighttime noise (10:00 p.m. to 7:00 a.m.) to account for the greater sensitivity to noise during this period. CNEL, the Community Noise Equivalent Level, is similar to L_{dn} but adds an additional 5 dBA penalty for evening noise (7:00 p.m. to 10:00 p.m.). Another descriptor that is commonly discussed is the single-event noise exposure level (SENEL), also referred to as the sound exposure level (SEL). The SENEL/SEL describes a receiver's cumulative noise exposure from a single noise event, which is defined as an acoustical event of short duration (0.5 second), such as a backup beeper, the sound of an airplane traveling overhead, or a train whistle, and involves a change in sound pressure above a defined reference value (usually approximately 40 dBA). Noise analyses may also depend on measurements of L_{max}, the maximum instantaneous noise level during a specific period of time, and L_{min}, the minimum instantaneous noise level during a specific period. Common noise level descriptors are summarized in **Table 4.5-1**.

TABLE 4.5-1
COMMON ACOUSTICAL DESCRIPTORS

Descriptor	Definition
Energy Equivalent Noise Level (L_{eq})	The energy mean (average) noise level. The instantaneous noise levels during a specific period of time in dBA are converted to relative energy values. From the sum of the relative energy values, an average energy value (in dBA) is calculated.
Minimum Noise Level (L_{min})	The minimum instantaneous noise level during a specific period of time.
Maximum Noise Level (L_{max})	The maximum instantaneous noise level during a specific period of time.
Day-Night Average Noise Level (DNL or L_{dn})	The 24-hour L_{eq} with a 10 dBA penalty for noise events that occur during the noise-sensitive hours between 10:00 p.m. and 7:00 a.m. In other words, 10 dBA is "added" to noise events that occur in the nighttime hours to account for increases sensitivity to noise during these hours.
Community Noise Equivalent Noise Level (CNEL)	The CNEL is similar to the L_{dn} described above, but with an additional 5 dBA penalty added to noise events that occur between the hours of 7:00 p.m. and 10:00 p.m. The calculated CNEL is typically approximately 0.5 dBA higher than the calculated L_{dn}.
Single Event Noise Level (SEL)	The level of sound accumulated over a given time interval or event. Technically, the sound exposure level is the level of the time-integrated mean square A-weighted sound for a stated time interval or event, with a reference time of one second.
Percent Exceeded Noise Level (L_n)	The level exceeded for n percent of the time. For instance, L_{10} is the level exceeded for 10% of the time. The commonly used values of n for the n-percent exceeded level, L_n, are 2, 10, 50, and 90.

Source: Ambient, 2010

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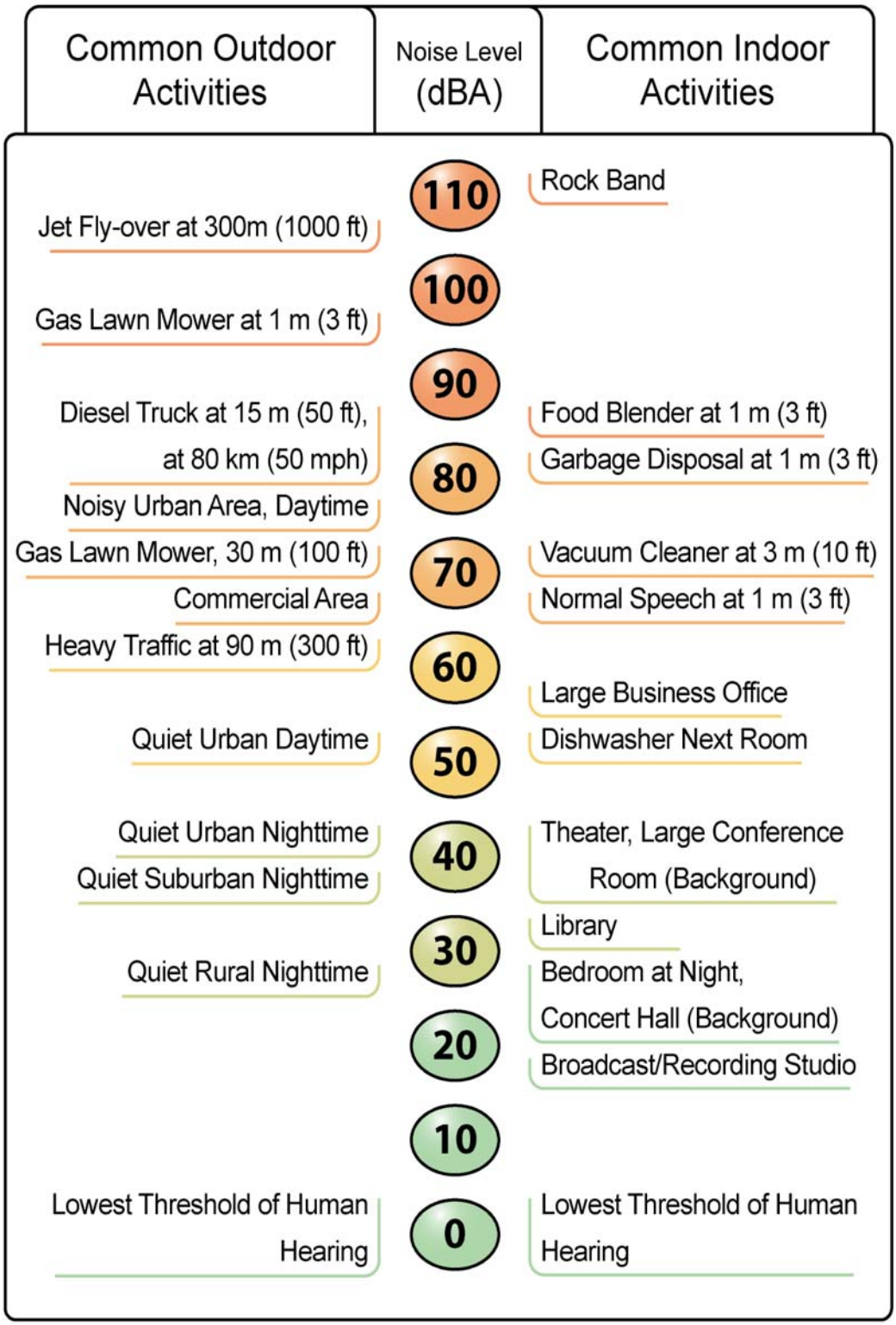

Source: City of Plymouth

Figure 4.5-1

Typical Community Noise Levels

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Human Response to Noise

The human response to environmental noise is subjective and varies considerably from individual to individual. Noise in the community has often been cited as a health problem, not in terms of actual physiological damage, such as hearing impairment, but in terms of inhibiting general well-being and contributing to undue stress and annoyance. The health effects of noise in the community arise from interference with human activities, including sleep, speech, recreation, and tasks that demand concentration or coordination. Hearing loss can occur at the highest noise intensity levels. When community noise interferes with human activities or contributes to stress, public annoyance with the noise source increases. The acceptability of noise and the threat to public well-being are the basis for land use planning policies preventing exposure to excessive community noise levels.

Unfortunately, there is no completely satisfactory way to measure the subjective effects of noise or of the corresponding reactions of annoyance and dissatisfaction. This is primarily because of the wide variation in individual thresholds of annoyance and habituation to noise over differing individual experiences with noise. Thus, an important way of determining a person's subjective reaction to a new noise is the comparison of it to the existing environment to which one has adapted: the so-called "ambient" environment. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged. Regarding increases in A-weighted noise levels, knowledge of the following relationships will be helpful in understanding this analysis:

- Except in carefully controlled laboratory experiments, a change of 1 dB cannot be perceived by humans.
- Outside of the laboratory, a 3 dB change is considered a just-perceivable difference.
- A change in level of at least 5 dB is required before any noticeable change in community response would be expected. An increase of 5 dB is typically considered substantial.
- A 10 dB change is subjectively heard as an approximate doubling in loudness and would almost certainly cause an adverse change in community response.

When evaluating noise impacts, based on the above relationships, it is generally recognized that an increase of greater than 3 dBA is considered potentially significant. However, increases in ambient noise levels need to also take into account the existing noise environment.

NOISE REDUCTION

Various methods can be employed to reduce noise levels, including enclosures, barriers, and sound-dampening materials. The methods employed are dependent on various factors, including source and receptor characteristics as well as environmental conditions. With regard to typical community noise sources, noise-reduction techniques typically focus on the isolation or shielding of the noise source from nearby noise-sensitive receptors. The more common methods include the use of buffers, enclosures, and barriers. In general, these techniques contribute to decreasing noise levels only when the structure breaks the "line of sight" between the source and the receiver. Buildings, concrete walls, and berms can all act as effective noise barriers. Wooden fences or broad areas of dense foliage can also reduce noise but are less effective than solid barriers. Changes in design specifications and use of equipment noise control devices (e.g., mufflers and silencers) are also commonly employed to reduce stationary-source (i.e., non-

transportation) noise levels. Additional noise control techniques commonly used for transportation noise sources include traffic control, such as prohibiting heavy-duty trucks and reducing speed limits along primarily affected corridors. However, an approximate 20 mile per hour reduction in speed would typically be required to achieve a noticeable decrease in noise levels. In some instances, the use of noise-reducing pavements, such as rubberized asphalt, has also been used to reduce traffic noise.

EXISTING CONDITIONS

Ambient Noise Environment

The ambient noise environments in the City of Pinole are defined primarily by vehicle traffic on Interstate 80 (I-80), which runs northeast to southwest through the community, and railroad activities conducted along the Union Pacific Railroad (UPRR) and Burlington Northern Santa Fe (BNSF) railroad corridors. To a lesser extent, local vehicle traffic and typical neighborhood noise sources also contribute to the ambient noise environment. No significant noise-producing commercial or industrial activities are identified within the City of Pinole. The only concentration of such activities is in proximity to I-80, which tends to mask noise generated by these sources.

Short-term (10-minute) noise level measurements were conducted on April 22, 2010, for the purpose of documenting and measuring the existing noise environment in various areas in and around the City of Pinole. Measurements were conducted using a Larson Davis model 820 sound-level meter placed at a height of approximately 4.5 feet above the ground surface. Ambient noise measurement locations and corresponding measured values (i.e., L_{eq}, L_{min}, and L_{max}) are summarized in **Table 4.5-2**. Based on the monitoring conducted, hourly-average daytime noise levels (in L_{eq}) in Pinole generally range from the low to mid 40s at areas located away from major roadways to the mid to high 70s near I-80. In general, ambient noise levels during the quieter nighttime hours are typically 5 to 10 dBA less than daytime noise levels due to decreases in vehicle traffic on area roadways.

Noise-Sensitive Land Uses

Noise-sensitive land uses are generally considered to include those uses that would result in noise exposure that could cause health-related risks to individuals. Places where quiet is essential are also considered noise-sensitive uses. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels. Other land uses such as parks, historic sites, cemeteries, and recreation areas are also considered sensitive to increases in exterior noise levels. School classrooms, places of assembly, hotels, libraries, and other places where low interior noise levels are essential are also considered noise-sensitive land uses.

TABLE 4.5-2
AMBIENT NOISE LEVELS

Location	Monitoring Period	Noise Level (dBA)	
		L_{eq}	L_{max}
1401 Fitzgerald Drive, ~148 feet from near-travel-lane centerline of I-80	12:40 p.m. – 12:50 p.m.	75.9	78.4
Pinole Shores Park	13:15 p.m. – 13:25 p.m.	42.8	54.5
2742 Pinole Valley Road, ~25 feet from near-travel-lane centerline	13:45 p.m. – 13:55 p.m.	63.1	70.2
1279 San Pablo Avenue, ~25 feet from near-travel-lane centerline	14:20 p.m. – 14:30 p.m.	64.3	69.8
2554 Appian Way, ~25 feet from near-travel-lane centerline	14:50 p.m. – 15:00 p.m.	63.8	70.6
Pinole Valley Road at Simas, ~25 feet from near-travel-lane centerline	15:30 p.m. – 15:40 p.m.	65.4	74.3

Source: Ambient, 2010
Note: Ambient noise measurements were conducted on April 22, 2010, using a Larson Davis model 820 sound-level meter placed at a height of approximately 4.5 feet above the ground surface.

Noise Sources

Noise issues associated with transportation and stationary sources in the Planning Area are discussed below.

Transportation Sources

Roadway Traffic

Ambient noise levels in many portions of the city are defined primarily by traffic on I-80. To a lesser extent, vehicle traffic along other local roadways also contributes to ambient noise levels. The FHWA Highway Traffic Noise Prediction model (FHWA-RD-77-108) was used to predict traffic noise levels along major area roadways. Input data used in the model included average-daily traffic levels, day/night percentages of automobiles and medium and heavy trucks, vehicle speeds, ground attenuation factors, roadway widths, and ground elevation data. Vehicle distribution percentages were based on traffic data obtained during the site reconnaissance conducted for this project, as well as, heavy-duty truck distribution percentages obtained from the California Department of Transportation (Ambient, 2010).

Predicted traffic noise levels for roadway segments within the city, including distances to the predicted 60, 65, and 70-dBA L_{dn}/CNEL noise contours, are summarized in **Table 4.5-3**. Existing noise contours for I-80 are depicted in **Figure 4.5-2**. It is important to note that predicted noise contours assume no natural or human-made shielding (i.e., intervening terrain, vegetation, berms, walls, buildings) and should be considered to represent bands of similar noise exposure, rather than absolute lines of demarcation. Although predicted noise contours are not considered site-specific, they are useful for determining potential land-use conflicts.

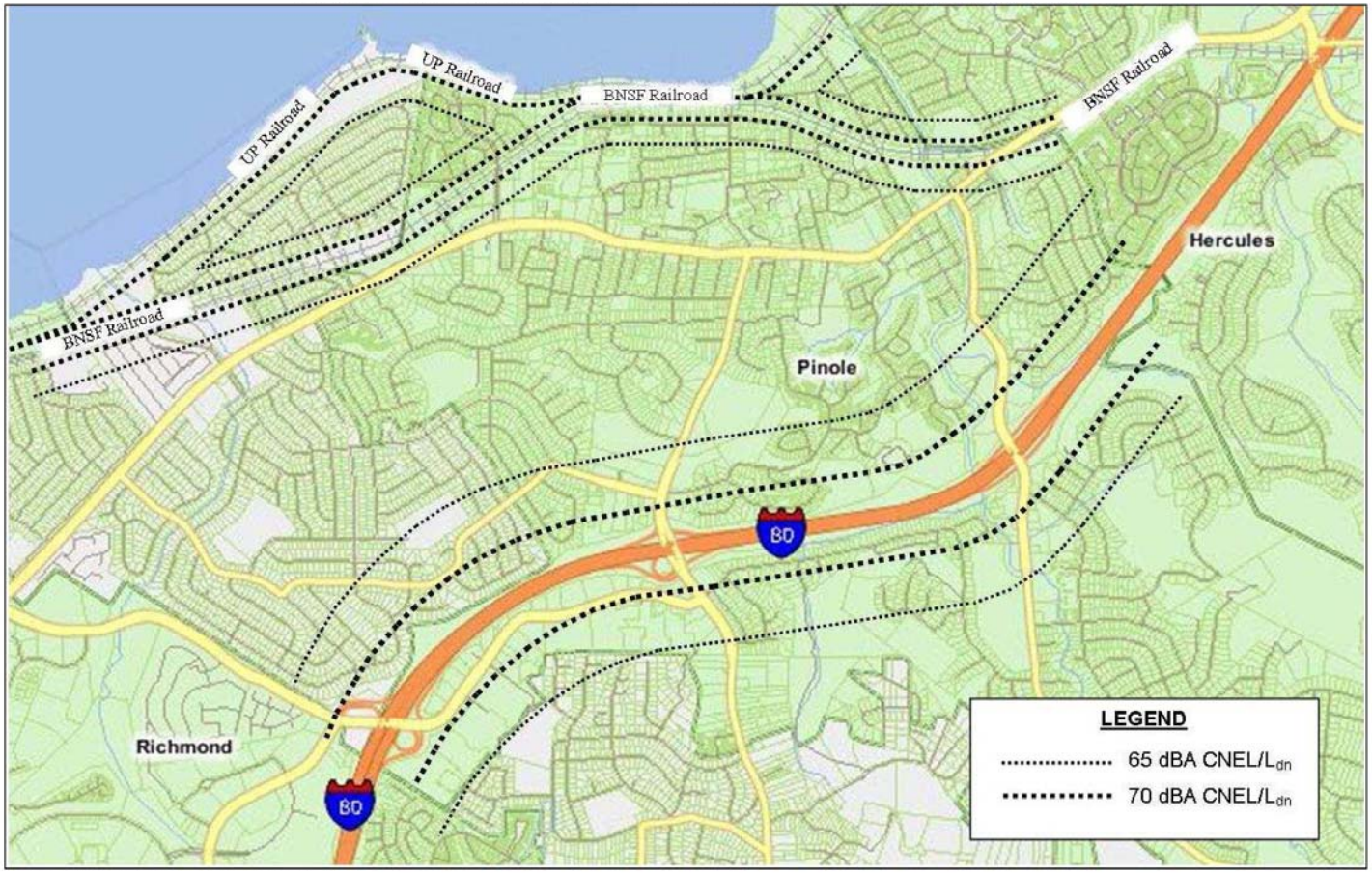
Railroads

Two railroad corridors are located within the Pinole General Plan Update Planning Area, including the UPRR's Martinez Subdivision and BNSF's Stockton Subdivision railroads. There are no rail yards or junctions within the city. The UPRR's Martinez Subdivision railroad is a double-track railroad located along the northern boundary of the city near the shoreline of San Pablo Bay. The BNSF's Stockton Subdivision is located south of the UPRR and at a slightly higher elevation. The number of freight trains traveling along these corridors can vary from day to day, depending on demand, and there are currently no hourly limitations pertaining to freight train travel. The UPRR is also used for Amtrak service. Approximately 32 Amtrak Capitol Corridor trains and 8 Amtrak San Joaquin trains use this corridor on a daily basis (Ambient, 2010).

Noise levels generated by trains can vary depending on numerous factors, including train speed, number of engines used, track conditions (e.g., welded vs. jointed), the condition of train wheels, and shielding provided by intervening terrain. Additional factors, such as the sounding of the train horns as well as the operation of roadside signaling devices, can also contribute to overall noise levels. Depending on such factors, wayside noise levels associated with train passbys can reach levels of up to 110 dBA L_{max} at 50 feet from the track centerline (Ambient, 2010).

Ambient used the Federal Transit Administration's (FTA) *Transit Noise and Vibration Impact Assessment Guidelines* to calculate wayside noise levels generated by the trains traveling along the UPRR and BNSF corridors. Wayside noise levels were calculated based, in part, on average train speeds, train length, and the assumption that the number of trains would be distributed equally among daytime and nighttime hours. Predicted noise levels were calculated with and without the sounding of warning devices at grade crossings. Predicted railroad noise levels and distances to noise contours are summarized in **Table 4.5-4** and depicted in **Figure 4.5-2**. With the sounding of train horns, the projected 60, 65, and 70 dBA L_{dn} noise contours near signalized grade crossings would extend to approximately 1,255, 585, and 158 feet from the track centerline of the UPRR, respectively. Along the BNSF railroad, the projected 60, 65, and 70 dBA L_{dn} noise contours with horns sounding would extend to approximately 681, 368, and 85 feet from the track centerline, respectively. Without horns sounding, the projected 60, 65, and 70 dBA L_{dn} noise contours would extend to 429, 199, and 46 feet from the UPRR and to approximately 199, 92, and 21 feet from the BNSF railroad, respectively. It is important to note that these projected noise contours do not include shielding or reflection of noise from intervening terrain or structures and actual noise levels will vary depending on site-specific conditions. Although these predicted noise contours are not considered site-specific, they are useful for determining potential land use conflicts.

T:_CS\Work\Pinole, City of\GP_SP_ZO_EIR\Figures



Note: Distances to noise contours are approximate. Noise contours assume no natural or human-made shielding (i.e., intervening terrain, vegetation, berms, walls, buildings) and should not be considered to represent absolute lines of demarcation.

Source: Contra Costa County, 2010

Not to Scale

N

Figure 4.5-2

Existing Noise Contours – Major Transportation Noise Sources

PMC®

TABLE 4.5-3
EXISTING TRAFFIC NOISE LEVELS AND DISTANCES TO NOISE CONTOURS IN THE PLANNING AREA

Roadway Segment	Average Daily Trips	CNEL at 50 Feet from Near Travel-lane Centerline	Distance (feet) from Roadway Centerline to CNEL Contour		
			70	65	60
San Pablo Ave., west of Del Monte Dr./Belmont Way	17,100	67.92	--	108.2	229.6
San Pablo Ave., west of Appian Way	20,600	66.04	--	82.2	172.5
San Pablo Ave., east of Pinole Valley Rd.	20,900	62.85	--	--	103.2
Appian Way, south of Tara Hills Dr./Canyon Dr.	34,300	67.66	59.8	115.5	242.2
Appian Way, south of Michael Dr.	27,500	67.29	--	98.6	208.7
Pinole Valley Rd., north of Henry Ave.	14,100	61.14	--	--	80.2
Pinole Valley Rd., south of Estate Ave.	19,000	64.08	--	62.5	128.5
Pinole Valley Rd., south of Wright Ave.	3,200	57.82	--	--	--
Henry Ave., east of Ridgecrest Dr.	1,700	51.11	-	--	--
Fitzgerald Dr., west of Appian Way	18,100	64.09	--	59.8	124.0
Shea Drive, west of Pinole Valley Rd.	3,500	54.25	--	--	--
I-80, west of Appian Way	190,000	82.81	585.8	1,259.3	2,711.3
I-80, Appian Way to Pinole Valley Rd.	194,000	82.90	594.0	1,276.9	2,749.2
I-80, east of Pinole Valley Rd.	182,000	82.62	569.3	1,223.7	2,634.7

Source: Ambient, 2010
Noise levels/contours were calculated using the FHWA roadway noise model based on Calveno vehicle reference noise levels and traffic data obtained from the traffic analysis prepared for this project. Refer to Appendix D for modeling output files.
– Contours are within 50 feet of roadway centerline/within roadway right-of-way.

TABLE 4.5-4
RAILROAD NOISE LEVELS

Railroad Corridor	Without Horns Sounding				With Horns Sounding			
	L_{dn} at 100′	Distance from Track Centerline to L_{dn} Contour (feet)			L_{dn} at 100′	Distance from Track Centerline to L_{dn} Contour (feet)		
		60	65	70		60	65	70
UPRR/Amtrak	69	429	199	46	77	1,255	585	158
BNSF	64	199	92	21	73	681	368	85

Source: Ambient, 2010

Airports

The Buchanan Field Airport is located on Sally Ride Drive in Concord, approximately 17 miles east of Pinole. The city is not located within the projected 60 dBA CNEL noise contour of this airport. As a result, the existing ambient noise environment of the city is not significantly influenced by aircraft noise, although aircraft flyovers are possible.

Stationary Sources

Stationary noise sources include industrial and commercial land uses. Many industrial processes produce noise, even when the best available noise control technology is applied. Noise exposures within industrial facilities are controlled by federal and state employee health and safety regulations (i.e., regulations of the Occupational Safety and Health Administration of the U.S. Department of Labor [OSHA] and the California Division of Occupational Safety and Health [Cal-OSHA]). Exterior noise levels that affect neighboring parcels are typically subject to local standards. Commercial, recreational, and public facility activities can also produce noise that may affect adjacent noise-sensitive land uses. These noise sources can be continuous or intermittent and may contain tonal components that are annoying to individuals who live nearby. For instance, emergency-use sirens and backup alarms are often considered nuisance noise sources, but may not occur frequently enough to be considered incompatible with noise-sensitive land uses. In addition, noise generation from fixed noise sources may vary based upon climate conditions, time of day, and existing ambient noise levels.

From a land use planning perspective, fixed-source noise control issues focus on two goals: (1) preventing the introduction of new noise-producing uses in noise-sensitive areas and (2) preventing encroachment of noise-sensitive uses upon existing noise-producing facilities. The first goal can be achieved by applying noise performance standards to proposed new noise producing uses. The second goal can be met by requiring that new noise-sensitive uses near noise-producing facilities include mitigation measures to ensure compliance with noise performance standards. Each of these goals stresses the importance of avoiding the location of new uses that may be incompatible with adjoining uses.

Commercial and Industrial Uses

Noise sources commonly associated with commercial and industrial uses often include the operation of power tools, material handling equipment (e.g., forklifts), and stationary equipment (e.g., compressors, compactors), as well as noise associated with the loading and unloading of materials from delivery trucks. Noise levels from commercial and industrial uses are dependent on numerous factors and can vary substantially, depending of the specific activities conducted. For instance, noise associated with neighborhood commercial activities may be indiscernible from the ambient noise level, whereas noise levels associated with major industrial activities involving the use of heavy off-road equipment can generate intermittent levels of up to approximately 90 dBA at 50 feet. For this reason, noise generated by commercial and industrial uses and impacts to nearby noise-sensitive land uses should be evaluated on a project-by-project and site-specific basis.

Noise sources associated with service commercial uses, such as automotive and truck repair facilities, light industrial uses, etc., are found near the Bay Shore on San Pablo Avenue within city limits. The noise emissions of these types of uses are dependent on many factors and are therefore difficult to quantify precisely. Nonetheless, noise generated by these uses contributes to the ambient noise environment in the immediate vicinity of these uses and should be considered where either new noise-sensitive uses are proposed nearby or where similar uses are proposed in existing residential areas.

Parks and School Playing Fields

Parks and school playgrounds, and their associated uses, are located throughout the city. Noise generated by these uses depends on the age and number of people utilizing the respective facilities at a given time and the types of activities they are engaged in. School play field

activities tend to generate more noise than those of neighborhood parks because the intensity of school playground usage tends to be much higher. At a distance of 100 feet from an elementary school playground being used by 100 students, average and maximum noise levels of 60 and 75 dB, respectively, can be expected. At organized events such as high-school football games with large crowds and public address systems, the noise generation is often significantly higher. As with service commercial uses, the noise generation of parks and school playing fields is variable.

4.5.2 REGULATORY FRAMEWORK

Federal, state, and local governments have established noise standards and guidelines to protect citizens from potential hearing damage and various other adverse physiological and social effects associated with noise. Those regulations most applicable to the community are summarized below.

FEDERAL

Federal Railroad Administration

The federal government, in response to safety concerns at at-grade crossings, enacted the Swift Rail Development Act of 1994. This act mandated that the Secretary of Transportation issue regulations requiring the use of locomotive horns at public grade crossings, but gave the agency the authority to make reasonable exceptions. On January 13, 2000, the Federal Railroad Administration published a Notice of Proposed Rule Making in the Federal Register addressing the use of locomotive horns at public road-rail grade crossings. Accordingly, locomotive horns must be sounded on approach and while entering public grade crossings, unless there is no significant risk of increased grade crossing collisions, the use of a locomotive horn is impractical, or where safety measures can be installed to fully compensate for the absence of the warning provided by the horn. The sounding of warning horns can greatly affect predicted noise contours within the community.

U.S. Environmental Protection Agency

In 1974, the U.S. Environmental Protection Agency (USEPA) Office of Noise Abatement and Control published a report entitled *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety*. Although this document does not constitute USEPA regulations or standards, it is useful in identifying noise levels at which increased levels of annoyance would be anticipated. Based on an annual-average day-night noise level (expressed as L_{dn} or DNL), the document states that "undue interference with activity and annoyance" will not occur if outdoor noise levels in residential areas are below 55 dBA L_{dn} and indoor levels are below 45 dBA L_{dn} (Ambient, 2010).

U.S. Department of Housing and Urban Development

The U.S. Department of Housing and Urban Development (HUD) guidelines for the acceptability of residential land uses are set forth in the Code of Federal Regulations, Title 24, Part 51, Environmental Criteria and Standards. These guidelines identify an exterior noise exposure of 65 dBA L_{dn} or less as acceptable. Exterior noise levels of 65 to 75 dBA L_{dn} are considered normally acceptable, provided appropriate sound attenuation is provided to reduce interior noise levels to within acceptable levels. Noise levels above 75 dBA L_{dn} are considered unacceptable. The goal of the interior noise levels is 45 dBA L_{dn} for noise-sensitive land uses. These guidelines apply

only to new construction supported by HUD grants and are not binding upon local communities (Ambient, 2010).

STATE

Government Code

Government Code Section 65302(f) states that a noise element shall be included as part of all city general plans. A summary of the required contents of a noise element is presented below.

- A noise element shall identify and appraise noise problems in the community. The noise element shall recognize the guidelines established by the Office of Noise Control in the State Department of Health Services and shall analyze and quantify, to the extent practicable, as determined by the legislative body, current and projected noise levels for all of the following sources:
  - Highways and freeways.
  - Primary arterials and major local streets.
  - Passenger and freight railroad operations and ground rapid transit systems.
  - Commercial, general aviation, heliport, helistop, and military airport operations, aircraft over-flights, jet engine test stands, and all other ground facilities and maintenance functions related to airport operation.
  - Local industrial plants, including, but not limited to, railroad classification yards.
  - Other ground stationary sources identified by local agencies as contributing to the community noise environment.

Noise contours are to be shown for the above noise sources based on noise monitoring and accepted noise modeling techniques. The noise contours are to be used as a guide for designating land uses within the land use element that minimizes the exposure of community residents to excessive noise.

California Building Code

Title 24 of the California Code of Regulations contains standards for allowable interior noise levels associated with exterior noise sources (California Building Code, 1998 edition, Volume 1, Appendix Chapter 12, Section 1208A). The standards apply to new hotels, motels, dormitories, apartment houses, and dwellings other than detached single-family residences. The standards state that the interior noise level attributable to exterior sources shall not exceed 45 dBA in any habitable room. Proposed residential structures to be located where the annual L_{dn} or CNEL exceeds 60 dBA shall require an acoustical analysis showing that the proposed building design would achieve the prescribed allowable interior noise standard. The noise metric shall be either the day-night average sound level (L_{dn}) or the community noise equivalent level (CNEL), consistent with the noise element of the local general plan. Worst-case noise levels, either existing or future, shall be used as the basis for determining compliance with these standards.

State of California General Plan Guidelines

The *State of California General Plan Guidelines* (2003), published by the Governor's Office of Planning and Research (OPR), provide guidance for the acceptability of projects within specific L_{dn}/CNEL contours. The guidelines also present adjustment factors that may be used in order to arrive at noise acceptability standards that reflect the noise control goals of the community, the particular community's sensitivity to noise, and the community's assessment of the relative importance of noise pollution.

LOCAL

City of Pinole Municipal Code

The City of Pinole Municipal Code does not include noise standards applicable to transportation or non-transportation noise sources. However, the City's Municipal Code (Title 15, Chapter II, Section 15.02.070, General Regulations of Construction) does include the following hourly restrictions and nuisance provisions pertaining to construction activities (City of Pinole, 2010):

1) Saturday construction work is allowed in commercial zones only, from nine a.m. (9:00 a.m.) to six p.m. (6:00 p.m.), as long as it is interior work and does not generate significant noise.

2) Work is allowed from seven a.m. (7:00 a.m.) to five p.m. (5:00 p.m.) on non-federal holidays (holidays recognized by the City of Pinole, but not acknowledged federally are: Lincoln's Birthday (February 12), Caesar Chavez Day (March 30), Admission's Day and the day after Thanksgiving), but no inspections would be performed.

3) The Council designates the City Manager (or his/her representative) to further modify on a case-by-case basis the hours of construction in commercial zones. Additionally, the City Manager or his/her designee has the ability to revise the construction hours based on inclement weather conditions or certain construction procedures (such as setting up from a concrete pour) that may require working beyond five p.m. (5 p.m.) on weekdays or six p.m. (6:00 p.m.) on Saturday.

4) Administrative citations and penalties penalize responsible parties who fail or refuse to comply with any City ordinance or fail to promptly abate a public nuisance.

5) The minimum fine for such a citation or penalty is one thousand dollars ($1,000.00) and escalates in one thousand dollars ($1,000.00) increments.

    a. Exception 1. Homeowners performing additions, repairs, or remodeling are allowed to work on their residences on weekends and holidays between nine a.m. (9:00 a.m.) and five p.m. (5:00 p.m.)

    b. Exception 2. By written authorization of the building official, a residential property owner with a valid permit to construct a single-family residence for personal occupancy shall be allowed to work on weekends and holidays between nine a.m. (9:00 a.m.) and five p.m. (5:00 p.m.). This authorization shall be granted to applicants who have not built a residence in Pinole in the previous five-year period and who affirm in writing their intention to reside at the subject property.

c. Work must be controlled to prevent causing a public nuisance due to dust, noise, vibrations, etc. (Ord. 2007-03 §1, 2007; Ord. 553 §2(part), 1992).

4.5.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

The impact analysis provided below is based on the following State CEQA Guidelines Appendix G thresholds of significance. A noise impact is considered significant if implementation of the General Plan Update would:

1) Result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance or of applicable standards of other agencies.

2) Result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.

3) Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.

4) Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

5) Expose people residing or working in the project area to excessive noise levels for a project located within an airport land use plan area or, where such a plan has not been adopted, or within two miles of a public airport or a public use airport.

6) Expose people residing or working in the project area to excessive noise levels for a project within the vicinity of a private airstrip.

METHODOLOGY

A combination of existing literature and general application of accepted noise thresholds was used to determine the impact of ambient noise levels resulting from and on development within the Planning Area. Short- and long-term impacts associated with transportation and non-transportation noise sources were qualitatively assessed based on potential increases in ambient noise levels anticipated to occur at noise-sensitive land uses. Traffic noise levels along major area roadways were estimated using the FHWA Highway Traffic Noise Prediction model (FHWA-RD-77-108.) The FHWA modeling was based upon the Calveno noise-emission factors for automobiles and medium- and heavy-duty trucks. Input data used in the model included average-daily traffic volumes, day/night percentages of automobiles and medium and heavy trucks, vehicle speeds, ground attenuation factors, and roadway widths. Traffic volumes were derived from the traffic analysis prepared for this project. Roadway data and vehicle distribution percentages were based on traffic data obtained during the site reconnaissance conducted for this project, as well as heavy-duty truck distribution percentages for I-80 obtained from Caltrans (Ambient, 2010).

PROJECT IMPACTS AND MITIGATION MEASURES

Noise Impacts Associated with Development and Operation of Land Uses (Standards of Significance 1 and 3)

Impact 4.5.1 The proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance or of applicable standards of other agencies. However, the proposed Pinole General Plan Update's mitigating policies and actions ensure the impact will be less than significant. Therefore, noise impacts associated with the development and operation of land uses of the proposed General Plan Update would be **less than significant**.

General Plan Update

The potential for noise conflicts from development under the proposed General Plan Update includes conflicts as a result of adjacent land uses and their operational aspects. While generally addressed through the land use designation and zoning identification process, there is the potential that some development allowed under current land use designations and zoning would have operational aspects that could create noise impacts on other adjacent land uses. The City's proposed noise policies and their associated action steps provide expanded protection geared toward eliminating land use conflicts with respect to noise, including specific numeric noise level standards for new projects affected by or including both transportation and non-transportation noise sources and guidance in evaluating noise impacts and for identification of noise mitigation measures. This impact would be considered **less than significant**.

Three Corridors Specific Plan

Implementation of the proposed Three Corridors Specific Plan would consist of the revitalization of the San Pablo Avenue, Pinole Valley Road, and Appian Way corridors, which could include new development and/or redevelopment of various urban uses. The Three Corridors Specific Plan is intended to establish more housing choices and job opportunities within the city's commercial corridors. Due to the city's small supply of developable land, the updated General Plan and the Three Corridors Specific Plan direct the majority of the city's future growth to sites designated for mixed and multiple-family use in the San Pablo Avenue, Pinole Valley Road, and Appian Way corridors. The Three Corridors Specific Plan also identifies opportunity sites for infill mixed-use development along the city's commercial corridors in close proximity to transit and other amenities. Therefore, there is the potential that some development allowed would have operational aspects that could create noise impacts on other adjacent land uses. However, as discussed above, the City's proposed noise policies and their associated action steps provide expanded protection geared toward eliminating land use conflicts with respect to noise, including specific numeric noise level standards for new projects affected by or including both transportation and non-transportation noise sources and guidance in evaluating noise impacts and for identification of noise mitigation measures. This impact would be considered **less than significant**.

Zoning Code Update

Adoption of the updated General Plan would require amendments to the Zoning Code for consistency with the General Plan land use designations and various General Plan policies. The

City plans to update its Zoning Code as part of the proposed General Plan Update project. These updates would involve the deletion, addition, and modification of certain zoning districts and development standards in order to make the Zoning Code consistent with the updated General Plan (see Section 3.0, Project Description, for more details). These updates would not result in any development activities beyond those analyzed for the proposed GPU. Therefore, the Zoning Code Update would have an impact similar to that for the General Plan Update as discussed above.

Proposed General Plan Policies and Action Items that Address Noise Impacts Associated with Development and Operation of Land Uses

The proposed General Plan Update policies include the following requirements that contain specific performance standards addressing noise impacts associated with proposed land uses.

Policy HS.8.1 New development projects should meet acceptable exterior noise level standards. The normally acceptable noise standards for new land uses are established in Land Use Compatibility for Community Exterior Noise Environments [as shown on page 9.0-38 of the proposed GPU].

Action HS.8.1.1 Adopt a noise ordinance with noise level performance standards, including maximum allowable noise exposure, ambient versus nuisance noise, method of measuring noise, and enforcement procedures.

Action HS.8.1.2 Review development proposals to assure consistency with noise standards. Require new development of noise-creating uses to conform to the City's noise level standards.

Action HS.8.1.3 Require a combination of design features to reduce noise impacts on adjacent properties through the following and other means, as appropriate:

- Screen and control noise sources such as parking, outdoor activities and mechanical equipment.
- Increase setbacks for noise sources from adjacent dwellings.
- Modify building designs and site planning to reduce noise exposure through a combination of sound attenuation (e.g., sound-rated windows and ventilation systems, insulation, physical and landscape buffers) and site planning (e.g., increased separation and private open area buffers) to reduce noise exposure.
- Control hours of operation, including deliveries and trash pickup, to minimize noise impacts.
- Require additional landscaping to assist with buffering where feasible.

Policy HS.8.2 Ensure that proposed nonresidential land uses likely to exceed the City's standards do not create noise disturbances in existing noise-sensitive areas.

Action HS.8.2.1 Require an acoustical analysis as part of the environmental review process when noise-sensitive land uses are proposed in areas where current or projected exterior noise levels exceed the City's standards.

Action HS.8.2.2 Require that any potential noise impacts identified during the acoustical analysis be mitigated in the project design to the maximum extent feasible.

Action HS.8.2.3 Prepare and periodically update a map of citywide noise-sensitive areas.

Policy HS.8.3 Work with the railroads and adjoining communities to seek quiet zone status for rail lines through Pinole.

Policy HS.9.1 Noise created by commercial or industrial sources associated with new projects or developments should be controlled so as not to exceed the noise level standards set forth in the table below (Maximum Allowable Noise Exposure for Stationary Noise Sources), as measured at any affected residential land use.

Action HS.9.1.1 Adopt the following allowable noise standards.

Maximum Allowable Noise Exposure for Stationary Noise Sources[1]

	Daytime[5] (7 AM to 10 PM)	Nighttime[2,5] (10 PM to 7 AM)
Hourly Leq, dB[3]	55	45
Maximum Level, dB[3]	70	65
Maximum Level, dB – Impulsive Noise[4]	65	60

1. As determined at the property line of the receiving land use. When determining effectiveness of noise mitigation measures, the standards may be applied on the receptor side of noise barriers or other property line noise mitigation measures.
2. Applies only where the receiving land use operates or is occupied during nighttime hours.
3. Sound level measurements shall be made with "slow" meter response.
4. Sound level measurement shall be made with "fast" meter response.
5. Allowable levels shall be raised to the ambient noise levels where the ambient levels exceed the allowable levels. Allowable levels shall be reduced 5 dB if the ambient hourly Leq is at least 10 dB lower than the allowable level.

In addition, Chapter 7.0, *Private Realm Design Guidelines*, and Chapter 8.0, *Public Realm Standards and Design Guidelines*, of the Specific Plan include additional site design standards intended to avoid noise nuisances. Specifically, guideline 7.3.1.j requires that sites be strategically planned to minimize potential nuisances from noise and odor producing activities by locating trash enclosures, loading areas, mechanical equipment, and restaurant vents away from residential uses. Guideline 7.3.4.a.viii and 8.2.1.a.vi state that landscaping should be used extensively to achieve a number of objectives including providing a visual and noise buffer.

The proposed General Plan includes policies by which the compatibility of sensitive land uses that would be exposed to noise sources would be reviewed and appropriate mitigation measures incorporated to achieve acceptable noise levels. Implementation of the applicable policies and standards contained in the City's proposed General Plan Update would ensure that future development would meet applicable noise criteria for land use compatibility and/or include noise attenuation features to meet applicable noise standards. With incorporation of the proposed General Plan policies, as well as the Specific Plan guidelines discussed above, this impact would be considered **less than significant**.

Mitigation Measures

None required.

Exposure to Construction Noise (Standard of Significance 4)

Impact 4.5.2 Construction activities associated with the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project and could result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance or of applicable standards of other agencies. This impact would be considered **less than significant**.

General Plan Update

Construction noise typically occurs intermittently and varies depending upon the nature or phase (e.g., demolition/land clearing, grading and excavation, erection) of construction. Noise generated by construction equipment, including earth movers, material handlers, and portable generators, can reach high levels. Temporary increases in ambient noise levels, particularly during the nighttime hours, could result in increased levels of annoyance and potential sleep disruption. Although noise ranges were found to be similar for all construction phases, the grading phase tends to involve the most equipment and result in slightly higher average-hourly noise levels. Typical noise levels for individual pieces of construction equipment and distances to predicted noise contours are summarized in **Table 4.5-5**. As depicted, individual equipment noise levels typically range from approximately 74 to 88 dBA L_{eq} at 50 feet. Typical operating cycles may involve 2 minutes of full power, followed by 3 or 4 minutes at lower settings. Intermittent noise levels can range from approximately 77 to 95 dBA L_{max}, the loudest of which include blasting and the use of pile drivers and impact devices (e.g., hoe rams, impact hammers).

TABLE 4.5-5
TYPICAL CONSTRUCTION EQUIPMENT NOISE

Equipment	Typical Noise Level (dBA) 50 feet from Source		Distance to Noise Contours (feet, dBA L_{eq})		
	L_{max}	L_{eq}	70 dBA	65 dBA	60 dBA
Air Compressor	80	76	105	187	334
Auger/Rock Drill	85	78	133	236	420
Backhoe/Front End Loader	80	76	105	187	334
Blasting	94	74	83	149	265
Boring Hydraulic Jack/Power Unit	80	77	118	210	374
Compactor (Ground)	80	73	74	133	236
Concrete Batch Plant	83	75	94	167	297
Concrete Mixer Truck	85	81	187	334	594
Concrete Mixer (Vibratory)	80	73	74	133	236
Concrete Pump Truck	82	75	94	167	297
Concrete Saw	90	83	236	420	748
Crane	85	77	118	210	374

Equipment	Typical Noise Level (dBA) 50 feet from Source		Distance to Noise Contours (feet, dBA L_{eq})		
Dozer/Grader/Excavator/Scraper	85	81	187	334	594
Drill Rig Truck	84	77	118	210	374
Generator	82	79	149	265	472
Gradall	85	81	187	334	594
Hydraulic Break Ram	90	80	167	297	529
Jack Hammer	85	78	133	236	420
Impact Hammer/Hoe Ram (Mounted)	90	83	236	420	748
Pavement Scarifier/Roller	85	78	133	236	420
Paver	85	82	210	374	667
Pile Driver (Impact/Vibratory)	95	88	420	748	1,330
Pneumatic Tools	85	82	210	374	667
Pumps	77	74	83	149	265
Truck (Dump/Flat Bed)	84	80	167	297	529

Source: FHWA 2006
Note: Predicted noise contours associated with construction activities may vary depending on the type and number of pieces of equipment used, usage rates Predicted noise contours do not include shielding provided by intervening terrain and structures.

Depending on distances from nearby noise-sensitive land uses, construction activities associated with implementation of the General Plan Update may result in temporary and periodic increases in ambient noise levels at nearby receptors. Increases in ambient noise levels, particularly during the nighttime hours, could result in increased levels of annoyance and potential sleep disruption to occupants of nearby dwellings. The City's Municipal Code Section 15.02.070, General Regulations of Construction, establishes hourly restrictions that pertain to construction-related activities. Due to the short-term nature of construction noise, the intermittent frequency of construction noise, and the required compliance with the construction noise standards established as part of the City's existing Municipal Code, construction noise level increases will not result in an increase in ambient noise levels that would result in exposure of persons to or generation of noise levels in excess of applicable standards. This impact is considered **less than significant**.

Three Corridors Specific Plan

Implementation of the proposed Three Corridors Specific Plan would consist of the revitalization of the San Pablo Avenue, Pinole Valley Road, and Appian Way corridors, which could include new development and/or redevelopment of various urban uses. The Three Corridors Specific Plan is intended to establish more housing choices and job opportunities within the city's commercial corridors. Due to the city's small supply of developable land, the updated General Plan and the Three Corridors Specific Plan direct the majority of the city's future growth to sites designated for mixed and multiple-family use in the San Pablo Avenue, Pinole Valley Road, and Appian Way corridors. The Three Corridors Specific Plan also identifies opportunity sites for infill mixed-use development along the city's commercial corridors in close proximity to transit and other amenities. Construction activities associated with implementation of the Specific Plan may result in temporary and periodic increases in ambient noise levels at nearby receptors. However,

Municipal Code Section 15.02.070 establishes hourly restrictions that pertain to construction-related activities. Therefore, this impact is considered **less than significant**.

Zoning Code Update

Adoption of the updated General Plan would require amendments to the Zoning Code for consistency with the General Plan land use designations and various General Plan policies. The City plans to update its Zoning Code as part of the proposed General Plan Update project. These updates would involve the deletion, addition, and modification of certain zoning districts and development standards in order to make the Zoning Code consistent with the updated General Plan (see Section 3.0, Project Description, for more details). These updates would not result in any development activities beyond those analyzed for the proposed GPU. Therefore, the Zoning Code Update would have an impact similar to that for the General Plan Update as discussed above. Proposed General Plan Policies and Action Items that Address Construction Noise

The proposed General Plan Update policies include the following requirements that contain specific performance standards related to construction-generated noise impacts.

Policy HS.8.1 New development projects should meet acceptable exterior noise level standards. The normally acceptable noise standards for new land uses are established in Land Use Compatibility for Community Exterior Noise Environments [as shown on page 9.0-38 of the proposed GPU].

Action HS.8.1.1 Adopt a noise ordinance with noise level performance standards, including maximum allowable noise exposure, ambient versus nuisance noise, method of measuring noise, and enforcement procedures.

Action HS.8.1.2 Review development proposals to assure consistency with noise standards. Require new development of noise-creating uses to conform to the City's noise level standards.

The City's Municipal Code Section 15.02.070, General Regulations of Construction, establishes hourly restrictions that pertain to construction-related activities. Due to the short-term nature of construction noise, the intermittent frequency of construction noise, and the required compliance with the construction noise standards established as part of the City's existing Municipal Code, construction noise level increases will not result in an increase in ambient noise levels that would result in exposure of persons to or generation of noise levels in excess of applicable standards. In addition, Action HS.8.1.1 would require the City to adopt a noise ordinance for the control of stationary noise sources. Action HS.8.1.2 would require future development projects to be reviewed to assure consistency with the City's noise level standards. The impact of new construction noise is reduced to a **less than significant** level through compliance with the City's Municipal Code requirements and the application of the General Plan Update's mitigating policies and associated actions.

Mitigation Measures

None required.

Exposure to Surface Transportation Noise (Standards of Significance 1 and 3)

Impact 4.5.3 The proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project and could result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan, as a result of increased traffic on the roadway network. In addition, future development of noise-sensitive land uses could be exposed to roadway and/or railroad noise levels in excess of the City's noise standards. This impact would be considered **potentially significant**.

General Plan Update

Surface transportation noise sources within the city include vehicle traffic on area roadways as well as trains traveling along the UPRR and BNSF railroads. Noise-related impacts associated with roadway vehicle traffic and railroads are discussed in more detail below.

Roadway Vehicle Traffic

Projected future noise levels and distances to noise contours for major roadways within the Planning Area at buildout of the General Plan Update are summarized in **Table 4.5-6**. Noise levels/contours were calculated using the FHWA roadway noise model based on Calveno vehicle reference noise levels and traffic data obtained from the traffic analysis prepared for this project. As depicted in **Table 4.5-6**, the highest traffic noise levels within Pinole are generated by vehicle traffic on I-80. Projected future traffic noise contours for I-80 are depicted in **Figure 4.5-3**. It is important to note that the predicted noise levels and distance to noise contours do not take into account shielding of noise by intervening structures or terrain. As a result, these noise contours should not be considered as absolute lines of demarcation. Because distances to noise contours will vary depending on site-specific conditions, these contours should be used as a guide for establishing a pattern of land uses that minimizes the exposure of community residents to excessive noise.

Predicted increases in traffic noise levels associated with implementation of the General Plan Update are compared to existing traffic noise levels in **Table 4.5-7**. As noted in **Table 4.5-7** and in comparison to existing conditions, buildout of the General Plan Update would result in increases in traffic noise levels of up to approximately 7 dBA along area roadways. Of the major roadways analyzed, implementation of the proposed General Plan Update would result in noticeable increases in traffic noise levels (i.e., 3 dBA or greater) along San Pablo Avenue, east of Pinole Valley Road; Pinole Valley Road, south of Wright Avenue; Henry Avenue, east of Ridgecrest Drive; and Shea Drive, west of Pinole Valley Road. Significant increases in traffic noise levels along some smaller local roadways could also potentially occur, particularly in areas located near proposed future development projects.

The City of Pinole is largely built out and the City does not anticipate expanding its Sphere of Influence in the foreseeable future. Future infill development is anticipated to occur along primary commercial corridors, as identified in the Three Corridors Specific Plan. As such, a majority of the city's future growth is anticipated to include mixed and multiple-family residential uses along portions of San Pablo Avenue, Pinole Valley Road, and Appian Way. Development of future land uses could occur within the projected 60 dBA CNEL noise contours of these roadways. Predicted noise levels at future land uses, including residential, office, business

commercial, and other land uses considered noise-sensitive, could therefore exceed the City's normally acceptable noise level of 60 dBA CNEL.

For the above-discussed reasons, implementation of the General Plan Update would be considered to result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project and result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan as a result of increased traffic noise levels. As a result, exposure to vehicular traffic noise on area roadways would be considered a **potentially significant** impact.

Railroads

Projected volumes for future years are not currently available. Based on conversations with UPRR staff, future train volumes would not be anticipated to increase substantially in comparison to existing conditions. However, as congestion on area roadways increases, it is conceivable that reliance on freight and Amtrak train service could increase.

Within the City of Pinole, railroad noise levels are highly influenced by the sounding of locomotive warning horns. The use of locomotive horns is typically required by law on approach to public at-grade crossings. The Federal Transit Administration's (FTA) *Transit Noise and Vibration Impact Assessment Guidelines* (FTA, 2006) was used for the calculation of wayside noise levels generated by the trains traveling along the UPRR corridor. Wayside noise levels were calculated based, in part, on average train speeds, train length, and the number of trains traveling during the daytime and nighttime hours.

Predicted noise levels were calculated with and without the sounding of warning devices at grade crossings. With the sounding of train horns, the projected 60, 65, and 70 dBA L_{dn} noise contours near signalized grade crossings would extend to approximately 1,255, 585, and 158 feet from the track centerline of the UPRR, respectively. Along the BNSF railroad, the projected 60, 65, and 70 dBA L_{dn} noise contours with horns sounding would extend to approximately 681, 368, and 85 feet from the track centerline, respectively. Without horns sounding, the projected 60, 65, and 70 dBA L_{dn} noise contours would extend to 429, 199, and 46 feet from the UPRR and to approximately 199, 92, and 21 feet from the BNSF railroad, respectively. It is important to note that these projected noise contours do not include shielding or reflection of noise from intervening terrain or structures and actual noise levels will vary depending on site-specific conditions. Although these predicted noise contours are not considered site-specific, they are useful for determining potential land use conflicts.

TABLE 4.5-6
FUTURE CUMULATIVE TRAFFIC NOISE LEVELS AND DISTANCES TO NOISE CONTOURS IN THE PLANNING AREA

Roadway Segment	Average Daily Trips	CNEL at 50 Feet from Near Travel-lane Centerline	Distance (feet) from Roadway Centerline to CNEL Contour		
			70	65	60
San Pablo Ave., west of Del Monte Dr./Belmont Way	29,500	70.29	73.9	154.1	329.4
San Pablo Ave., west of Appian Way	32,000	67.95	--	108.7	230.6
San Pablo Ave., east of Pinole Valley Rd.	47,000	66.37	--	82.9	175.2
Appian Way, south of Tara Hills Dr./Canyon Dr.	46,600	68.99	70.3	140.1	296.3
Appian Way, south of Michael Dr.	41,000	69.02	62.0	127.5	271.7

Roadway Segment	Average Daily Trips	CNEL at 50 Feet from Near Travel-lane Centerline	Distance (feet) from Roadway Centerline to CNEL Contour		
			70	65	60
Pinole Valley Rd., north of Henry Ave.	18,800	62.39	--	--	96.3
Pinole Valley Rd., south of Estate Ave.	19,900	64.28	--	64.2	132.4
Pinole Valley Rd., south. of Wright Ave.	6,600	60.97	--	--	64.8
Henry Ave., east of Ridgecrest Dr.	8,000	57.84	--	--	--
Fitzgerald Dr., west of Appian Way	30,000	66.28	--	81.8	172.8
Shea Drive, west of Pinole Valley Rd.	8,600	58.16	--	--	--
I-80, west of Appian Way	226,000	83.56	657.3	1,413.5	3,043.7
I-80, Appian Way to Pinole Valley Rd.	231,000	83.65	666.9	1,434.3	3,088.4
I-80, east of Pinole Valley Rd.	217,000	83.38	639.8	1,375.8	2,962.4

Source: Ambient, 2010
Noise levels/contours were calculated using the FHWA roadway noise model based on Calveno vehicle reference noise levels and traffic data obtained from the traffic analysis prepared for this project. I-80 traffic volumes assume 19% increase in projected future traffic volumes in comparison to existing conditions. Refer to ***Appendix D*** *for modeling output files.*
– Contours are within 50 feet of roadway centerline/within roadway right-of-way

TABLE 4.5-7
PREDICTED CHANGES IN TRAFFIC NOISE LEVELS AT BUILDOUT OF THE GENERAL PLAN UPDATE AS COMPARED TO EXISTING CONDITIONS

Roadway Segment	CNEL at 50 Feet from Near Travel-lane Centerline		Predicted Change in Noise Level (CNEL)
	Existing	Future with Buildout of the General Plan Update	
San Pablo Ave., west of Del Monte Dr./Belmont Way	67.92	70.29	2.37
San Pablo Ave., west of Appian Way	66.04	67.95	1.91
San Pablo Ave., east of Pinole Valley Rd.	62.85	66.37	3.52
Appian Way, south of Tara Hills Dr./Canyon Dr.	67.66	68.99	1.33
Appian Way, south of Michael Dr.	67.29	69.02	1.73
Pinole Valley Rd., north of Henry Ave.	61.14	62.39	1.25
Pinole Valley Rd., south of Estate Ave.	64.08	64.28	0.20
Pinole Valley Rd., south of Wright Ave.	57.82	60.97	3.15
Henry Ave., east of Ridgecrest Dr.	51.11	57.84	6.73
Fitzgerald Dr., west of Appian Way	64.09	66.28	2.19
Shea Drive, west of Pinole Valley Rd.	54.25	58.16	3.91
I-80, west of Appian Way	82.81	83.56	0.75
I-80, Appian Way to Pinole Valley Rd.	82.90	83.65	0.75
I-80, east of Pinole Valley Rd.	82.62	83.38	0.76

Source: Ambient, 2010

Notes: Traffic noise levels were estimated using the FHWA Highway Traffic Noise Prediction model (FHWA-RD-77-108). Traffic volumes were derived from the traffic analysis prepared for this project and assume that peak-hour volumes constitute approximately 10% of average-daily volumes. Roadway data and vehicle distribution percentages were based on traffic data obtained during the site reconnaissance conducted for this project, as well as heavy-duty truck distribution percentages obtained from Caltrans.

Implementation of the proposed General Plan Update could result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance or of applicable standards of other agencies. As a result, exposure to railroad noise would be considered a **potentially significant** impact.

Three Corridors Specific Plan

Implementation of the proposed Three Corridors Specific Plan would consist of the revitalization of the San Pablo Avenue, Pinole Valley Road, and Appian Way corridors, which could include new development and/or redevelopment of various urban uses. The Three Corridors Specific Plan is intended to establish more housing choices and job opportunities within the city's commercial corridors. Due to the city's small supply of developable land, the updated General Plan and the Three Corridors Specific Plan direct the majority of the city's future growth to sites designated for mixed and multiple-family use in the San Pablo Avenue, Pinole Valley Road, and Appian Way corridors. The Three Corridors Specific Plan also identifies opportunity sites for infill mixed-use development along the city's commercial corridors in close proximity to transit and other amenities.

As previously mentioned, the City of Pinole is largely built out and the City does not anticipate expanding its Sphere of Influence or annexing any land into the city in the foreseeable future. Future infill development is anticipated to occur along primary commercial corridors, as identified in the Three Corridors Specific Plan. As such, a majority of the city's future growth is anticipated to include mixed and multiple-family residential uses along portions of San Pablo Avenue, Pinole Valley Road, and Appian Way. Development of future land uses could occur within the projected 60 dBA CNEL noise contours of these roadways. Predicted noise levels at future land uses, including residential, office, business commercial, and other land uses considered noise-sensitive, could therefore exceed the City's normally acceptable noise level of 60 dBA CNEL. In addition, implementation of the proposed Specific Plan could result in exposure of persons to or generation of railroad noise levels in excess of standards established in the local general plan.

As a result, exposure to vehicular traffic noise on area roadways as well as exposure to railroad noise would be considered a **potentially significant** impact.

Zoning Code Update

Adoption of the updated General Plan would require amendments to the Zoning Code for consistency with the General Plan land use designations and various General Plan policies. The City plans to update its Zoning Code as part of the proposed General Plan Update project. These updates would involve the deletion, addition, and modification of certain zoning districts and development standards in order to make the Zoning Code consistent with the updated General Plan (see Section 3.0, Project Description, for more details). These updates would not result in any development activities beyond those analyzed for the proposed GPU. Therefore, the Zoning Code Update would have an impact similar to that for the General Plan Update as discussed above.

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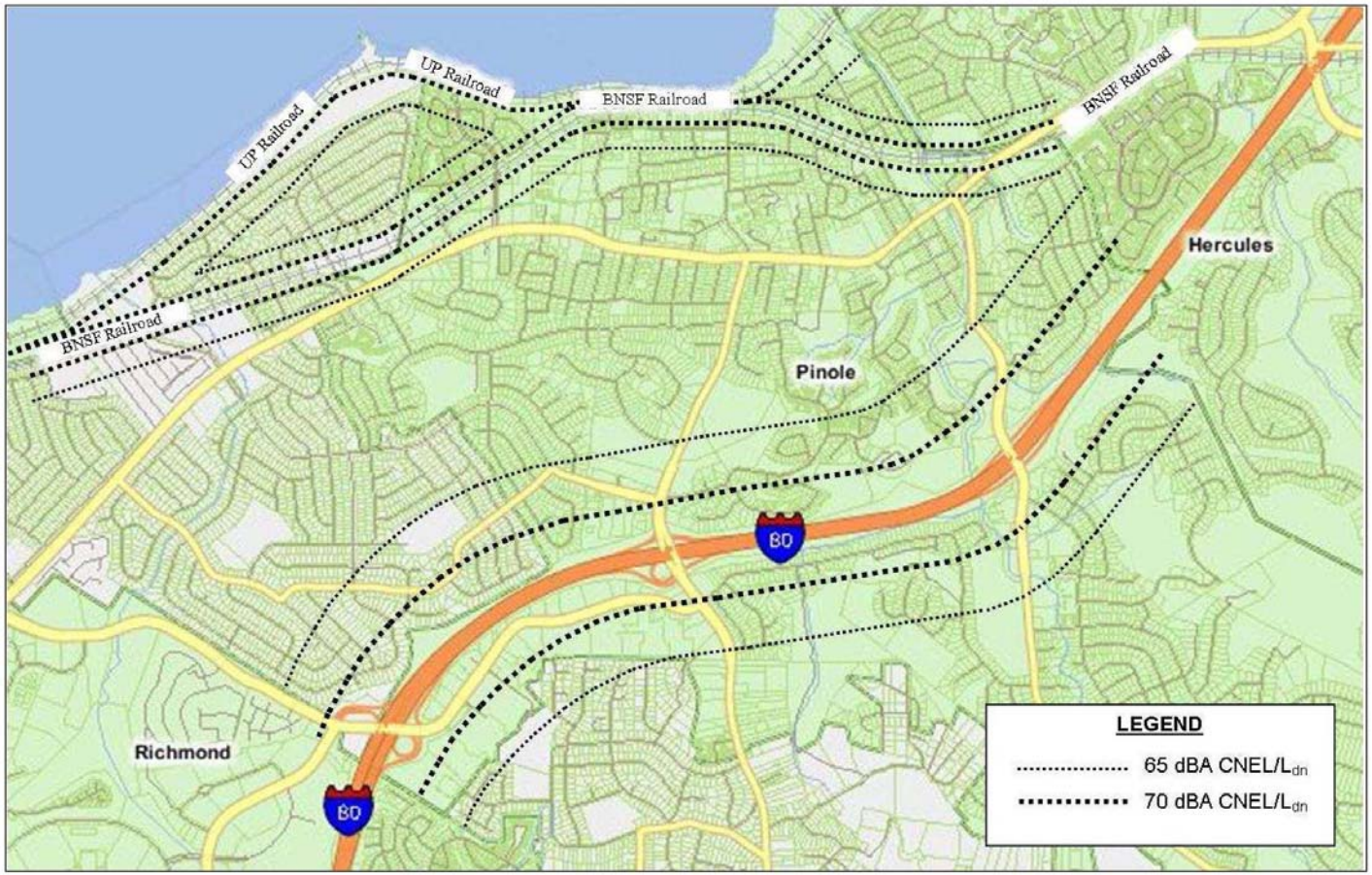

Note: Distances to noise contours are approximate. Noise contours assume no natural or human-made shielding (i.e., intervening terrain, vegetation, berms, walls, buildings) and should not be considered to represent absolute lines of demarcation.

Source: Contra Costa County, 2010

Not to Scale

N

Figure 4.5-3

Projected Noise Contours – Major Transportation Noise Sources

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Proposed General Plan Policies and Action Items that Address Surface Transportation Noise

The proposed General Plan Update policies include the following requirements that contain specific performance standards addressing transportation noise.

Policy HS.8.1 New development projects should meet acceptable exterior noise level standards. The normally acceptable noise standards for new land uses are established in Land Use Compatibility for Community Exterior Noise Environments [as shown on page 9.0-38 of the proposed GPU].

Action HS.8.1.2 Review development proposals to assure consistency with noise standards. Require new development of noise-creating uses to conform to the City's noise level standards.

Action HS.8.1.3 Require a combination of design features to reduce noise impacts on adjacent properties through the following and other means, as appropriate:

- Screen and control noise sources such as parking, outdoor activities and mechanical equipment.
- Increase setbacks for noise sources from adjacent dwellings.
- Modify building designs and site planning to reduce noise exposure through a combination of sound attenuation (e.g., sound-rated windows and ventilation systems, insulation, physical and landscape buffers) and site planning (e.g., increased separation and private open area buffers) to reduce noise exposure.
- Control hours of operation, including deliveries and trash pickup, to minimize noise impacts.
- Require additional landscaping to assist with buffering where feasible.

Policy HS.8.3 Work with the railroads and adjoining communities to seek quiet zone status for rail lines through Pinole.

The reader is referred to Chapter 5.0, *Circulation*, of the Three Corridors Specific Plan for additional goals and policies related to roadway design and traffic calming techniques that may further reduce this impact.

Implementation of the proposed General Plan Update noise policies identified above would reduce potential transportation noise impacts associated with the proposed project. Future development projects would be required to analyze project-related noise impacts and incorporate necessary noise reduction measures sufficient to achieve the applicable noise standards of the City's Noise Element. Accordingly, future development projects will be reviewed to assure consistency with the City's noise level standards. Implementation of these policies and actions will help to reduce impacts associated with proposed development. Noise reduction measures typically implemented to reduce traffic noise include increased insulation, setbacks, and construction of sound barriers. Some measures, such as construction of sound barriers, may have secondary impacts related to aesthetics and safety. The feasibility of these measures would be determined on a project-by-project basis. However, it may not be possible to fully mitigate traffic and/or railroad noise in all areas, particularly in existing development that may be constrained due to age, placement, or other factors which limit the feasibility of mitigation (residences fronting on the roadway that limits the ability to utilize noise barrier). As a result, increases in transportation noise associated with the proposed General Plan Update would result in a substantial permanent increase in ambient noise levels in the project vicinity

above levels existing without the project and would result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance or of applicable standards of other agencies. The following mitigation is required.

Mitigation Measures

MM 4.5.3a The following policy shall be incorporated into the Health and Safety Element under Goal HS.8:

New development of noise-sensitive land uses will not be permitted in areas exposed to existing or planned transportation noise sources that exceed the levels specified in Policy HS.8.1 of the proposed General Plan Update, unless the project design includes measures to reduce exterior and interior noise levels to those specified in Policy HS.8.1 of the proposed General Plan Update.

MM 4.5.3b The following policy shall be incorporated into the Health and Safety Element under Goal HS.8:

Require site-specific noise studies for noise-sensitive projects which may be affected by railroad noise, and incorporate noise attenuation measures into the project design to reduce any impacts.

Implementation of mitigation measures **MM 4.5.3a** and **MM 4.5.3b** would restrict noise sensitive uses from being developed in areas exposed to existing or planned transportation noise and areas that may be affected by railroad noise, unless noise attenuation measures could be incorporated in the project design and ambient noise levels can be reduced to levels specified in the proposed General Plan Update. This impact is considered to be **less than significant**.

Exposure to Aircraft Noise (Standards of Significance 5 and 6)

Impact 4.5.4 Sensitive land uses would not be exposed to aircraft noise in excess of applicable noise standards for land use compatibility. This is considered a **less than significant** impact.

General Plan Update

The Buchanan Field Airport is located on Sally Ride Drive in Concord, approximately 17 miles east of the City of Pinole. The Contra Costa County Airport Land Use Compatibility Plan (ALUCP) addresses noise impacts. The ALUCP was established to ensure that there are no direct conflicts with land uses, noise, or other issues that would impact the functionality and safety of airports located in the county. The City of Pinole is not located within the projected noise contours or within 2 miles of the nearest airport. For these reasons, the existing ambient noise environment of the city is not significantly influenced by aircraft noise. This impact is considered **less than significant**.

Three Corridors Specific Plan

Implementation of the proposed Three Corridors Specific Plan would consist of the revitalization of the San Pablo Avenue, Pinole Valley Road, and Appian Way corridors, which could include new development and/or redevelopment of various urban uses. The Three Corridors Specific Plan is intended to establish more housing choices and job opportunities within the city's commercial corridors. Due to the city's small supply of developable land, the updated General

Plan and the Three Corridors Specific Plan direct the majority of the city's future growth to sites designated for mixed and multiple-family use in the San Pablo Avenue, Pinole Valley Road, and Appian Way corridors. The Three Corridors Specific Plan also identifies opportunity sites for infill mixed-use development along the city's commercial corridors in close proximity to transit and other amenities. The Specific Plan area is not located within the projected noise contours or within 2 miles of the nearest airport. For these reasons, the existing ambient noise environment of the Specific Plan area is not significantly influenced by aircraft noise. This impact is considered **less than significant**.

Zoning Code Update

Adoption of the updated General Plan would require amendments to the Zoning Code for consistency with the General Plan land use designations and various General Plan policies. The City plans to update its Zoning Code as part of the proposed General Plan Update project. These updates would involve the deletion, addition, and modification of certain zoning districts and development standards in order to make the Zoning Code consistent with the updated General Plan (see Section 3.0, Project Description, for more details). These updates would not result in any development activities beyond those analyzed for the proposed GPU. Therefore, the Zoning Code Update would have an impact similar to that for the General Plan Update as discussed above.

Proposed General Plan Policies and Action Items that Address Aircraft Noise

There are no applicable proposed General Plan policies that address aircraft noise.

Mitigation Measures

None required.

Exposure to Stationary Noise (Standards of Significance 1 and 3)

Impact 4.5.5 Subsequent development associated with the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could result in new noise-sensitive land uses encroaching upon existing or proposed stationary noise sources or new stationary noise sources encroaching upon existing or proposed noise-sensitive land uses. This could result in a substantial permanent increase in ambient noise levels in the project vicinity above existing levels or could result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance or of applicable standards of other agencies. As a result, this impact is considered **potentially significant**.

General Plan Update

Implementation of the proposed General Plan Update could result in the future development of land uses that generate noise levels in excess of applicable City noise standards. Such land uses may include commercial, industrial, institutional (public schools), and recreational uses. In addition, new noise-sensitive land uses could be located in areas of existing stationary noise sources. Exposure of noise-sensitive land uses to non-transportation noise levels could result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project and could result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance or of

applicable standards of other agencies. As a result, this impact would be considered **potentially significant**.

Three Corridors Specific Plan

Implementation of the proposed Three Corridors Specific Plan would consist of the revitalization of the San Pablo Avenue, Pinole Valley Road, and Appian Way corridors, which could include new development and/or redevelopment of various urban uses. The Three Corridors Specific Plan is intended to establish more housing choices and job opportunities within the city's commercial corridors. Due to the city's small supply of developable land, the updated General Plan and the Three Corridors Specific Plan direct the majority of the city's future growth to sites designated for mixed and multiple-family use in the San Pablo Avenue, Pinole Valley Road, and Appian Way corridors. The Three Corridors Specific Plan also identifies opportunity sites for infill mixed-use development along the city's commercial corridors in close proximity to transit and other amenities. Exposure of noise-sensitive land uses to non-transportation noise levels could result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project and could result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance or of applicable standards of other agencies. As a result, this impact would be considered **potentially significant**.

Zoning Code Update

Adoption of the updated General Plan would require amendments to the Zoning Code for consistency with the General Plan land use designations and various General Plan policies. The City plans to update its Zoning Code as part of the proposed General Plan Update project. These updates would involve the deletion, addition, and modification of certain zoning districts and development standards in order to make the Zoning Code consistent with the updated General Plan (see Section 3.0, Project Description, for more details). These updates would not result in any development activities beyond those analyzed for the proposed GPU. Therefore, the Zoning Code Update would have an impact similar to that for the General Plan Update as discussed above.

Proposed General Plan Policies and Action Items that Address Stationary Noise

The proposed General Plan Update policies include the following mitigation requirements that contain specific performance standards addressing stationary noise.

Policy HS.8.1 New development projects should meet acceptable exterior noise level standards. The normally acceptable noise standards for new land uses are established in Land Use Compatibility for Community Exterior Noise Environments [as shown on page 9.0-38 of the proposed GPU].

Action HS.8.1.1 Adopt a noise ordinance with noise level performance standards, including maximum allowable noise exposure, ambient versus nuisance noise, method of measuring noise, and enforcement procedures.

Action HS.8.1.2 Review development proposals to assure consistency with noise standards. Require new development of noise-creating uses to conform to the City's noise level standards.

Action HS.8.1.3 Require a combination of design features to reduce noise impacts on adjacent properties through the following and other means, as appropriate:

- Screen and control noise sources such as parking, outdoor activities and mechanical equipment.
- Increase setbacks for noise sources from adjacent dwellings.
- Modify building designs and site planning to reduce noise exposure through a combination of sound attenuation (e.g., sound-rated windows and ventilation systems, insulation, physical and landscape buffers) and site planning (e.g., increased separation and private open area buffers) to reduce noise exposure.
- Control hours of operation, including deliveries and trash pickup, to minimize noise impacts.
- Require additional landscaping to assist with buffering where feasible.

Policy HS.8.2 Ensure that proposed nonresidential land uses likely to exceed the City's standards do not create noise disturbances in existing noise-sensitive areas.

Action HS.8.2.1 Require an acoustical analysis as part of the environmental review process when noise-sensitive land uses are proposed in areas where current or projected exterior noise levels exceed the City's standards.

Action HS.8.2.2 Require that any potential noise impacts identified during the acoustical analysis be mitigated in the project design to the maximum extent feasible.

Action HS.8.2.3 Prepare and periodically update a map of citywide noise-sensitive areas.

Policy HS.8.3 Work with the railroads and adjoining communities to seek quiet zone status for rail lines through Pinole.

Policy HS.9.1 Noise created by commercial or industrial sources associated with new projects or developments should be controlled so as not to exceed the noise level standards set forth in the table below (Maximum Allowable Noise Exposure for Stationary Noise Sources), as measured at any affected residential land use.

Action HS.9.1.1 Adopt the following allowable noise standards.

Maximum Allowable Noise Exposure for Stationary Noise Sources[1]

	Daytime[5] (7 AM to 10 PM)	Nighttime[2,5] (10 PM to 7 AM)
Hourly Leq, dB[3]	55	45
Maximum Level, dB[3]	70	65
Maximum Level, dB – Impulsive Noise[4]	65	60

1. *As determined at the property line of the receiving land use. When determining effectiveness of noise mitigation measures, the standards may be applied on the receptor side of noise barriers or other property line noise mitigation measures.*
2. *Applies only where the receiving land use operates or is occupied during nighttime hours.*
3. *Sound level measurements shall be made with "slow" meter response.*
4. *Sound level measurement shall be made with "fast" meter response.*

5. *Allowable levels shall be raised to the ambient noise levels where the ambient levels exceed the allowable levels. Allowable levels shall be reduced 5 dB if the ambient hourly Leq is at least 10 dB lower than the allowable level.*

Implementation of the above policies and standards would reduce noise associated with new stationary noise sources and the placement of new noise-sensitive land uses over which the City has jurisdiction (e.g., commercial and industrial sites, residential uses). Future development projects would be reviewed to assure consistency with the City's noise level standards. Implementation of mitigation measures **MM 4.5.3a** and **MM 4.5.3b** would restrict noise sensitive uses from being developed in areas exposed to existing or planned transportation noise, and areas that may be affected by railroad noise unless noise attenuation measures could be incorporated in the project design and ambient noise levels can be reduced to levels specified in the proposed General Plan Update. In addition, proposed Action HS.8.1.1 mandates the adoption of a noise ordinance with noise level performance standards, including maximum allowable noise exposure, ambient versus nuisance noise, method of measuring noise, and enforcement procedures. These noise level performance standards would apply to both existing and new development. Additionally, Chapter 6.0, *Land Use Standards*, of the Three Corridors Specific Plan as well as Articles II (Development Standards) and III (Site Planning Standards) of the Zoning Code include additional land use standards such as building setbacks which may further reduce this impact. This impact is **less than significant.**

Mitigation Measures

None required.

Exposure to Groundborne Vibration (Standard of Significance 2)

Impact 4.5.6 The proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could result in exposure of persons to or generation of excessive groundborne vibration levels. As a result, this impact is considered **potentially significant**.

General Plan Update

The effects of ground vibration can vary from no perceptible effects at the lowest levels, low rumbling sounds and detectable vibrations at moderate levels, and slight damage to nearby structures at the highest levels. At the highest levels of vibration, damage to structures is primarily architectural (e.g., loosening and cracking of plaster or stucco coatings) and rarely results in structural damage. The effects of ground vibration are influenced by the duration of the vibration and the distance from the vibration source.

There are no federal, state, or local regulatory standards for vibration. However, various criteria have been established to assist in the evaluation of vibration impacts. For instance, Caltrans has developed vibration criteria based on human perception and structural damage risks. For most structures, Caltrans considers a peak-particle velocity (ppv) threshold of 0.2 inches per second (in/sec) to be the level at which architectural damage (i.e., minor cracking of plaster walls and ceilings) to normal structures may occur. Below 0.10 in/sec there is virtually no risk of 'architectural' damage to normal buildings. Damage to historic or ancient buildings could occur at levels of 0.08 in/sec ppv. In terms of human annoyance, continuous vibrations in excess of 0.1 in/sec ppv are identified by Caltrans as the minimum level perceptible level for ground vibration. Short periods of ground vibration in excess of 0.2 in/sec ppv can be expected to result in increased levels of annoyance to people within buildings (Ambient, 2010).

Groundborne vibration sources located within the city that could potentially affect future development would be primarily associated with railroad operations. Construction activities could also result in short-term groundborne vibration levels that could affect nearby sensitive land uses. Groundborne vibration levels and associated impacts as a result of trains traveling along the UPRR and BNSF railroads and short-term construction activities are discussed in more detail below.

Railroad

Groundborne vibration levels associated with railroad operations are dependent on various factors, including track type and condition, train speeds, site conditions, and train characteristics, such as the number of engines, number of cars, weight, and wheel type and condition. Site and geologic conditions can also influence how vibration propagates at increasing distance from the track. Based on Caltrans vibration measurement data, the highest train vibration level measured was 0.36 in/sec at 10 feet. Based on this level, Caltrans prepared a drop-off curve used to estimate maximum train vibration levels at distance from the track centerline. The curve represents maximum expected vibration levels from trains and thus is considered by Caltrans to be "very conservative" (Ambient, 2010).

Based on the Caltrans drop-off curve for train vibration levels, predicted maximum groundborne vibrations levels along either of the BNSF or UPRR corridors would not exceed 0.20 in/sec ppv beyond approximately 7.5 feet from the track centerline, the level above which architectural damage for typical building construction or increased levels of annoyance for individuals in buildings may occur (Ambient, 2010). The proposed General Plan Update would not result in the development of new land uses within 7.5 feet of railroad track centerlines, which in turn would not result in the exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels. As a result, this impact would be considered **less than significant**.

Construction Activities

With the exception of pavement breaking, blasting, and pile driving, construction activities, and related equipment typically generate groundborne vibration levels of less than 0.2 in/sec, which is the architectural damage risk threshold recommended by Caltrans. Based on Caltrans measurement data, use of off-road tractors, dozers, earthmovers, and haul trucks generates groundborne vibration levels of less than 0.10 in/sec, or one-half of the architectural damage risk level, at 10 feet. The highest vibration level associated with a pavement breaker was 2.88 in/sec at 10 feet. During pile driving, vibration levels near the source depend mainly on the soil's penetration resistance as well as the type of pile driver used. Impact pile drivers tend to generate higher vibration levels than vibratory or drilled piles. Groundborne vibration levels of pile drivers can range from approximately 0.17 to 1.5 in/sec ppv. Caltrans indicates that the distance to the 0.2 in/sec ppv criterion for pile-driving activities would occur at a distance of approximately 50 feet. However, as with construction-generated noise levels, pile driving can result in a high potential for human annoyance from vibrations, and pile-driving activities are typically considered as potentially significant if these activities are performed within 200 feet of occupied structures (Ambient, 2010). Vibration levels associated with blasting are highly variable, site-specific, and dependent on various factors, such as the amount of explosive used, soil conditions between the blast site and the receptor, and the depth where blasting would take place. Blasting that occurs below the surface would typically produce lower vibration levels at a receptor due to additional attenuation provided by distance and transmission through soil and rock. No applicable Municipal Code sections or General Plan policies have been identified that would reduce this impact. As a result, this impact would be considered **potentially significant**.

Three Corridors Specific Plan

Implementation of the proposed Three Corridors Specific Plan would consist of the revitalization of the San Pablo Avenue, Pinole Valley Road, and Appian Way corridors, which could include new development and/or redevelopment of various urban uses. The Three Corridors Specific Plan is intended to establish more housing choices and job opportunities within the city's commercial corridors. Due to the city's small supply of developable land, the updated General Plan and the Three Corridors Specific Plan direct the majority of the city's future growth to sites designated for mixed and multiple-family use in the San Pablo Avenue, Pinole Valley Road, and Appian Way corridors. The Three Corridors Specific Plan also identifies opportunity sites for infill mixed-use development along the city's commercial corridors in close proximity to transit and other amenities. As implementation of the Three Corridors Specific Plan would result in noise-generating construction activities, this impact would be considered **potentially significant**.

Zoning Code Update

Adoption of the updated General Plan would require amendments to the Zoning Code for consistency with the General Plan land use designations and various General Plan policies. The City plans to update its Zoning Code as part of the proposed General Plan Update project. These updates would involve the deletion, addition, and modification of certain zoning districts and development standards in order to make the Zoning Code consistent with the updated General Plan (see Section 3.0, Project Description, for more details). These updates would not result in any development activities beyond those analyzed for the proposed GPU. Therefore, the Zoning Code Update would have an impact similar to that for the General Plan Update as discussed above. Proposed General Plan Policies and Action Items that Address Groundborne Vibration

No applicable proposed General Plan policies have been identified that would reduce this impact, though the City's Municipal Code Section 15.02.070, General Regulations of Construction, establishes hourly restrictions and nuisance provisions pertaining to construction activities (City of Pinole, 2010). Similar to short-term noise from construction activities, vibrations from construction activities are inevitable and cannot be mitigated beyond a certain level. Thus, local agencies frequently tolerate short-term vibrations at levels that they would not accept for permanent vibration sources. A more severe approach would be impractical and might preclude the kind of construction activities that are inevitable from time to time in urban environments. Most residents of urban areas recognize this reality and expect to experience vibration from construction activities on occasion. Vibration from construction activities is considered to be temporary in the sense that once the construction activities cease, so do the vibrations from the construction activities. Vibrations from construction activities are also considered to be intermittent due to the type, location, and duration of construction equipment being used.

Mitigation Measures

MM 4.5.6 The following mitigation shall be implemented as an action under Policy HS 8.1: Require the use of temporary construction noise control measures including the use of temporary noise barriers, temporary relocation of noise-sensitive land uses, or other appropriate measures as mitigation for noise generated during construction of public and/or private projects.

Due to the short-term nature of construction vibrations, the intermittent frequency of construction vibrations, implementation of mitigation measure **MM 4.5.6**, and the required

compliance with the City's Municipal Code hourly restrictions for construction-related activities, construction vibration level increases would typically not result in exposure of persons to or generation of excessive groundborne vibration. By restricting the hours of construction to avoid vibrations during times when it could potentially be more of a nuisance, and requiring the use of temporary construction noise control measures when feasible, the impact of new construction vibration is reduced to a **less than significant** level. In addition, individual development projects will be subject to site-specific environmental review, which will necessitate identification of site-specific mitigation in the event that significant impacts are identified.

4.5.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The cumulative noise setting includes future development anticipated within Contra Costa County in addition to buildout of the City of Pinole's proposed General Plan Update. The future (cumulative) ambient noise environment will be affected by buildout of the proposed Pinole General Plan Update. Development in the region identified in Section 4.0 would change the intensity of land uses in the region. In particular, this cumulative development scenario would provide additional housing, employment, shopping, and recreational opportunities. These potential changes would invariably affect the future cumulative ambient noise environment within the Planning Area. While it is difficult to project exactly how the ambient noise conditions within the Planning Area will change following buildout under the proposed project, it is known that traffic noise levels will increase due to the additional traffic generated by buildout of various land use designations which have yet to be developed. Transportation noise projections include regional traffic conditions in the Planning Area from anticipated future regional growth. The primary factor for cumulative noise impact analysis is the consideration of future traffic volumes from automobiles and potentially increased rail activity. To a lesser extent, non-transportation noise sources, including construction activities, would also contribute to cumulative noise levels, but on a more localized basis. Changes in noise associated with non-transportation noise sources are difficult to predict without knowing the type and location of the generator. Although new non-transportation noise sources would result in localized increases in ambient noise conditions, noise levels associated with non-transportation noise sources would be regulated by noise standards proposed as part of the proposed project.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Transportation Noise Impacts (Standards of Significance 1 and 3)

Impact 4.5.7 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update), in combination with other development in nearby areas in Contra Costa County, would increase transportation noise along area roadways. This would be a **cumulatively considerable** impact.

As identified in **Table 4.5-7**, implementation of the proposed General Plan Update, in combination with anticipated growth by the year 2030, would result in noticeable increases in traffic noise. In comparison to existing conditions, increases in traffic noise levels of up to approximately 7 dBA CNEL would occur along area roadways. Of the major roadways analyzed, implementation of the proposed General Plan Update would result in noticeable increases in traffic noise levels (i.e., 3 dBA or greater) along San Pablo Avenue, east of Pinole Valley Road; Pinole Valley Road, south of Wright Avenue; Henry Avenue, east of Ridgecrest

Drive; and Shea Drive, west of Pinole Valley Road. Significant increases in traffic noise levels along some smaller local roadways could also potentially occur, particularly in areas located near proposed future development projects. This would be a **cumulatively considerable** impact.

Proposed General Plan Policies and Action Items that Address Cumulative Transportation Noise

The proposed General Plan Update policies include mitigation requirements that contain specific performance standards addressing transportation noise. These policies are listed under Impact 4.5.3.

Implementation of the proposed General Plan Update noise policies identified under Impact 4.5.3 would reduce potential transportation noise impacts in the city. Future development projects would be required to analyze project-related noise impacts and incorporate necessary noise-reduction measures sufficient to achieve applicable noise standards. Implementation of these policies and actions will help to reduce impacts associated with proposed development. Noise-reduction measures typically implemented to reduce transportation noise include increased insulation and building requirements, setbacks, and construction of sound barriers. Some measures, such as construction of sound barriers, may have secondary impacts related to aesthetics and safety. The feasibility of these measures would be determined on a project-by-project basis.

The reader is referred to Chapter 5.0, *Circulation*, of the Three Corridors Specific Plan for additional goals and policies related to roadway design and traffic calming techniques that may further reduce cumulative impacts.

However, it is may not be possible to fully mitigate transportation noise in all areas of the city, particularly in existing development that may be constrained due to age, placement, or other factors which limit the feasibility of mitigation (residents fronting on the roadway that limits the ability to utilize noise barrier). In addition, the City does not have jurisdiction to implement noise mitigation outside of its boundaries to address potential noise impacts to the City of Richmond, the City of Hercules, or the unincorporated area of Contra Costa County. As a result, the proposed General Plan Update's contribution to cumulative traffic noise would be **cumulatively considerable** and a **significant and unavoidable** impact.

Mitigation Measures

None available.

REFERENCES

Ambient Air Quality and Noise Consulting. 2010. *Noise Impact Assessment for the City of Pinole General Plan Update*.

California Governor's Office of Planning and Research (OPR). 2003. *State of California General Plan Guidelines.*

Pinole, City of. 1995. *City of Pinole General Plan*.

Pinole, City of. 2010. *City of Pinole Municipal Code*. http://www.amlegal.com/nxt/gateway.dll/California/pinole_ca/pinolecamunicipalcode?f=templates$fn=default.htm$3.0$vid=amlegal:pinole_ca (accessed May 3, 2010).

United States Department of Transportation, Federal Highway Administration (FHWA). 2006. *Roadway Construction Noise Model*.

United States Department of Transportation, Federal Transit Administration (FTA). 2006. *Transit Noise and Vibration Impact Assessment*.

4.6 Human Health / Risk of Upset

This section of the Draft Environmental Impact Report (Draft EIR; DEIR) discusses existing environmental conditions of the City of Pinole General Plan Update (GPU) Planning Area and identifies the methods used in analyzing the proposed project's potential to create hazards to the public health or the environment related to hazardous materials, substances, or waste. This section also identifies other potential hazards that may impact public safety, such as water and soil contamination, health hazards from existing or historic land uses that utilize or generate these materials, and improper disposal of these materials by businesses, industries, and individual households.

The reader is referred to Section 4.3, Air Quality, for information regarding air quality hazards, Section 4.9, Hydrology and Water Quality, for information regarding impacts associated with water quality and flooding, and Section 4.8, Geology and Soils, for information regarding impacts associated with geologic and seismic hazards.

4.6.1 EXISTING SETTING

HAZARDOUS MATERIALS DEFINED

Under Title 22 of the California Code of Regulations (CCR), the term hazardous substance refers to both hazardous materials and hazardous wastes, and both are classified according to four properties: toxicity, ignitability, corrosiveness, and reactivity (CCR Title 22, Chapter 11, Article 3). A hazardous material is defined as a substance or combination of substances that may cause or significantly contribute to an increase in serious, irreversible, or incapacitating illness, or may pose a substantial presence or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed. Hazardous wastes are hazardous substances that no longer have practical use, such as materials that have been discarded, discharged, spilled, or contaminated or are being stored until they can be disposed of properly (CCR Title 22, Chapter 11, Article 2, Section 66261.10). Soil that is excavated from a site containing hazardous materials is a hazardous waste if it exceeds specific CCR Title 22 criteria. While hazardous substances are regulated by multiple agencies, as described below in subsection 4.6.2, Regulatory Framework, cleanup requirements of hazardous wastes are determined on a case-by-case basis according to the agency with lead jurisdiction over the project.

Public health is potentially at risk whenever hazardous materials are, or will be, used. It is necessary to differentiate between the "hazard" of these materials and the acceptability of the "risk" they pose to human health and the environment. A hazard is any situation that has the potential to cause damage to human health and the environment. The risk to health and public safety is determined by the probability of exposure, in addition to the inherent toxicity of a material (DTSC, 2010a).

Factors that can influence the health effects when human beings are exposed to hazardous materials include the dose the person is exposed to, the frequency of exposure, the duration of exposure, the exposure pathway (route by which a chemical enters a person's body), and the individual's unique biological susceptibility.

Transportation of Hazardous Materials

The transportation of hazardous materials within the Planning Area is subject to various federal, state, and local regulations, as described in subsection 4.6.2, Regulatory Framework. According to the California Code of Regulations, there are no approved transportation routes in Contra Costa County or in the GPU Planning Area for the transportation of explosives (CCR, Title 13, Div. 2). It is illegal to transport explosives or inhalation hazards on any public highway not

designated for that purpose, unless the use of the highway is required to permit delivery or the loading of such materials (California Vehicle Code, Sections 31602(b) and 32104(a)).

The California Highway Patrol also designates through routes to be used for the transportation of inhalation hazards and may designate separate through routes for the transportation of inhalation hazards composed of any chemical rocket propellant (California Vehicle Code, Sections 32100 and 32102(b)). There are no approved routes in the GPU Planning Area for the transportation of poisonous inhalation hazards nor are there any approved routes in the Planning Area for the transportation of radioactive materials (CCR, Title 13, Div. 2).

HAZARDOUS MATERIAL AND WASTE SITES

Searches of the State of California Cortese List and CAL-SITE'S ASPIS, conducted in May 2010, identified several hazardous material sites in the Planning Area. These sites are summarized below and in **Table 4.6-1**. In addition, the location of each known hazardous material site within the Planning Area is shown in **Figure 4.6-1**.

TABLE 4.6.1
HAZARDOUS MATERIAL SITES WITHIN PLANNING AREA

Facility Name	Location	Type	Status
Texaco Refining	1599 Tara Hills Boulevard	Cleanup Program Site	Open – Inactive
Mercury Dry Cleaners (former)	2714 Pinole Valley Road	Cleanup Program Site	Open – Inactive
Anthony's Auto Wrecking	850 San Pablo Avenue	Cleanup Program Site	Completed – Case Closed
Pinole Valley Shopping Center	2700 Pinole Valley Road	Cleanup Program Site	Open – Inactive
Chevron	2695 Pinole Valley Road	LUST Cleanup Site	Completed – Case Closed
Exxon	2401 Appian Way	LUST Cleanup Site	Completed – Case Closed
Former Exxon 7-0272	16400 San Pablo Avenue	LUST Cleanup Site	Completed – Case Closed
Rent A Rack	1271 Tara Hills Drive	LUST Cleanup Site	Open – Site Assessment
Time Oil Company	825 San Pablo Avenue	LUST Cleanup Site	Completed – Case Closed
WCCCTA Bus Operation Maintenance	601 Walter Avenue	LUST Cleanup Site	Completed – Case Closed
BP #11153 (former)	2298 Appian Way	LUST Cleanup Site	Open – Site Assessment
Anthony Auto Wreckers Inc	850 San Pablo Avenue	LUST Cleanup Site	Completed – Case Closed
ARCO # 06228	2747 Pinole Valley Road	LUST Cleanup Site	Open – Remediation
Shell	2690 Pinole Valley Road	LUST Cleanup Site	Completed – Case Closed
Square Deal Garage	2500 San Pablo Avenue	LUST Cleanup Site	Open – Site Assessment
Unocal	1718 San Pablo Avenue	LUST Cleanup Site	Completed – Case Closed
Tosco – Facility #4754	2995 Pinole Valley Road	LUST Cleanup Site	Completed – Case Closed

Facility Name	Location	Type	Status
Food & Liquor	1007 San Pablo Avenue	LUST Cleanup Site	Completed – Case Closed
Shell	2301 San Pablo Avenue	LUST Cleanup Site	Completed – Case Closed
Village Properties	2701 Pinole Valley Road	LUST Cleanup Site	Open – Site Assessment
Bradshaw Concrete	760 San Pablo Avenue	LUST Cleanup Site	Completed – Case Closed
Chevron	550 San Pablo Avenue	LUST Cleanup Site	Open – Remediation
Texaco	1599 Tara Hills Drive	LUST Cleanup Site	Open – Site Assessment
Major Lines Gasoline	1390 San Pablo Avenue	LUST Cleanup Site	Completed – Case Closed
Beacon	2810 Pinole Valley Road	LUST Cleanup Site	Completed – Case Closed
Sugar City Building Materials Company	800 San Pablo Avenue	LUST Cleanup Site	Open – Site Assessment
Snow White Cleaners	610 San Pablo Avenue	Cleanup Program Site	Completed – Case Closed
Mercury Dry Cleaners	2714 Pinole Valley Road	Voluntary Cleanup	Certified/Operation & Maintenance
Montalvin Manor	Christine Drive	Historical	No Further Action
Pump House	700 Tennent Avenue	UST	Permitted
K Major Line	1390 San Pablo Avenue	UST	Permitted
Smart Stop	1007 San Pablo Avenue	UST	Permitted
Doctors Medical Center	2151 Appian Way	UST	Permitted
Pinole Vista Shell	1401 Fitzgerald Drive	UST	Permitted
Union #4754	2995 Pinole Valley Road	UST	Permitted
Pinole BP SS#11153	2298 Appian Way	UST	Permitted
Valero #7-142	2401 Appian Way	UST	Permitted
ARCO AM/PM #06228	2747 Pinole Valley Road	UST	Permitted
Ken Betts Pinole Chevron	2695 Pinole Valley Road	UST	Permitted
Western Contra Costa Transit	601 Walter Avenue	UST	Permitted

Source: Cortese and GEIMS databases accessed May 2010

In addition to these hazardous material sites, the city is underlain by a series of gas pipelines. The city's close proximity to regional energy facilities in west Contra Costa County that process, store and transport volatile gas and/or liquids makes the city susceptible to manmade hazards when pipeline development projects that support these energy facilities are proposed within the city limits.

The hazards associated with these facilities include underground storage tanks (USTs); leaking underground storage tanks (LUST); and spills, leaks, investigations, and cleanup programs. The

sites that typically have hazardous materials associated with them are past automobile-related facilities and tend to be located in proximity to Interstate 80 (I-80) and along San Pablo Avenue. The primary risk the sites pose is gasoline and diesel fuels, which contain hydrocarbons and related compounds that may leak into the soil and groundwater. Eleven of the identified sites have undergone successful remediation, which usually involves removal of the LUST and any contaminated soil. Several of the remaining LUSTs in the city have undergone interim remediation.

- The Geotracker database (described below): Twenty-two sites in the Planning Area have been identified where there are leaking underground storage tanks (LUSTs), six of which are classified "Open – Site Assessment" and two of which are classified "Open – Remediation." The remaining sites are classified "Completed – Case Closed." One site has been identified as a Voluntary Cleanup site. Eleven sites have been identified where there are permitted underground storage tank facilities.

- Solid Waste Information System (SWIS) Database: No solid waste facilities, operations, or disposal sites were identified within the Planning Area.

The State of California Hazardous Waste and Substances Site List (also known as the "Cortese List") is a planning document used by state and local agencies and developers to comply with California Environmental Quality Act (CEQA) requirements in providing information about the location of hazardous materials sites. California Government Code Section 65962.5 requires the California Environmental Protection Agency (CAL-EPA) to annually update the Cortese List. The CAL-EPA Department of Toxic Substances Control (DTSC) is responsible for preparing a portion of the information that comprises the Cortese List. Other state and local government agencies are required to provide additional hazardous material release information that is part of the complete list. DTSC's Site Mitigation and Brownfields Reuse Program EnviroStor database provides DTSC's component of the Cortese List data by identifying State Response and/or Federal Superfund and backlog sites listed under Health and Safety Code Section 25356. In addition, DTSC's Cortese List includes Certified with Operation and Maintenance sites. **Table 4.6-1** shows the DTSC Site Mitigation and Brownfields Reuse Program information for the GPU Planning Area. Also included is DTSC's component of the Cortese List.

One hazardous materials site in the vicinity of the Planning Area was identified as a Voluntary Cleanup Site on the CAL-SITES database, and no hazardous materials sites were identified on the Cortese List database. The hazardous material site identified in the vicinity of the Planning Area has been known to handle and store hazardous materials and is associated with a hazardous-material-related release or occurrence.

In addition to EnviroStor, the CAL-SITES Abandoned Sites Information System (ASPIS) database, compiled by CAL-EPA, can also be used to identify and track potential hazardous waste sites. This source of information is regularly uploaded to the State's Geographic Environmental Information Management System (GEIMS) so that agencies and the general public can access information regarding a specific site. GeoTracker, the interface to GEIMS, uses commercially available software to allow users to access data from GEIMS over the Internet.

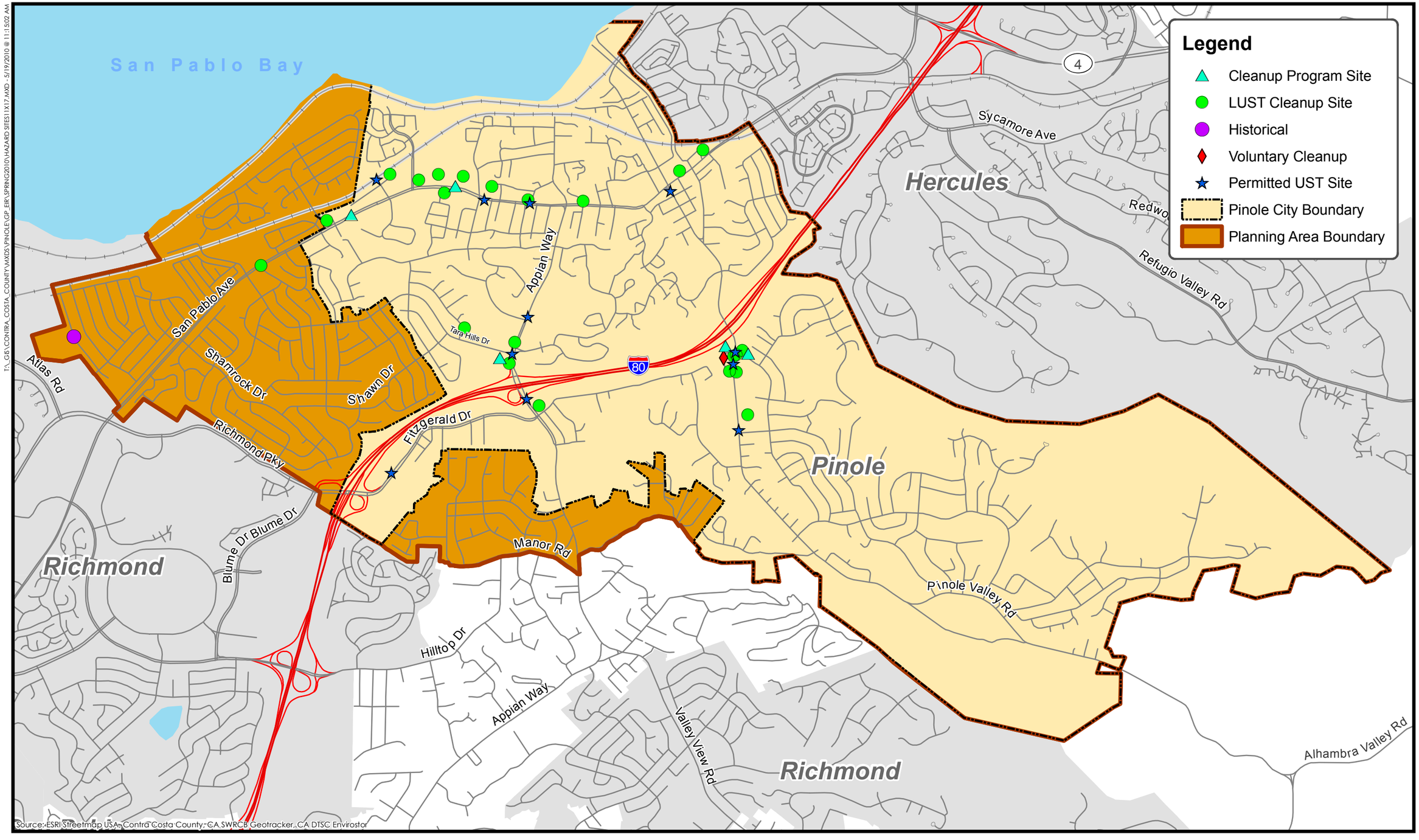

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Figure 4.6-1
Hazardous Materials Sites

PMC®

Known and Unknown Hazardous Materials in the Planning Area

Asbestos-Containing Building Materials

Structures constructed or remodeled between 1930 and 1981 have the potential to include asbestos-containing building materials (ACBM). These materials may include, but are not limited to, floor coverings, drywall joint compounds, acoustic-ceiling tiles, piping insulation, electrical insulation, and fireproofing materials. Asbestos is a general name for a group of naturally occurring minerals composed of small fibers and is common in many building materials. Various diseases have been associated with exposure to asbestos fibers, and the extensive use of asbestos in building materials has raised some concern about exposure in nonindustrial settings. Health hazards associated with ACBMs include increased risks of cancer and respiratory-related illnesses and diseases. The presence of asbestos in a building does not mean that the health of building occupants is endangered. As long as asbestos-containing materials remain in good condition and are not disturbed or damaged, exposure is unlikely. On the other hand, damaged, deteriorated, or disturbed asbestos-containing materials can lead to fiber release (exposure), and unauthorized removal or disturbance of asbestos materials could result in adverse health effects. Numerous buildings and structures within the Planning Area wereconstructed between 1930 and 1981. The potential safety hazards resulting from ACBMs are greatest during demolition activities.

Lead-Based Materials

Exposure to lead from older paint is possible when the paint is in poor condition or during paint removal. In construction settings, workers can be exposed to airborne lead during renovation, maintenance, or removal work. Lead-based paints were phased out of production in the early 1970s. Lead is a highly toxic metal that was used for many years in products found in and around homes. Lead may cause a range of health effects, from behavioral problems and learning disabilities to seizures and death. Young children under six years of age are most at risk to health effects from lead exposure. Research suggests that the primary sources of lead exposure for most children are deteriorating lead-based paint, lead-contaminated dust, and lead-contaminated residential soil. Many of the buildings and structures within the Planning Area were constructed prior to the ban on lead-based paints; therefore it is likely that these materials are present throughout the Planning Area. Proper handling and disposal of lead-based materials significantly reduces potential environmental-related impacts.

In addition to lead associated with household uses, it is likely that aerially deposited lead is present along some of the roadways in the Planning Area. Aerially deposited lead is lead deposited within unpaved areas or formerly unpaved areas, primarily due to vehicle emissions. This is of primarily a concern along Interstate 80, where there are substantial traffic volumes. Aerially deposited lead is typically found within the top 1.97 feet of material in unpaved areas within heavily traveled roadway rights-of-way (Sonoma-Marin Area Rail Transit, 2005).

Radon

Radon isotope-22 is a colorless, odorless, tasteless radioactive gas that is a natural decay product of uranium. Uranium and radon are present in varying amounts in rocks and soil, and radon is present in background concentrations in the atmosphere. Current evidence indicates that increased lung cancer risk is directly related to radon-decay products. Radon potential of rocks and soils and indoor radon exposure levels in the United States are currently areas of intense research by governmental regulators as well as the geoscience and medical communities. At this time, the United States Environmental Protection Agency (USEPA) has

recommended an "action" level for indoor radon concentrations at or exceeding 4 pico-curies per liter of air (pCi/l). The USEPA has extrapolated a 1 percent to 3 percent lung cancer mortality rate due to a lifetime exposure at 4 pCi/l; that is, one to three persons per 100 exposed to this concentration for life will die of lung cancer induced by radon. Of the 33 states participating in the study, California ranks as the third lowest for percentage of homes exceeding 4 pCi/l. Specific indoor radon information is not available, as the presence of radon can only be obtained through a sampling and testing program.

Polychlorinated Biphenyls (PCB) Transformers

In 1976, the United States Congress enacted the Toxic Substances Control Act (TSCA), which gave the USEPA the ability to track all industrial chemicals imported into and used in the United States. The USEPA repeatedly screens these chemicals and can require reporting or testing of those that may pose an environmental or human health hazard. The USEPA can ban the manufacture and import of those chemicals that pose an unreasonable risk. The TSCA directed the USEPA to ban the manufacture of polychlorinated biphenyls (PCBs) and regulated their use and disposal. The USEPA accomplished this by the issuance of regulation in 1978. Generally, sources of PCBs include fluorescent light ballasts and electric transformers. Both of these potential PCB-containing sources are located within existing city limits. The USEPA maintains the PCB Activity Database (PADS) that identifies generators, transporters, commercial storage, and brokers and disposers of PCBs. Electrical facilities developed after 1979 are unlikely to be associated with PCB-containing transformers. The actual levels of PCBs in specific equipment can only be confirmed by sampling and analysis of the mineral oil coolant within the considered equipment.

Pacific Gas & Electric (PG&E) provides electric service to the entire GPU Planning Area and is responsible for the operation, maintenance, and repair of transformers and electrical facilities. PG&E is subject to USEPA regulations regarding PCB transformers and is required to notify the USEPA of any PCB-related activities or incidents. It is PG&E's practice to routinely identify and replace all leaking and PCB-containing transformers within its service area boundaries (PG&E, 2009).

Electrical Facilities and Electromagnetic Fields

PG&E owns and operates the existing electrical facilities within the Planning Area. Several transmission lines exist throughout the Planning Area. Electromagnetic fields (EMF) are invisible lines of force surrounding any electrical wire or device. They have two components — the electric field resulting from voltage and the magnetic field resulting from current flow. Ordinary use of electricity produces magnetic and electric fields. These 60 Hertz fields (fields that go back and forth 60 times a second) are associated with electrical appliances, power lines, and wiring in buildings. EMF health and safety issues from power lines are preempted by the Public Utilities Commission (PUC) and therefore are typically not addressed in general plans.

The evidence that EMF from high voltage power lines can be hazardous to human health is not quantifiable and remains unresolved. Federal agencies working on establishing limits and health standards related to EMF include the National Institute for Occupational Safety and Health (NIOSH), U.S. Environmental Protection Agency (USEPA), Federal Communications Commission (FCC), Occupational Safety and Health Administration (OSHA), National Telecommunications and Information Administration (NTIA), and National Institutes of Health (NIH). At this time no standards apply to EMF.

AIRPORT OPERATIONS HAZARDS

There are no air-related facilities in the existing city limits or in the general vicinity of the GPU Planning Area. The nearest airport to the Planning Area is Buchanan Field Airport located on Sally Ride Drive in Concord, which is approximately 17 miles east of the Pinole city limits. Airport-related hazards are generally associated with aircraft accidents, particularly during takeoffs and landings. Airport operation hazards include incompatible land uses, power transmission lines, wildlife hazards (e.g., bird strikes), and tall structures that penetrate the imaginary flight surfaces surrounding an airport.

RAILROAD OPERATIONS HAZARDS

Two railroad corridors are located within the Pinole GPU Planning Area, including the Union Pacific Railroad's (UPRR) Martinez Subdivision and Burlington Northern Santa Fe's (BNSF) Stockton Subdivision railroads. There are no rail yards or junctions in the city. The UPRR's Martinez Subdivision railroad is a double-track railroad located along the northern boundary of the city near the shoreline of San Pablo Bay. The BNSF's Stockton Subdivision is located south of the UPRR and at a slightly higher elevation. The number of freight trains traveling along these corridors can vary from day to day, depending on demand, and there are currently no hourly limitations pertaining to freight train travel. The UPRR is also used for Amtrak service. Approximately 32 Amtrak Capitol Corridor trains and 8 Amtrak San Joaquin trains use this corridor on a daily basis (Amtrak, 2010).

At-grade railroad crossings often contribute to traffic problems, delays, and accidents. Existing at-grade railroad crossings are located at Pinole Shores Road, Del Monte Drive, and Tara Hills Drive. Trains traveling on this rail line travel at average speeds between 65 and 70 miles per hour (mph). To promote safety, most at-grade crossings in the GPU Planning Area have a combination of warning devices, such as warning signs, flashing lights, and crossing arms. There are three grade-separated crossings within the GPA Planning Area. Both Del Monte Drive and Pinole Shores Drive traverse the BNSF tracks at the northeastern portion of the city. This same rail line also utilizes a railway overpass over Tennent Avenue at the northwestern border of the city.

4.6.2 REGULATORY FRAMEWORK

Although numerous federal, state, and local laws and regulations pertaining to hazardous waste management are applicable to remedial activities, conformance with these laws and regulations is addressed through separate environmental review and regulatory oversight specifically associated with the remedial projects. These activities are separate actions that are not part of the proposed project. **Table 4.6-2** lists federal, state, and local regulatory agencies that oversee hazardous materials handling and hazardous waste management, and the statutes and regulations they administer.

TABLE 4.6-2
SUMMARY OF HAZARDOUS MATERIALS REGULATORY AUTHORITY

Regulatory Agency	Authority
Federal Agencies	
Department of Transportation (DOT)	Hazardous Materials Transport Act – Code of Federal Regulations (CFR) 49
Environmental Protection Agency (USEPA)	Federal Water Pollution Control Act Clean Air Act Resource Conservation and Recovery Act (RCRA) Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Superfund Amendments and Reauthorization Act (SARA) Federal Insecticide, Fungicide and Rodenticide Act
Occupational Safety and Health Administration (OSHA)	Occupational Safety and Health Act and CFR 29
State Agencies	
Department of Toxic Substances Control (DTSC)	California Code of Regulations
Department of Industrial Relations (CAL-OSHA)	California Occupational Safety and Health Act, CCR Title 8
State Water Resources Control Board and Regional Water Quality Control Board	Porter-Cologne Water Quality Act Underground Storage Tank Law
Health and Welfare Agency	Safe Drinking Water and Toxic Enforcement Act
Air Resources Board and Air Pollution Control District	Air Resources Act
Office of Emergency Services	Hazardous Materials Release Response Plans/Inventory Law
Department of Food and Agriculture	Food and Agriculture Code
State Fire Marshall	Uniform Fire Code, CR Title 19

Prior to August 1992, the principal agency at the federal level regulating the generation, transport and disposal of hazardous waste was the USEPA under the authority of the Resource Conservation and Recovery Act (RCRA). As of August 1, 1992, the California Department of Toxic Substances Control (DTSC) was authorized to implement the State's hazardous waste management program for the USEPA. The USEPA continues to regulate hazardous substances under the Comprehensive Response Compensation and Liability Act (CERCLA).

FEDERAL

USEPA Hazardous Materials Handling

At the federal level, the principal agency regulating the generation, transport, and disposal of hazardous substances is the USEPA, under the authority of the Resource Conservation and Recovery Act (RCRA). The RCRA established an all-encompassing federal regulatory program for hazardous substances that is administered by the USEPA. Under the RCRA, the USEPA regulates the generation, transportation, treatment, storage, and disposal of hazardous

substances. The RCRA was amended in 1984 by the Hazardous and Solid Waste Amendments of 1984 (HSWA), which specifically prohibit the use of certain techniques for the disposal of various hazardous substances. The Federal Emergency Planning and Community Right to Know Act of 1986 imposed hazardous materials planning requirements to help protect local communities in the event of accidental release. The USEPA has delegated much of the RCRA compliance to the Department of Toxic Substances Control (DTSC).

CERCLA Hazardous Materials Releases

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as Superfund, was enacted by Congress on December 11, 1980 (U.S. Code, Title 42). This law created a tax on the chemical and petroleum industries and provided broad federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. Over five years, $1.6 billion was collected and the tax went into a trust fund for cleaning up abandoned or uncontrolled hazardous waste sites. CERCLA established prohibitions and requirements concerning closed and abandoned hazardous waste sites, provided for liability of persons responsible for releases of hazardous waste at these sites, and established a trust fund to provide for cleanup when no responsible party could be identified. The law authorizes two kinds of response actions: (1) short-term removals, where actions may be taken to address releases or threatened releases requiring prompt response; and (2) long-term remedial response actions that permanently and significantly reduce the dangers associated with releases or threats of releases of hazardous substances that are serious, but not immediately life threatening. These actions can be conducted only at sites listed on the USEPA's National Priorities List (NPL). CERCLA also enabled the revision of the National Contingency Plan (NCP), which provided the guidelines and procedures needed to respond to releases and threatened releases of hazardous substances, pollutants, or contaminants. CERCLA was amended by the Superfund Amendments and Reauthorization Act (SARA) on October 17, 1986.

CERCLA created the Superfund Program in order to clean up uncontrolled or abandoned hazardous waste sites and to respond to accidents, spills, and other emergency releases of pollutants and contaminants. Section 101 of CERCLA defines a list of hazardous chemicals for which the USEPA must establish regulations. Releases of CERCLA hazardous substances in amounts greater than their "reportable quantity" must be reported to the National Response Center and to state and local government officials. Hazardous substances identified in CERCLA include all chemicals on the following regulatory lists: Clean Air Act list of hazardous air pollutants (HAPs), Clean Water Act list of hazardous substances and priority pollutants, Solid Waste Disposal Act list of hazardous wastes, and Toxic Substances Control Act list of imminent hazards.

OSHA Worker Safety Requirements

The U.S. Department of Labor Occupational Safety and Health Administration (OSHA) is responsible at the federal level for ensuring worker safety. OSHA sets federal standards for implementation of workplace training, exposure limits, and safety procedures for the handling of hazardous substances (as well as other hazards). OSHA also establishes criteria by which each state can implement its own health and safety program.

CFR Federal Aviation Regulations

The Code of Federal Regulations, Title 14, Volume 2 revised as of January 1, 2004 (14CFR77.1) pertains to aeronautics and space. Chapter 1 specifically includes the Federal Aviation Administration regulations and Part 77 (Federal Aviation Regulation or FAR Part 77) pertains to

objects affecting navigable airspace. FAR Part 77 establishes standards for determining obstructions in navigable airspace, sets forth the requirements for notice to the administrator of certain proposed construction or alteration, provides for aeronautical studies of obstructions to air navigation in order to determine their effect on the safe and efficient use of airspace, provides for public hearings on the hazardous effects of proposed construction or alteration on air navigation, and provides for the establishment of antenna farm areas.

STATE

California Environmental Protection Agency

The California Environmental Protection Agency (CAL-EPA) was created in 1991 by Governor's Executive Order. The six boards, departments, and office were placed within the CAL-EPA "umbrella" to create a cabinet-level voice for the protection of human health and the environment and to assure the coordinated deployment of state resources (CAL-EPA, 2010).

Title 27, California Code of Regulations (CCR), effective May 13, 2007, contains information, collection, and reporting standards for the CAL-EPA Unified Program. The Unified Program consolidates, coordinates, and makes consistent the administrative requirements, permits, inspections, and enforcement activities of six environmental and emergency response programs. The state agencies responsible for these programs set the standards, while local governments implement the standards. CAL-EPA oversees the implementation of the program as a whole. The CCR, along with Health and Safety Code Division 20, Chapter 6.11, outlines the requirements for the Unified Program for hazardous materials and hazardous waste management. This division integrates requirements established pursuant to:

- The Hazardous Waste Generator (HWG) program and the Hazardous Waste Onsite Treatment activities;
- The Aboveground Storage Tank (AST) program Spill Prevention Control and Countermeasure Plan requirements;
- The Underground Storage Tank (UST) program;
- The Hazardous Materials Release Response Plans and Inventory (HMRRP) program;
- California Accidental Release Prevention (CalARP) program; and
- The Hazardous Materials Management Plans and the Hazardous Materials Inventory Statement (HMMP/HMIS) requirements.

The Unified Program requires all counties to apply to the CAL-EPA Secretary for the certification of a local unified program agency. Qualified cities are also permitted to apply for certification. The local Certified Unified Program Agency (CUPA) is required to consolidate, coordinate, and make consistent the administrative requirements, permits, fee structures, and inspection and enforcement activities for these six program elements within the county. Most CUPAs have been established as a function of a local environmental health or fire department.

The Contra Costa County Health Services Department, Hazardous Materials Division, which is the Certified Unified Program Agency (CUPA) for the City of Pinole, issues permits to and conducts inspections of businesses that use, store, or handle quantities of hazardous materials and/or waste greater than or equal to 55 gallons, 500 pounds, or 200 cubic feet of a compressed gas at

any time. The division implements the Hazardous Material Management Plans (Business Plans) that include an inventory of hazardous materials used, handled, or stored at any business in the City of Pinole. The division also issues permits to and inspects businesses that handle acutely hazardous materials, such as those used in research and development facilities, and helps local fire departments respond to emergencies involving hazardous materials.

DTSC – Hazardous Materials Handling

The California Hazardous Materials Release Response Plans and Inventory Law of 1985 (Business Plan Act) requires preparation of Hazardous Materials Business Plans and disclosure of hazardous materials inventories. A Hazardous Materials Business Plan includes an inventory of hazardous materials handled, facility floor plans showing where hazardous materials are stored, an emergency response plan, and provisions for employee training in safety and emergency response procedures (California Health and Safety Code, Division 20, Chapter 6.95, Article 1). Statewide, DTSC has primary regulatory responsibility for management of hazardous materials, with delegation of authority to local jurisdictions that enter into agreements with the state. Local agencies administer these laws and regulations, and may enforce on-site waste management requirements applicable to hazardous chemical waste generators, such as requirements for secondary containment around stored wastes to prevent environmental contamination in the event of a spill. DTSC permits and oversees hazardous chemical waste treatment, long-term storage, and disposal facilities.

Cal-OSHA Worker Safety Requirements

The California Occupational Safety and Health Administration (Cal-OSHA) assumes primary responsibility for developing and enforcing workplace safety regulations within California. Cal-OSHA regulations pertaining to the use of hazardous materials in the workplace, as detailed in CCR Title 8, include requirements for safety training, availability of safety equipment, accident and illness prevention programs, hazardous substance exposure warnings, and emergency action and fire prevention plan preparation. Cal-OSHA enforces hazard communication program regulations that contain training and information requirements, including procedures for identifying and labeling hazardous substances, communicating hazard information related to hazardous substances and their handling, and preparation of health and safety plans to protect workers and employees at hazardous waste sites. The hazard communication program requires that Material Safety Data Sheets (MSDS) be available to employees and that employee information and training programs be documented.

Emergency Response to Hazardous Materials Incidents

California has developed an Emergency Response Plan to coordinate emergency services provided by federal, state, and local government and private agencies. Response to hazardous materials incidents is one part of this plan. The plan is managed by the State Office of Emergency Services (OES), which coordinates the responses of other agencies including CAL-EPA, the California Highway Patrol (CHP), California Department of Fish and Game (CDFG), San Francisco Bay Regional Water Quality Control Board (RWQCB), Contra Costa County Sheriff's Department, and the City of Pinole Police and Fire departments.

USDOT Hazardous Materials Transport

The U.S. Department of Transportation (USDOT) regulates hazardous materials transportation between states. State agencies with primary responsibility for enforcing federal and state regulations and responding to hazardous materials transportation emergencies are the

California Highway Patrol and the California Department of Transportation (Caltrans). Together, these agencies determine container types used and license hazardous waste haulers for hazardous waste transportation on public roads.

It is illegal to transport explosives or inhalation hazards on any public highway not designated for that purpose, unless the use of the highway is required to permit delivery, or the loading, of such materials (California Vehicle Code, Sections 31602(b) and 32104(a)). When transporting explosives through or into a city for which a route has not been designated by the Highway Patrol, drivers must follow routes as may be prescribed or established by local authorities (California Vehicle Code, Section 31614(a)). The transportation of explosives in quantities of 1,000 pounds or less, or other than on a public highway, is subject to the California Health and Safety Code (California Vehicle Code, Section 31601(a)).

LOCAL

Contra Costa County Hazardous Waste Management Plan

The Contra Costa County Hazardous Waste Management Plan (HWMP) was established to provide a comprehensive approach for the management of hazardous wastes in the county. The plan includes criteria for new waste management facilities, educational and enforcement efforts to minimize and control the waste stream, and maintenance of a unified database on waste generators. In addition, the HWMP emphasizes waste reduction and recycling, educational processes, coordinated identification of hazardous materials, permitting and inspection of waste generators, and creation of a permanent facility for deposit of household hazardous waste. A major feature of the plan is the identification of sites suitable for various types of hazardous waste management facilities.

City of Pinole Emergency Operations Plan

In May 2006, the City updated and adopted an Emergency Operations Plan (EOP). The goal of the EOP is to effectively and efficiently organize and coordinate the City's response to major emergencies. The EOP is designed to be implemented and exercised prior to an emergency. The EOP identifies four phases of emergency management including preparedness, mitigation, response, and recovery. To ensure preparedness for an emergency, the EOP identifies the responsibilities for the following departments in an emergency situation: the Fire, Police, Public Works, and Finance departments, the City Manager's Office, the Community Development Group, Administrative Services, and the Emergency Operations Center. This plan is compatible with the State of California and the Office of Emergency Services.

Aside from the Fire Department participating in the Contra Costa County Mutual Aid System, the City also participates in the County-led regional emergency plan which allows for the mobilization of resources to and from emergency response agencies, local governments, operational areas, regions, and the state, with the intent of providing adequate resources to requesting agencies. The City of Pinole is in the Contra Costa County Operational Area. For more information on emergency response issues, please see the City's EOP. The City's EOP can be obtained by sending a request to the City Planning Department at planning@ci.pinole.ca.us.

4.6.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

Based on criteria derived from Appendix G in the CEQA Guidelines, the proposed General Plan would result in a significant impact to the environment or to human health and safety if the project would:

1) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

2) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

3) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.

4) Be located on a site that is included on a list of hazardous materials sites compiled by Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment.

5) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, result in a safety hazard for people residing or working in the project area.

6) For a project in the vicinity of a private airstrip, result in a safety hazard for people residing or working in the project area.

7) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

METHODOLOGY

This section analyzes the impacts associated with the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update), including the risk of upset due to potential hazardous substances, such as hazardous materials and/or hazardous waste within the Planning Area, and other hazards to public safety. This evaluation of the proposed project's potential to create hazards to the public health or the environment related to hazardous substances is based on database research, review of the City's updated General Plan, consultation with relevant agencies, and review of public comment letters. There are no public or private airstrips in the Planning Area. Therefore, criteria 5 and 6 would result in no impact and will not be discussed further. Only those policies and action items that contain specific enforceable requirements or restrictions and corresponding performance standards that address an impact have been included under each impact discussion below.

PROJECT IMPACTS AND MITIGATION MEASURES

Transportation of Hazardous Materials (Standard of Significance 1)

Impact 4.6.1 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could include the routine transportation, use, or disposal of hazardous materials on the Planning Area transportation network. This is a **less than significant impact.**

General Plan Update

According to the California Highway Patrol, there are no approved routes in the Planning Area for the transportation of explosives. It is illegal to transport explosives or inhalation hazards on any public highway not designated for that purpose, unless the use of the highway is required to permit delivery or the loading of such materials (California Vehicle Code, Sections 31602(b) and 32104(a)). The transportation of hazardous materials on area roadways is regulated by the CHP, U.S. Department of Transportation (Hazardous Materials Transportation Act), and Caltrans, and use of these materials is regulated by DTSC (22 California Code of Regulations, Section 66001 et seq.). The use, storage, and transport of hazardous materials by developers, contractors, business owners, industrial businesses, and others are required to be in compliance with local, state, and federal regulations during project construction and operation. The California Highway Patrol also designates through routes to be used for the transportation of inhalation hazards and may designate separate through routes for the transportation of inhalation hazards composed of any chemical rocket propellant (California Vehicle Code, Sections 32100 and 32102(b)). Interstate 80 is an approved highway transportation route in the Planning Area for the transportation of poisonous inhalation hazards and radioactive materials. The CHP does not regulate the transport of hazardous materials along non-highway and local roads.

Two rail corridors in the Planning Area could potentially serve as transportation for hazardous materials. However, any such transportation would be required to remain in compliance with state and federal laws for the transportation of hazardous materials on railroads.

It would not be possible to identify the roads that could be used for local delivery of hazardous materials, since any delivery of swimming pool chlorine would be considered transportation of an inhalant hazard. However, all existing and future development would be required to comply with federal, state, and local regulations regarding the handling and transport of hazardous materials. In addition, hauling companies that transport hazardous materials are required to obtain permits and comply with appropriate regulatory agency standards. Implementation of proposed General Plan policies would provide further protections against this impact, resulting in a **less than significant** determination.

Three Corridors Specific Plan

The Three Corridors Specific Plan identifies opportunity sites for infill mixed-use development along the city's commercial corridors in close proximity to transit and other amenities. This development could increase the risk associated with the transportation, use, or disposal of hazardous materials. Though all existing and future development would be required to comply with federal, state, and local regulations regarding the handling and transport of hazardous materials, and hauling companies that transport hazardous materials are required to obtain permits and comply with appropriate regulatory agency standards, the potential would exist for the accidental release of hazardous materials during transport. Implementation of proposed

General Plan policies would reduce this impact to a **less than significant** impact as discussed below.

Zoning Code Update

Adoption of the updated General Plan would require amendments to the Zoning Code for consistency with the General Plan land use designations and various General Plan policies. The City therefore plans to update its Zoning Code as part of the proposed General Plan Update project. These updates would involve the deletion, addition, and modification of certain zoning districts and development standards in order to make the Zoning Code consistent with the updated General Plan (see Section 3.0, Project Description, for more details). These updates would not result in any development activities beyond those analyzed for the proposed GPU. Therefore, the Zoning Code Update would have an impact similar to that for the General Plan Update as discussed above.

Proposed General Plan Policies and Action Items that Address Transportation of Hazardous Materials

The proposed General Plan contains the following policy that is intended to address the transportation of hazardous materials.

Policy HS.3.6 Support measures to responsibly manage hazardous waste to protect public health, safety and the environment, and support state and federal safety legislation to strengthen requirements for hazardous materials transport.

In addition, Three Corridors Specific Plan Circulation Policy 5 discourages through traffic and truck traffic for those roadway segments that are not designed to handle such traffic.

Implementation of the proposed General Plan and Specific Plan policies described above, as well as adherence to all federal, state, and local regulations regarding the transportation of hazardous materials, would continue to reduce the environmental impacts associated with the routine transportation and handling of hazardous materials on Planning Area roadways to **less than significant** levels.

Mitigation Measures

None required.

Release and Exposure to Hazardous Materials (Standards of Significance 2 and 4)

Impact 4.6.2 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could include land uses that have the potential to result in an increased risk of release of hazardous materials. This is considered a **less than significant** impact.

General Plan Update

The proposed General Plan Update would allow for the expansion of urbanization in currently undeveloped areas and for the intensification of high-density residential and commercial uses within the Planning Area. This in turn would involve the storage, use, and transport of hazardous materials (e.g., gasoline fuels, demolition materials, asphalt, lubricants, toxic solvents, pesticides, and herbicides) during construction, demolition, and landscaping activities. In addition, certain

commercial uses, including water treatment plants, swimming pool facilities, gas stations, and dry cleaners that store, use, and routinely transport hazardous material to and from their facilities, could pose a potential hazard to the environment. Hazardous materials used during construction and operational activities throughout the Planning Area may expose nearby residents and local schools to toxic emissions. Electrical transformers and industrial products containing polychlorinated biphenyls and heavy metals, as well as persistent residual chemicals including pesticides, herbicides, and fertilizers, have the potential to pose a health and safety risk via accidental release or misuse in the Planning Area.

Development under the proposed General Plan Update could also involve ground disturbance for new construction. Soils in the area may contain contaminants including asbestos and lead-based paint in structures associated with former land uses, and contaminants associated with septic systems.

The use, storage, and transport of hazardous materials by developers, contractors, business owners, industrial businesses, and others are required to be in compliance with local, state, and federal regulations during project construction and operation. Facilities that use hazardous materials are required to obtain permits and comply with appropriate regulatory agency standards designed to avoid hazardous waste releases.

Previous discussion in subsection 4.6.1, Existing Setting, above explains that searches of GEIMS and Cortese databases reveal 22 leaking underground fuel tanks sites (8 of which are open), and 11 sites with permitted UST facilities within the Planning Area. Due to unknown underlying conditions, there is the potential for discovering USTs within the General Plan Planning Area. If UST(s) are discovered during any phase of a project, removal is required prior to additional site preparation or development activities (California State Water Resources Control Board Underground Storage Tank Program and California Health and Safety Code, Section 25281, et seq.). All UST removal and remediation efforts must comply with Contra Costa Environmental Health Department standards. If discovered, the tanks would require removal prior to any development activities. If subsurface contamination occurred as a result of tank leakage or overfilling, the contamination would require assessment and remediation in compliance with Contra Costa Environmental Health Department regulations.

In addition to the presence of hazardous material sites, the city is underlain by a series of gas pipelines. The city's close proximity to regional energy facilities in west Contra Costa County that process, store and transport volatile gas and/or liquids makes the city susceptible to manmade hazards when pipeline development projects that support these energy facilities are proposed within the city limits. Chapter 17.36 of the Pinole Zoning Code requires use permits for the production of oil, gas, or hydrocarbons pipeline development projects. The use permit process enables the City to more closely analyze potential pipeline development projects that facilitate the transport of hazardous or volatile gasses or liquids within Pinole and determine appropriate conditions to minimize potential risks to public health, safety, and welfare.

As discussed under Impact 4.6.1, the transportation of hazardous materials on area roadways is regulated by the CHP, U.S. Department of Transportation (Hazardous Materials Transportation Act), and Caltrans, and use of these materials is regulated by DTSC (22 California Code of Regulations, Section 66001 et seq.). The use, storage, and transport of hazardous materials by developers, contractors, business owners, industrial businesses, and others are required to be in compliance with local, state, and federal regulations during project construction and operation. As previously mentioned, the Contra Costa County Health Services Department, Hazardous Materials Division, which is the Certified Unified Program Agency (CUPA) for Pinole, issues permits to and conducts inspections of businesses that use, store, or handle quantities of hazardous

materials and/or waste greater than or equal to 55 gallons, 500 pounds, or 200 cubic feet of a compressed gas at any time. The division implements the Hazardous Material Management Plans (Business Plans) that include an inventory of hazardous materials used, handled, or stored at any business in Pinole. The division also issues permits to and inspects businesses that handle acutely hazardous materials, such as those used in research and development facilities, and helps local fire departments respond to emergencies involving hazardous materials. Facilities that use hazardous materials are required to obtain permits and comply with appropriate regulatory agency standards designed to avoid hazardous waste releases. All existing and future projects in the GPU Planning Area would be required to comply with federal, state, and local regulations regarding the handling, transportation, disposal, and cleanup of hazardous materials. In addition, Pinole Fire Department responds to hazardous material incidents to provide initial identification, isolation, and decontamination. The Hazardous Materials Division provides specialized hazardous material response. This impact is considered **less than significant**.

Three Corridors Specific Plan

The Three Corridors Specific Plan also identifies opportunity sites for infill mixed-use development along the city's commercial corridors in close proximity to transit and other amenities. Located close to transportation corridors, new development within the Specific Plan area might be exposed to hazards through upset or accident, which can occur even if all applicable federal, state, and local laws are followed. The City of Pinole participates in the Hazardous Materials Program which serves area residents by responding to emergencies and monitoring hazardous materials.

As shown in **Figure 4.6-1,** multiple hazardous sites are adjacent to the Specific Plan area. Such sites could potentially release hazardous materials onto the Specific Plan area. If UST(s) are discovered during any phase of a project, removal is required prior to additional site preparation or development activities. All UST removal and remediation efforts must comply with Contra Costa Environmental Health Department standards. If discovered, the tanks would require removal prior to any development activities. If subsurface contamination occurred as a result of tank leakage or overfilling, the contamination would require assessment and remediation in compliance with Contra Costa Environmental Health Department regulations (California State Water Resources Control Board Underground Storage Tank Program and California Health and Safety Code, Section 25281, et seq.).

As discussed under Impact 4.6.1, the transportation of hazardous materials on area roadways is regulated by the CHP, U.S. Department of Transportation (Hazardous Materials Transportation Act), and Caltrans, and use of these materials is regulated by DTSC. The use, storage, and transport of hazardous materials by developers, contractors, business owners, and others are required to be in compliance with local, state, and federal regulations during project construction and operation. Facilities that use hazardous materials are required to obtain permits and comply with appropriate regulatory agency standards designed to avoid hazardous waste releases. All existing and future projects pertaining to the Specific Plan would be required to comply with federal, state, and local regulations regarding the handling, transportation, disposal, and cleanup of hazardous materials. This impact is considered **less than significant**.

Zoning Code Update

Adoption of the updated General Plan would require amendments to the Zoning Code for consistency with the General Plan land use designations and various General Plan policies. The City therefore plans to update its Zoning Code as part of the proposed General Plan Update project. These updates would involve the deletion, addition, and modification of certain zoning

districts and development standards in order to make the Zoning Code consistent with the updated General Plan (see Section 3.0, Project Description, for more details). These updates would not result in any development activities beyond those analyzed for the proposed GPU. Therefore, the Zoning Code Update would have an impact similar to that for the General Plan Update as discussed above.

Proposed General Plan Policies and Action Items that Address Release and Exposure to Hazardous Materials

The following proposed General Plan policies and action items address issues associated with the accidental release and exposure to hazardous materials and contamination.

Policy CS.2.1 The Police Department will strive to provide on-scene response to emergency incidents in the city within 5 minutes.

Action CS.2.3.1 Continue working with members of Battalion 7 and other emergency services providers to optimize the allocation of resources and most efficiently provide mutual aid in Pinole and surrounding communities.

Action CS.2.3.5 The Fire Department will strive to provide on-scene response to emergency incidents in the city within 5 minutes 90% of the time as funding is available.

Action CS.2.3.6 The City will develop a Fire Safety Operations Assessment that identifies and compares different approaches to the provision of emergency services and identifies needed facilities and an appropriate organizational structure to provide cost-effective fire and emergency medical services.

Policy HS.3.5 Require proper handling, storage, disposal and cleanup of hazardous materials to prevent leakage, potential explosions, fires or the escape of harmful gases and to prevent individually innocuous materials from combining to form hazardous substances, especially at the time of disposal.

Action HS.3.5.1 Work with Contra Costa County and other regional partners to implement the County Hazardous Waste Management Plan and notify the public about locations and opportunities to properly dispose of household hazardous materials.

Action HS.3.5.3 A comprehensive investigation of hazardous materials storage tanks should be undertaken for specific sites when development is proposed. The potential hazard of any tanks or former tank sites found should then be evaluated using California EPA and local regulatory guidelines, and sites shall be remediated as needed.

Action HS.3.5.4 At the time of new development, any known or discovered hazardous material should be cleaned up and any impacts mitigated as required by the governing law.

In addition, guideline 7.3.10.g in Chapter 7.0, *Private Realm Design Guidelines*, of the Three Corridor Specific Plan contains a design guideline encouraging the use of less hazardous and recycled building materials during construction.

Implementation of the above proposed General Plan policies and associated actions, as well as guideline 7.3.10.g of the Three Corridor Specific Plan, and adherence to all federal, state, and local regulations regarding the storage and handling of hazardous wastes and the use and removal of underground storage tanks, as well as the cleanup and remediation of leaking contaminants and hazardous wastes and hazardous substances, would reduce potential impacts to the environment and to public health and safety associated with the accidental release of and exposure to hazardous substances to **less than significant**.

Mitigation Measures

None required.

Release and Exposure to Hazardous Materials onto School and Residential Sites (Standards of Significance 2, 3, and 4)

Impact 4.6.3 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could consist of land uses having the potential to result in an increased risk of release of hazardous materials. Implementation of the proposed project could have a **less than significant** impact.

General Plan Update

As noted in **Table 4.6-1**, there are a number of closed and open hazardous sites already in existence in the Planning Area. Hazardous materials used during construction and operational activities throughout the Planning Area may expose nearby residents and other sensitive receptors to toxic emissions. Electrical transformers and industrial products containing polychlorinated biphenyls and heavy metals, as well as persistent residual chemicals including pesticides, herbicides, and fertilizers, have the potential to pose a health and safety risk via accidental release, misuse, or historic use in the Planning Area (the reader is referred to Section 4.9, Hydrology and Water Quality, regarding water quality and pesticide, herbicide, and fertilizer concerns). The potential for exposure to toxic air contaminants is addressed in Section 4.3, Air Quality.

In addition, future residents and sensitive receptors could be placed in close proximity to sources of electromagnetic fields (EMF) such as high voltage power lines. Reports by the National Research Council/National Academy of Sciences, American Medical Association, American Cancer Society, National Institute of Environmental Health Sciences, World Health Organization – International Agency for Research on Cancer, and the California EMF Program conclude that insufficient scientific evidence exists to warrant the adoption of specific health-based EMF mitigation measures. The medical and scientific communities generally agree that the available research evidence has not demonstrated that electromagnetic fields create a health risk. Given that current data has not demonstrated health risks associated with EMF exposure, EMF exposure impact is considered less than significant.

As discussed under Impact 4.6.1, the transportation of hazardous materials on area roadways is regulated by the CHP, U.S. Department of Transportation (Hazardous Materials Transportation Act), and Caltrans, and use of these materials is regulated by DTSC (22 California Code of Regulations, Section 66001 et seq.). The use, storage, and transport of hazardous materials by developers, contractors, business owners, and others are required to be in compliance with local, state, and federal regulations during project construction and operation. Facilities that use hazardous materials are required to obtain permits and comply with appropriate regulatory

agency standards designed to avoid hazardous waste releases, thus substantially reducing hazardous material impacts to residential uses and sensitive receptors.

Both Pinole Valley High School and Pinole Middle School are within 0.25 miles of an existing open-case LUST site. To site and construct a state-funded school, a public school district must complete an extensive and independent statutory review process in accordance with the siting requirements of the California Department of Education. In addition to CEQA review and in order to ensure that each new school site is safe from toxic hazards, new school sites may be subject to review from the following agencies: the Department of Toxic Substances Control; the State Allocation Board, which administers and allocates funding requests; and the Division of the State Architect, which reviews the design, plans, and construction of public-funded schools. These review processes are most typically done on a site-specific basis. The selection of new public school sites must comply with the California Education Code (including Section 17521, requiring the governing board of the school district to adopt a resolution in connection with consideration of proposal for occupancy of a building to be constructed on its property and to conduct a public meeting), and the California Code of Regulations (CCR), Title 5, Sections 14001 through 14012, which outlines the powers and duties and establishes standards with which the California Department of Education, and all public school districts, must comply in the selection of new school sites. Because any future siting of schools within the Planning Area will have to comply with state statutory and regulatory requirements addressing public and environmental health as well as safety from hazards, including hazardous substances, impacts from siting schools in the vicinity of such hazards are not evaluated further in this document.

At this time, any further analysis of this impact would be speculative. Implementation of proposed General Plan policies would reduce this impact to a **less than significant** impact.

Three Corridors Specific Plan

Implementation of the proposed Three Corridors Specific Plan would consist of the revitalization of the San Pablo Avenue, Pinole Valley Road, and Appian Way corridors, which could include new development and/or redevelopment of various urban uses. The Three Corridors Specific Plan is intended to establish more housing choices and job opportunities within the city's commercial corridors. Due to the city's small supply of developable land, the updated General Plan and the Three Corridors Specific Plan direct the majority of the city's future growth to sites designated for mixed and multiple-family use in the San Pablo Avenue, Pinole Valley Road, and Appian Way corridors. The Three Corridors Specific Plan also identifies opportunity sites for infill mixed-use development along the city's commercial corridors in close proximity to transit and other amenities.

As discussed above, the use, storage, and transport of hazardous materials by developers, contractors, business owners, and others are required to be in compliance with local, state, and federal regulations during project construction and operation. Facilities that use hazardous materials are required to obtain permits and comply with appropriate regulatory agency standards designed to avoid hazardous waste releases, thus substantially reducing hazardous material impacts to residential uses and sensitive receptors. In addition, any future siting of schools within the Planning Area, including within the Specific Plan area, will have to comply with state statutory and regulatory requirements addressing public and environmental health as well as safety from hazards, including hazardous substances, impacts from siting schools in the vicinity of such hazards are not evaluated further in this document. At this time, any further analysis of this impact would be speculative. Implementation of proposed General Plan policies would reduce this impact to a **less than significant** impact.

Zoning Code Update

Adoption of the updated General Plan would require amendments to the Zoning Code for consistency with the General Plan land use designations and various General Plan policies. The City therefore plans to update its Zoning Code as part of the proposed General Plan Update project. These updates would involve the deletion, addition, and modification of certain zoning districts and development standards in order to make the Zoning Code consistent with the updated General Plan (see Section 3.0, Project Description, for more details). These updates would not result in any development activities beyond those analyzed for the proposed GPU. Therefore, the Zoning Code Update would have an impact similar to that for the General Plan Update as discussed above.

Proposed General Plan Policies and Action Items that Address the Release and Exposure to Hazardous Materials onto School and Residential Sites

The following proposed General Plan policies and action items address issues associated with the accidental release and exposure of school and residential sites to hazardous materials and contamination.

Policy CS.2.1 The Police Department will strive to provide on-scene response to emergency incidents in the city within 5 minutes.

Action CS.2.3.1 Continue working with members of Battalion 7 and other emergency services providers to optimize the allocation of resources and most efficiently provide mutual aid in Pinole and surrounding communities.

Action CS.2.3.5 The Fire Department will strive to provide on-scene response to emergency incidents in the city within 5 minutes 90% of the time.

Action CS.2.3.6 The City will develop a Fire Safety Operations Assessment that identifies and compares different approaches to the provision of emergency services and identifies needed facilities and an appropriate organizational structure to provide cost-effective fire and emergency medical services.

Policy HS.3.5 Require proper handling, storage, disposal, and cleanup of hazardous materials to prevent leakage, potential explosions, fires or the escape of harmful gases and to prevent individually innocuous materials from combining to form hazardous substances, especially at the time of disposal.

Action HS.3.5.1 Work with Contra Costa County and other regional partners to implement the County Hazardous Waste Management Plan and notify the public about locations and opportunities to properly dispose of household hazardous materials.

Action HS.3.5.3 A comprehensive investigation of hazardous materials storage tanks should be undertaken for specific sites when development is proposed. The potential hazard of any tanks or former tank sites found should then be evaluated using California EPA and local regulatory guidelines, and sites shall be remediated as needed.

Action HS.3.5.4 At the time of new development, any known or discovered hazardous material should be cleaned up and any impacts mitigated as required by the governing law.

Implementation of the above proposed General Plan policies and associated action items and adherence to all federal, state, and local regulations regarding the storage and handling of hazardous wastes and the use and removal of underground storage tanks, as well as the cleanup and remediation of leaking contaminants and hazardous wastes and hazardous substances, would reduce potential impacts to the environment and to public health and safety associated with the accidental release of and exposure of school and residential sites to hazardous substances to **less than significant**.

Mitigation Measures

None required.

Interfere with Emergency Response Plans (Standard of Significance 7)

Impact 4.6.4 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could impair implementation of or physically interfere with the City's Emergency Operations Plan (EOP). This is considered a **less than significant** impact.

General Plan Update

An efficient roadway and circulation system is vital for the evacuation of residents and the mobility of fire suppression, emergency response, and law enforcement vehicles. Implementation of the General Plan Update would result in increased intensities in land uses within the Planning Area. The resulting changes in land use patterns associated with buildout of the proposed GPU, with the consequent increase in traffic, could increase the potential for conflicts with existing emergency response and/or emergency evacuation plans by making implementation of emergency response activities more difficult. This increased difficulty could place more people at risk of serious injury or death and property at greater risk of serious damage.

However, such development would also include roadway improvements to ensure that adequate access is provided to and within these areas. Such development would also require further, project-level environmental review prior to its implementation which would consider potential impacts to emergency access. In addition, the City periodically updates its Emergency Operations Plan (see the Regulatory Framework subsection above) to reflect current conditions within the Planning Area. As such, this impact is considered **less than significant**.

Three Corridors Specific Plan

Increased development could increase the potential for conflicts with existing emergency response and/or evacuation plans by making implementation of emergency response activities more difficult. However, such development would also include roadway improvements to ensure that adequate access is provided to and within these areas. Such development would also require further, project-level environmental review prior to its implementation which would consider potential impacts to emergency access. The City Engineer requires that construction requiring road closure be planned and emergency service providers notified of the temporary closure (Dean, 2010). In addition, the City periodically updates its Emergency Operations Plan (see

the Regulatory Framework subsection above) to reflect current conditions within the Planning Area. As such, this impact is considered **less than significant**.

Zoning Code Update

Adoption of the updated General Plan would require amendments to the Zoning Code for consistency with the General Plan land use designations and various General Plan policies. The City therefore plans to update its Zoning Code as part of the proposed General Plan Update project. These updates would involve the deletion, addition, and modification of certain zoning districts and development standards in order to make the Zoning Code consistent with the updated General Plan (see Section 3.0, Project Description, for more details). These updates would not result in any development activities beyond those analyzed for the proposed GPU. Therefore, the Zoning Code Update would have an impact similar to that for the General Plan Update as discussed above.

Proposed General Plan Policies and Action Items that Address Interference with Emergency Response Plans

The following proposed General Plan policies and action items address issues associated with emergency response plans.

Action HS.4.1.1 Maintain and implement the Emergency Operations Plan (EOP), including periodic training exercises.

Action HS.4.1.2 Continue working with Contra Costa County and other concerned agencies to adopt a regional Emergency Response Plan (ERP).

Action HS.4.1.3 The City Fire Department staff shall review newly proposed or modified roadway designs (e.g., median modifications and speed humps) to ensure that they do not significantly impair movement of emergency vehicles and equipment.

Action HS.4.1.4 Locate and design emergency buildings and vital utilities, communication systems and other public facilities so that they remain operational during and after an emergency or disaster.

Action HS.4.2.2 Develop and adopt a pre-disaster ordinance for post-disaster recovery and reconstruction that includes provisions for debris clearance, damage assessment, demolitions, re-occupancy and building moratorium criteria, fee waivers and deferrals, and expedited permitting procedures for repair and reconstruction.

Action CE.2.1.3 Work with emergency service providers to ensure the transportation system facilitates efficient service delivery and protects public safety.

In addition, Chapter 7.0, *Private Realm Design Guidelines*, of the proposed Three Corridor Specific Plan requires site circulation to allow for and facilitate emergency access to the site and all buildings.

Implementation of the proposed General Plan policies and actions, as well as the Specific Plan guideline, described above, as well as adherence to all federal, state, and local regulations

regarding emergency response plans, would ensure impacts related to interfering with emergency response plans are **less than significant**.

Mitigation Measures

None required.

4.6.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The setting for this cumulative analysis includes existing, proposed, approved, and planned projects in the Planning Area and surrounding portions of unincorporated Contra Costa County (see **Table 4.0-1**) as well as full buildout of the GPU Planning Area as proposed under the project. Development in the GPU Planning Area would change the intensity of land uses in the region. In particular, this cumulative development scenario would provide additional housing, employment, and shopping opportunities. These potential changes could have impacts from the handling, storage, and transport of hazardous material, though impacts from hazards are generally site-specific and not cumulative by nature. Growth in the region could lead to increased transport of hazardous materials on the state highways and interstates that also serve the Planning Area. In addition, development elsewhere in the region could have a greater effect on the transport and accidental release of hazardous materials. Therefore, the cumulative setting for the discussion of hazardous materials and risk of upset impacts includes not only the Planning Area but the remainder of Contra Costa County as well.

The potential cumulative impacts due to the increased use of hazardous materials resulting from proposed development under the proposed project include, but are not limited to, air quality, noise, water quality, flooding, and fire, as well as exposure to multiple contaminants. The cumulative impacts associated with affected resources, such as air and water, are analyzed in the applicable technical sections of this Draft EIR.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Hazards and Health Risks

Impact 4.6.5 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would not cumulatively contribute to regional hazards. This is considered a **less than cumulatively considerable** impact.

The cumulative effects from land uses proposed in association with the General Plan Update, Three Corridors Specific Plan, and Zoning Code Update could create a risk to public health from exposure to hazards and hazardous materials from existing contamination conditions as well as future land use operations (transportation, handling, and storage). As discussed under Impact 4.6.2, implementation of the proposed project may involve the development of land on previously contaminated sites. Contamination from hazardous waste sites and leaking underground storage tanks has the potential to contaminate soils and/or groundwater and present public health hazards. However, as previously mentioned, any UST(s) discovered during any phase of a project are required to be removed prior to additional site preparation or development activities by the California State Water Resources Control Board Underground Storage Tank Program and California Health and Safety Code, Section 25281, et seq. All UST removal and remediation efforts must comply with Contra Costa Environmental Health

Department standards. If discovered, the tanks would require removal prior to any development activities. If subsurface contamination occurred as a result of tank leakage or overfilling, the contamination would require assessment and remediation in compliance with Contra Costa Environmental Health Department regulations. This is a **less than cumulatively considerable** impact.

Transportation of hazardous materials on area roadways is regulated by the CHP, U.S. Department of Transportation (Hazardous Materials Transportation Act), and Caltrans, and use of these materials is regulated by DTSC (22 California Code of Regulations, Section 66001 et seq.). The use, storage, and transport of hazardous materials by developers, contractors, business owners, and others are required to be in compliance with local, state, and federal regulations during project construction and operation, thus substantially reducing hazardous material impacts to residential uses and sensitive receptors.

New school sites may also be subject to review from the following agencies: the Department of Toxic Substances Control; the State Allocation Board, which administers and allocates funding requests; and the Division of the State Architect, which reviews the design, plans, and construction of public-funded schools. These review processes are most typically done on a site-specific basis. The selection of new public school sites must comply with the California Education Code (including Section 17521, requiring the governing board of the school district to adopt a resolution in connection with consideration of proposal for occupancy of a building to be constructed on its property and to conduct a public meeting), and the California Code of Regulations (CCR), Title 5, Sections 14001 through 14012, which outlines the powers and duties and establishes standards with which the California Department of Education, and all public school districts, must comply in the selection of new school sites.

Proposed General Plan Policies and Action Items that Address Cumulative Hazards and Health Risks

The proposed General Plan Update contains several goals, policies, and action items that would further reduce impacts to hazards and human health risks. The following list contains those policies and action items that contain specific, enforceable requirements and/or restrictions and corresponding performance standards that assist in reducing this impact. Since these policies and action items have been described in detail in prior impact discussions for this section, the following is limited to only listing the policy and action item numbers.

Community Services and Facilities Element

Policy CS.2.1, Action CS.2.3.1, Action CS.2.3.5, Action CS.2.3.6

Health and Safety Element

Policy HS.3.5, Action HS.3.5.1, Action HS.3.5.3, Action HS.3.5.4, Policy HS.3.6, Action HS.4.1.1, Action HS.4.1.2, Action HS.4.1.3, Action HS.4.1.4, Action HS.4.2.2

In addition, Chapter 7.0, *Private Realm Design Guidelines*, of the Three Corridor Specific Plan contains a design guideline encouraging the use of less hazardous and recycled building materials during construction. The GPU policies and action items, as well as the Specific Plan guideline, listed above would improve the response time of emergency agencies to hazardous material incidents, leading to a faster resolution of such incidents and reducing the potential for exposure. The policies would expedite any necessary evacuations of residents and workers, thereby protecting their health and safety. The policies and action items listed above would require the evaluation and identification of potential health hazards, including hazardous

materials. These policies, along with compliance with applicable federal, state, and local regulations related to hazardous material transport, would reduce or eliminate potential health hazards, reduce or eliminate the potential release of hazardous materials in the environment, and reduce or eliminate exposure of people to these materials. As such, the proposed project's contributions to cumulative hazardous material impacts and other hazards to public safety are considered **less than cumulatively considerable.**

Mitigation Measures

None required.

REFERENCES

Amtrak. 2010. http://www.amtrakcalifornia.com/rail/go/amtrak/index.cfm.

California Code of Regulations (CCR). 2010. Title 22. http://165.235.111.242/LawsRegsPolicies/Title22/index.cfm (accessed February 2010).

California Department of Toxic Substances Control (DTSC). 2010a. http://www.dtsc.ca.gov/.

California Department of Toxic Substances Control. 2010b. ENVIROSTOR Online Database. www.envirostor.dtsc.ca/public/sites-by-program.asp (accessed May 2010).

California Environmental Protection Agency, Online Geotracker Database. 2010. www.geotracker.waterboards.ca.gov (accessed March 2010).

California Environmental Protection Agency (CAL-EPA). 2010. http://www.calepa.ca.gov/

California Environmental Protection Agency, Online Geotracker Database. 2010. www.geotracker.waterboards.ca.gov (accessed May 2010).

California Environmental Protection Agency, State Water Resources Control Board. 2009. http://www.swrcb.ca.gov/ (accessed May 2010).

California Environmental Protection Agency, State Water Resources Control Board Underground Storage Tank Program. 2010. http://www.waterboards.ca.gov/water_issues/programs/ust/ (accessed May 2010).

Dean, Allison. 2010. Director of Public Works, City of Pinole. Email correspondence on May 24.

Pacific Gas and Electric Company (PG&E). 2009. http://www.pge.com/ (accessed May 2010).

Sonoma-Marin Area Rail Transit. 2005. *Sonoma-Marin Area Rail Transit Project Draft Environmental Impact Report*.

4.7 Biological Resources

This section of the Draft Environmental Impact Report (DEIR) describes the baseline biological resources within the Planning Area, which includes the City of Pinole's city limits, as well as the Sphere of Influence (SOI). The Planning Area encompasses approximately 8,543 acres, or 13.3 square miles. The purpose of this report is to describe on-site vegetation communities, including wetlands and other potential jurisdictional waters of the U.S., and assess the potential for occurrence of special-status plant and wildlife species within the Planning Area. This report also evaluates potential impacts to biological resources associated with the proposed land use designations associated with the General Plan Update, the Three Corridors Specific Plan, and the Zoning Code Update for the City of Pinole and includes a discussion of mitigation measures necessary to reduce impacts to a less than significant level, where feasible.

4.7.1 EXISTING SETTING

REGIONAL SETTING

The City of Pinole is located in the San Francisco Bay Area, on the shores of San Pablo Bay in west Contra Costa County (see **Figure 3.0-1**).

The San Francisco Bay and Delta make up the Pacific Coast's largest estuary, encompassing roughly 1,600 square miles of waterways and draining over 40 percent of California's fresh water. The Sacramento and San Joaquin rivers flow from Northern California's inland valleys into the Delta's winding system of islands, sloughs, canals, and channels, before emptying into San Francisco Bay and the Pacific Ocean.

The San Francisco Bay Area supports an extensive diversity of distinct vegetative communities. Broad habitat categories in the region generally include coastal scrubs, oak woodlands, grasslands, estuaries, coastal salt marsh, riparian habitats, eucalyptus groves, interior wetlands, and rivers and streams. Although not vegetative communities, interior wetlands, estuaries, rivers and streams, and urban or highly disturbed habitats provide natural functions and values as wildlife habitat.

Due to the amount of native vegetation lost to urbanization throughout California, the California Department of Fish and Game (CDFG) identifies several specific native vegetative communities as rare and/or sensitive. Sensitive communities in the Bay Area include coastal salt marsh, freshwater wetlands, and mixed oak woodlands.

PHYSICAL SETTING

Much of the land within the Planning Area has gently rolling hills with steeper hills paralleling on the north and south. Elevation in the Planning Area ranges from sea level to 703 feet (212 meters) above mean sea level. General topography of the area is primarily characterized by rolling foothills. The Planning Area consists largely of residential and commercial development surrounded by and intermingled with open space including rolling hills, annual grasslands, coastal oak woodland, and other habitat types (**Figure 4.7-1**). Areas surrounding the Planning Area are composed of a similar mix of residential, commercial, and open space areas.

The climate is mild, with no extremes of temperature, rainfall, or humidity. Lowest and highest temperatures are in the narrow range of an average low of 40 degrees Fahrenheit in the winter to an average 85 degrees Fahrenheit in the summer (City of Pinole, 2007). The climate is Mediterranean, which is sub-humid with hot dry summers and cool moist winters. Average annual precipitation for Pinole is 23 inches (WRCC, 2006). Mean January minimum temperature is about 42 degrees Fahrenheit, mean September high temperature is 74 degrees Fahrenheit, and

the mean annual temperature is about 58 degrees Fahrenheit (WRCC, 2006). The average freeze-free period is approximately 363 days (WRCC, 2006).

Hydrology

Drainage of the Planning Area occurs primarily through surface runoff. The Planning Area drains into Pinole Creek, eventually entering San Pablo Bay (USEPA, 2006). The reader is referred to Section 4.9, Hydrology and Water Quality, for in-depth discussion of this subject.

BIOLOGICAL SETTING

Vegetative Communities

The geography and climate of the Planning Area have resulted in the establishment of numerous distinct habitat types, ranging from tall riparian forest and well-established coastal oak woodland to open grassland and salt marsh. Nine habitat types were delineated within the Planning Area: annual grassland, coastal scrub, coastal oak woodland, riparian forest, perennial creek, saline emergent wetland (salt marsh), estuarine, open water, and urban. Three additional habitats were found within the Planning Area: closed-cone coniferous forest, intermittent creek, and eucalyptus grove. These habitats are not identified in **Figure 4.7-1** because they are found in small, fragmented areas throughout the Planning Area. Acreages of habitat types within the Planning Area are detailed in **Table 4.7-1**.

TABLE 4.7-1
EXISTING HABITATS FOUND WITHIN THE PLANNING AREA

Habitat Types	Area Within the City (acres)	Area Within Planning Area (acres)
Annual Grassland	730	797
Coastal Scrub	10	10
Coastal Oak Woodland	500	528
Closed-Cone Pine-Cypress (Closed-Cone Coniferous Forest)	Unknown	Unknown
Eucalyptus Grove	Unknown	Unknown
Riparian Forest	41	41
Perennial Creek (Pinole Creek)	32	32
Intermittent Creek	Unknown	Unknown
Saline Emergent Wetland (Salt Marsh)	10	14
Estuarine (Tidal Flats)	58	80
Open Water (San Pablo Bay Conservation Area)	4,101	4,131
Urban/Ruderal	1,953	2,908
Total Acreage Delineated	**~7,438**	**~8,544**

** Mapped by PMC biologists during the development of the Biological Baseline Report (Appendix E)*

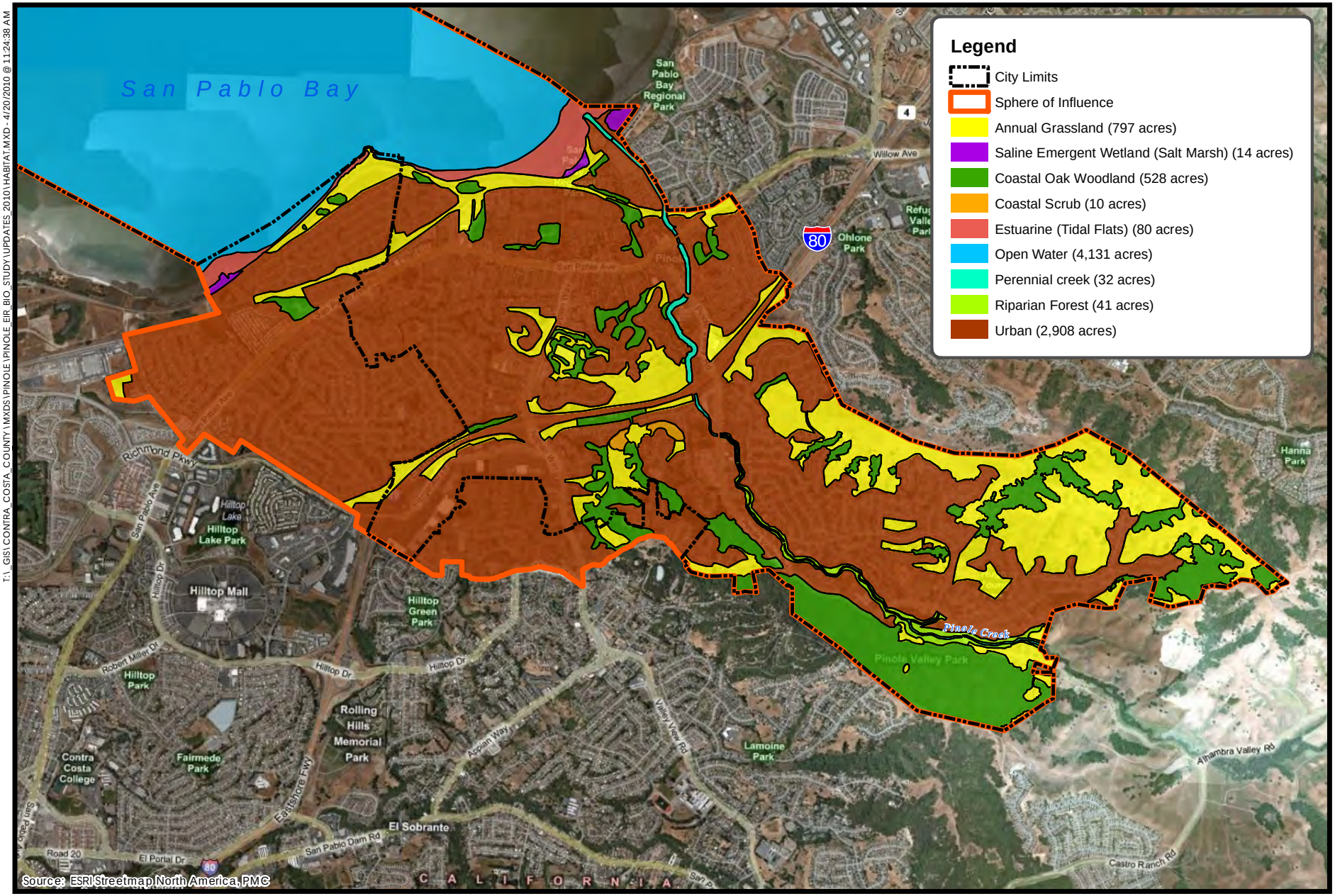

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Figure 4.7-1
Habitat Types Mapped within the Planning Area

PMC

Annual Grassland

Annual grassland generally occurs on flat plains to gently rolling foothills throughout the Central Valley, in the coastal mountain ranges to Mendocino County, and in scattered locations in the southern portion of the state (Kie, 2005). This widespread vegetation type is characterized by annual grasses and forbs, which are predominantly non-native species. Annual grassland is typical of slopes throughout the Planning Area. Annual grassland consists of a myriad of native and non-native annual plant species. Dominant plant species in the annual grassland habitat within the Planning Area include ripgut brome (*Bromus diandrus),* soft chess brome *(Bromus hordeaceus),* slender wild oats *(Avena fatua),* short-pod mustard *(Hirschfeldia incana),* storksbill *(Erodium* spp.*),* geranium *(Geranium* spp.*),* purple needlegrass *(Nassella pulchra),* and coyote brush *(Baccharis pilularis)*.

Many wildlife species use annual grasslands for foraging, but some require special habitat features such as cliffs, caves, ponds, or habitats with woody plants for breeding, resting, and cover (Kie, 2005). Birds known to breed in annual grasslands include a California species of special concern, the western burrowing owl (*Athene cunicularia hypugaea*), and others like horned lark (*Eremophila alpestris*) and western meadowlark (*Sturnella neglecta*). This habitat also provides important foraging habitat for turkey vulture (*Cathartes aura*), northern harrier (*Circus cyaneus*), American kestrel (*Falco sparverius*), and the state-listed Swainson's hawk (*Buteo swainsoni*). Characteristic reptiles that breed in annual grasslands include the western fence lizard (*Sceloporus occidentalis*), common garter snake (*Thamnophis sirtalis*), and western rattlesnake (*Crotalus viridis helleri*). Mammals typically found in this habitat include the black-tailed jackrabbit (*Lepus californicus*), California ground squirrel (*Spermophilus beecheyi*), Botta's pocket gopher (*Thomomys bottae*), western harvest mouse (*Reithrodontomys megalotis*), California vole (*Microtus californicus*), and coyote (*Canis latrans*) (Kie, 2005).

Coastal Scrub (Coyote Brush Scrub)

Coastal scrub habitat is distributed in dense concentrations along ridges, hillsides, and other dry areas. This habitat type is often colonized by non-native species such as french broom (*Cytisus monspessulanus*) and pampas grass (*Cortaderia selloana*). Structure of the plant associations that comprise coastal scrub is typified by low to moderate-sized shrubs with mesophytic leaves, flexible branches, semi-woody stems growing from a woody base, and a shallow-root system (Becker, 1988). Coastal scrub is located within the Planning Area on the south side of Interstate 80 (I-80) within and around Sarah Drive Park. Patches of coastal scrub consisting of approximately 10 acres were found on a limited number of hillsides. This habitat typically consists of low shrubs, usually 0.5 to 2 meters tall, usually dense but with scattered grassy openings on windy, exposed sites with shallow, rocky soils. It typically consists of a mix of coyote brush, poison oak (*Toxicodendron diversilobum),* and toyon *(Heteromeles arbutifolia)* with California bay (*Umbellularia californica),* California buckeye (*Aesculus californica),* coast live oak (*Quercus agrifolia*), pampas grass, and blue wild rye (*Elymus glaucus*) (Becker, 1988).

Little is known about the importance of coastal scrub habitat to wildlife. Though vegetation productivity is lower in coastal scrub than adjacent chaparral habitats associated with it, coastal scrub seems to support numbers of vertebrate species roughly equivalent to those in surrounding habitats. The federal and state listed peregrine falcon (*Falco peregrinus*) occurs in coastal scrub, though not exclusively (Becker, 1988).

Coastal Oak Woodland

This closed-canopy forest is characteristic of Pinole Valley Park and lower slopes and drainages of the surrounding hills and consists of approximately 500 acres within the city limits. Coast live oak and California bay are co-dominant (Holland, 2005). The understory is poorly developed, but includes toyon, poison oak, California buckeye, and occasional Monterey pine (*Pinus radiata*) and blue-gum eucalyptus *(Eucalyptus globulus)*. The herb component is continuous and dominated by ripgut brome and several other introduced taxa.

Coastal oak woodlands provide habitat for a variety of wildlife species. At least 60 species of mammals may use oaks in some way (Holland, 2005). Approximately 110 species of birds have been observed during the breeding season in California habitats where oaks form a significant part of the canopy or subcanopy (Holland, 2005). California quail (*Callipepla californica*), wild turkey (*Meleagris gallopavo*), ground squirrels (*Spermophilus* spp.), western gray squirrel (*Sciurus griseus*), and black-tailed deer (*Odocoileus hemionus*) may be dependent on acorns in fall and early winter and a poor acorn year can result in significant declines in their populations (Holland, 2005).

Closed-Cone Pine-Cypress (Closed-Cone Coniferous Forest)

Closed-cone coniferous forests are another unique California community occurring in patches along the coast from Humboldt County to Santa Barbara County (Jensen, 1988). The name of this community derives from the fact that the seed-bearing cones remain closed for several years, a reproductive adaptation that ensures survival. Only age, excessive hot weather, or fire opens them. The fossil record indicates that closed-cone forests were once widespread but are now remnants on their way to natural extinction. Although pines are probably not native to the area, many pines appear to thrive in the Planning Area. Stands of Monterey pine appear to have naturalized along the margins of the coastal oak woodland and the established neighborhoods of Pinole. This habitat was not mapped since it occurs in small patches scattered throughout the Planning Area.

Tree squirrels (*Sciurus* spp.), band-tailed pigeon (*Patagioenas fasciata*), and numerous other species make use of this type of habitat for feeding and cover. Few species make substantial use of this type as a breeding habitat, although the great horned owl (*Bubo virginianus*) and red-tailed hawk (*Buteo jamaicensis*) will nest in closed cone pine forests (Jensen, 1988).

Eucalyptus Grove

Eucalyptus has been extensively planted and artificially established in California since approximately 1865. Trees tend to form a dense stand with a closed canopy (Pearson, 1988). On average, eucalyptus range from 87 to 133 feet in height and have a diameter at breast height of 8.6 to 15.1 inches. Trees in excess of 152 feet (maximum 264 feet) in height are not uncommon (Pearson, 1988). The area consists mostly of single-species thickets of blue-gum eucalyptus with little understory. This habitat was not mapped since small groves occur in patches scattered throughout the Planning Area.

Characteristic species of this habitat include American crow (*Corvus brachyrhynchos*), common raven (*Corvus corax*), common barn owl (*Tyto alba*), red-tailed hawk, and red-shouldered hawk (*Buteo lineatus*). Eucalyptus trees are important as roosts, perches, and nest sites for a number of bird species, particularly raptors. Blue-gum eucalyptus has stringy bark and a tendency for rapid deposition of litter, which creates microhabitats for a number of small vertebrate species,

including northern alligator lizard (*Elgaria coerulea)*, Pacific gopher snake (*Pituophis catenifer catenifer*), and woodrats (*Neotoma* spp.) (Pearson, 1988).

Estuarine (Tidal Flats)

Estuaries are inlets or arms of the sea that extend inland. They are found at the saltwater/freshwater mixing zone of Pinole Creek. Estuarine habitat in the Planning Area consists of approximately 80 acres. Species found within this habitat include pickleweed (*Salicornia* spp.), cocklebur *(Xanthium strumarium),* bristly ox-tongue (*Picris echioides)*, river bulrush *(Scirpus fluvaitilis),* California cord grass (*Spartina foliosa*), marsh gumplant (*Grindelia stricta* var. *angustifolia*), and creeping wildrye *(Leymus triticoides)*.

Estuarine habitats provide for reproduction, feeding, resting, and cover for many species of mammals and birds (Smith, 1988). These habitats provide shelter for large numbers of water birds, especially during heavy winter storms when open coastal waters become rough. Of great importance are the eelgrass (*Zostera marina*) beds supported by estuarine subtidal habitats. These areas are critical to a small goose, the black brant (*Branta bernicla*), which feeds almost exclusively on eelgrass (Smith, 1988).

Open Water of San Pablo Bay

This area includes open water of the San Pablo Bay Conservation Area. It is located in front of the Pinole Wetland Field Station and Bayfront Park and consists of approximately 157 acres within the Planning Area. The open water of San Pablo Bay is home to numerous, fish, shellfish, and mammals that either inhabit or migrate through the San Pablo Bay. These species may include abalone (*Haliotis* spp.), salmon and steelhead (*Oncorhynchus* spp.), and California sea lions (*Zalophus californianus*).

Perennial Creek

Pinole Creek is a perennial creek that flows through the entire length of the Planning Area from the mountains in the far southeast to San Pablo Bay and consists of nearly 32 acres within the Planning Area. Pinole Creek has four distinct habitat types in the Planning Area: intermittent creek, riparian forest, saline emergent wetland, and urban/ruderal. Numerous intermittent creeks drain into Pinole Creek from the surrounding mountainous terrain. On the southeast side of I-80, Pinole Creek is surrounded by both riparian forest and ruderal habitat since parts of the creek are adjacent to single-family homes. The creek becomes increasingly urban and in some parts channelized into cement-lined banks as it flows under I-80 and through downtown Pinole. The creek eventually flows into estuarine and saline emergent wetland habitat and into San Pablo Bay near the wastewater treatment plant and Bayfront Park.

Near-shore waters provide food for many waterfowl, herons, shorebirds, belted-kingfisher (*Ceryle alcyon*), and American dipper (*Cinclus mexicanus*). Many species of insectivorous birds (swallows, swifts, and flycatchers) hawk their prey over water.

Intermittent Creek

Numerous drainages were observed along the hills surrounding Pinole. These intermittent creeks are tributaries to Pinole Creek. These creeks were dry during the site visit on December 5, 2006, and most contained no vegetation. This habitat was not mapped since it occurs in scattered locations throughout the Planning Area in small amounts.

Riparian Forest

Well-developed riparian forest lines Pinole Creek in the eastern half of town. Riparian forest occurs in ribbon-like bands along streambeds where rich soils and high humidity produce a natural greenhouse effect. Although this unique community accounts for less than 1 percent of California's total forest acreage, it supports one of the most diverse ecological communities of plants and wildlife. Three species of willow (*Salix* spp.*),* California buckeye, California bay, coast live oak, valley oak (*Quercus lobata),* California sycamore (*Platanus racemosa),* Himalayan blackberry (*Rubus discolor),* and English ivy (*Hedera helix)* were commonly encountered.

Riparian habitat is generally of high value for wildlife. Birds and mammals that occur in these areas typically include wild turkey, screech owl (*Megascops kennicottii*), great horned owl, red-tailed hawk, California quail (*Callipepla californica*), black-tailed deer, coyote, opossum (*Didelphis virginiana*), striped skunk (*Mephitis mephitis*), beaver (*Castor canadensis*), and western gray squirrel.

Saline Emergent Wetland (Coastal Salt Marsh)

Saline emergent wetland occurs on either side at the mouth of Pinole Creek where it drains into the San Pablo Bay. There are approximately 14 acres of saline emergent wetland within the Planning Area. This habitat consists of highly productive, herbaceous and woody, salt-tolerant hydrophytes forming moderate to dense cover and up to 1 meter tall (Springer, 1988). Most species are active in summer and dormant in winter. Usually saline emergent wetlands are segregated horizontally with cordgrass (*Spartina* spp.) nearer the open water, gumplant (*Grindelia* spp.) at mid-littoral elevations, and a richer mixture closer to high ground, and are usually found along sheltered inland margins of bays, lagoons, and estuaries. These hydric soils are subject to regular tidal inundation by salt water for at least part of each year. The habitat type is found within the San Pablo Bay Conservation Area and Bayfront Park. This 9.69-acre patch of habitat is dominated by pickleweed with salt grass (*Distichlis spicata),* marsh gumplant, dodder *(Cuscuta salina),* California cord grass, and common reed (*Phragmites australis)*.

Saline emergent wetlands provide food, cover, nesting, and roosting habitat for a variety of birds, mammals, reptiles, and amphibians (Springer, 1988). Several species of lizards and snakes frequent the edge of the high marsh, whereas the Pacific tree frog (*Hyla regilla*) and western toad (*Bufo boreas*) occur in slightly brackish marsh after heavy rains. Endemic subspecies of birds include the endangered California clapper rail (*Rallus longirostris obsoletus*), California black rail (*Laterallis jamaicensis conturniculus*), salt marsh yellow-throat (*Geothlypis trichas sinuosa*), and three subspecies of the song sparrow (*Melospiza melodia*) at San Francisco Bay. Other bird species that feed or roost in these wetland are herons, egrets, ducks, hawks (including northern harrier), Virginia rail (*Rallus limicola*), American coot (*Fulica americana*), shorebirds, swallows, and marsh wren (*Cistothorus palustris*). Characteristic mammal species are shrews, bats, and mice including the endangered salt marsh harvest mouse (*Reithrodontomys raviventris*) endemic to the San Francisco Bay, as well as the raccoon (*Procyon lotor*), mink (*Mustela vison*), river otter (*Lontra canadensis*), and harbor seal (*Phoca vitulina*). A number of species from adjacent uplands visit the wetlands to feed (Springer, 1988).

Urban/Ruderal

This vegetation type includes typical residential and commercial landscaping materials. Lawns, shrubs, and trees of various size, density, and arrangement are found throughout Pinole. A distinguishing characteristic of urban habitats is the mixture of native and exotic plant species (McBride and Reid, 1988). Also included in the urban designation are ruderal communities that

occur in areas of disturbances such as along roadsides and trails. These communities are subject to ongoing or past disturbances (e.g., vehicle activities and mowing). Areas of disturbance that are recolonized by invasive, non-native forb species are typically referred to as ruderal. Ruderal habitat in these disturbed areas supports a diverse weedy flora. In Pinole, this habitat type is found mainly along roadsides and railroad tracks. Annual grasses (*Bromus* sp., *Avena* spp., *Lolium* spp., etc.) and bristly ox-tongue, short-pod mustard, radish *(Raphanus sativus), oyster root (Tragopogon dubius),* poison hemlock *(Conium maculatum),* yellow star thistle *(Centaurea solstitialis),* and Italian plumeless thistle *(Carduus pycnocephalus)* are typical of this habitat. Tree of heaven (*Ailanthus altissima*), Franchet's cotoneaster (*Cotoneaster franchetii*), and Ngaio tree (*Myoporum laetum*) were also observed in this ruderal habitat. There is a total of 2,908 acres of ruderal or urban habitat within the Planning Area.

Native and introduced wildlife species that are tolerant of human activities often thrive in ruderal or urban habitats. Wildlife that occurs in these areas typically includes introduced species adapted to human habitation, including rock pigeon (*Columba livia*), European starling (*Sturnus vulgaris*), house sparrow (*Passer domesticus*), house mouse (*Mus musculus*) and Norway rat (*Rattus norvegicus*). Some native species include western toad, western fence lizard, Brewer's blackbird (*Euphagus cyanocephalus*), and house finch (*Carpodacus mexicanus*) (McBride and Reid, 1988).

SPECIAL-STATUS SPECIES

Prior to reconnaissance-level surveys, the CDFG's California Natural Diversity Database (CNDDB), California Native Plant Society (CNPS) online inventory, and United States Fish and Wildlife Service (USFWS) online lists were queried for a list of special-status wildlife, botanical, and fisheries resources with potential to occur or known to occur within the Planning Area and vicinity (CDFG, 2010a/b; CNPS, 2010; USFWS, 2010a). **Appendix E** includes a copy of the databases query results. Locations of special-status species previously recorded occurrences within the Planning Area are shown on **Figure 4.7-2**. Using Geographic Information System (GIS) technology, the CNDDB records of previously recorded occurrences of special-status species within a 5-mile radius of the Planning Area were noted and discussed (see **Appendix E**). No species-specific surveys were conducted. All plant and wildlife observations during habitat mapping efforts were documented (**Appendix E**). Other species documented in the literature search were considered for further analysis based on whether or not habitat existed for the species in the Planning Area as well as whether the Planning Area was within range of the species.

Tables B-1 and B-2 in **Appendix E** present the special-status species that were evaluated to determine if they should be considered in the impact analysis of this report based on habitat suitability within the Planning Area, previously recorded occurrences of these species, and professional expertise. Special-status species were considered for this analysis based on field survey results and a review of results of the database search. Those threatened, endangered, or sensitive species that are considered in this analysis are listed in **Table 4.7-2** according to habitat type. Other special-status species that are considered in this analysis are listed in **Table 4.7-3** according to habitat type.

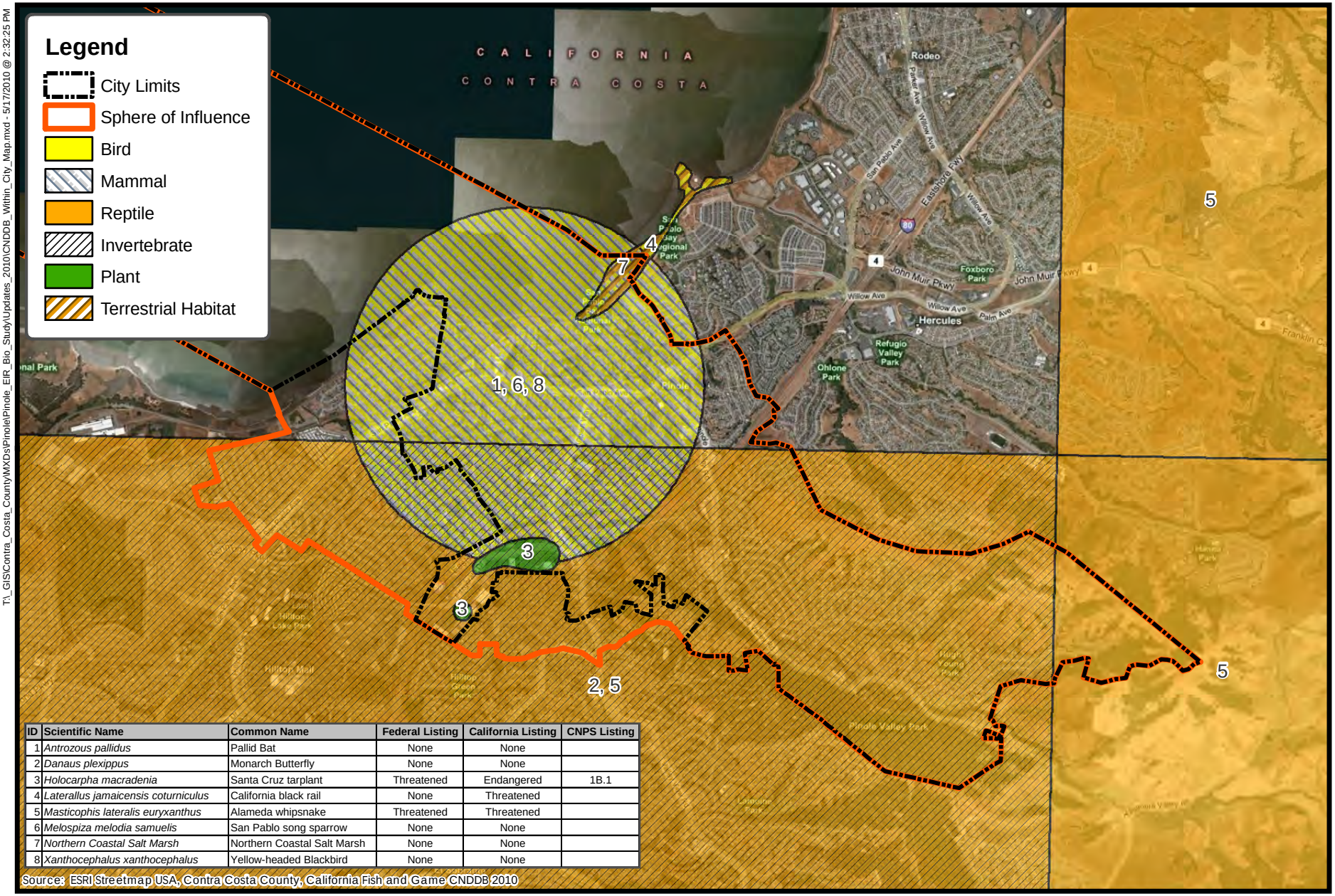
TABLE 4.7-2
THREATENED, ENDANGERED, OR SENSITIVE SPECIES CONSIDERED IN THE IMPACT ANALYSIS BY HABITAT TYPE

Habitat Type	Special-Status Species	Area in Planning Area (acres)
Annual Grasslands	Bent-flowered fiddleneck (*Amsinckia lunaris*) Alkali milk-vetch (*Astragalus tener* var. *tener*) San Joaquin spearscale (*Atriplex joaquiniana*) Big tarplant (*Blepharizonia plumosa*) Round-leaved filaree (*California macrophylla*) Mt. Diablo fairy-lantern (*Calochortus pulchellus*) Congdon's tarplant (*Centromadia parryi* ssp. *congdonii*) Fragrant fritillary (*Fritillaria liliacea*) Diablo helianthella (*Helianthella castanea*) Pale yellow hayfield tarplant (*Hemizonia congesta* ssp. *congesta*) Santa Cruz tarplant (*Holocarpha macradenia*) Robust monardella (*Monardella villosa* ssp. *globosa*) Santa Cruz microseris (*Stebbinsoseris decipiens*) Showy Indian clover (*Trifolium amoenum*) Golden eagle (*Aquila chrysaetos*) Swainson's hawk (*Buteo swainsoni*) American peregrine falcon (*Falco peregrinus anatum*) White-tailed kite (*Elanus leucurus*) Bald eagle (*Haliaeetus leucocephalus*)	797
Coastal Scrub	Pallid manzanita (*Arctostaphylos pallida*) Coastal bluff morning-glory (*Calystegia purpurata* ssp. *saxicola*) San Francisco collinsia (*Collinsia multicolor*) Fragrant fritillary (*Fritillaria liliacea*) Diablo helianthella (*Helianthella castanea*) Santa Cruz tarplant (*Holocarpha macradenia*) Oregon meconella (*Meconella oregana*) Santa Cruz microseris (*Stebbinsoseris decipiens*) Showy Indian clover (*Trifolium amoenum*)	10
Coastal Oak Woodland	Mt. Diablo fairy-lantern (*Calochortus pulchellus*) Western leatherwood (*Dirca occidentalis*) Fragrant fritillary (*Fritillaria liliacea*) Diablo helianthella (*Helianthella castanea*) Robust monardella (*Monardella villosa* ssp. *globosa*) Santa Cruz microseris (*Stebbinsoseris decipiens*) Alameda whipsnake (*Masticophis lateralis euryxanthus*) Golden eagle (*Aquila chrysaetos*) Swainson's hawk (*Buteo swainsoni*) American peregrine falcon (*Falco peregrinus anatum*) White-tailed kite (*Elanus leucurus*) Bald eagle (*Haliaeetus leucocephalus*)	528

Habitat Type	Special-Status Species	Area in Planning Area (acres)
Closed-Cone Pine-Cypress	Pallid manzanita (*Arctostaphylos pallida*) San Francisco collinsia (*Collinsia multicolor*) Western leatherwood (*Dirca occidentalis*) Santa Cruz microseris (*Stebbinsoseris decipiens*) Golden eagle (*Aquila chrysaetos*) Swainson's hawk (*Buteo swainsoni*) American peregrine falcon (*Falco peregrinus anatum*)	< 1
Eucalyptus Grove	Golden eagle (*Aquila chrysaetos*) Swainson's hawk (*Buteo swainsoni*) American peregrine falcon (*Falco peregrinus anatum*)	< 1
Riparian forest	Mt. Diablo fairy-lantern (*Calochortus pulchellus*) Western leatherwood (*Dirca occidentalis*) Mason's lilaeopsis (*Lilaeopsis masonii*) Santa Cruz microseris (*Stebbinsoseris decipiens*) California seablite (*Suaeda californica*) California red-legged frog (*Rana aurora draytonii*) Golden eagle (*Aquila chrysaetos*) Swainson's hawk (*Buteo swainsoni*) American peregrine falcon (*Falco peregrinus anatum*) White-tailed kite (*Elanus leucurus*) Bald eagle (*Haliaeetus leucocephalus*)	41
Perennial Creek	California red-legged frog (*Rana aurora draytonii*)	32
Intermittent Creek	No known	< 1
Saline Emergent Wetland (Salt Marsh)	San Joaquin spearscale (*Atriplex joaquiniana*) Suisun Marsh aster (*Symphyotrichum lentum*) Point Reyes bird's-beak (*Cordylanthus maritimus* ssp. *palustris*) Soft bird's-beak (*Cordylanthus mollis* ssp. *mollis)* Delta tule pea (*Lathyrus jepsonii* var. *jepsonii*) Mason's lilaeopsis (*Lilaeopsis masonii*) California seablite (*Suaeda californica*) Suisun marsh aster (*Symphyotrichum lentum*) California least tern (*Sternula antillarum*) California black rail (*Laterallus jamaicensis coturniculus*) California clapper rail (*Rallus longirostris obsoletus*) Salt-marsh harvest mouse (*Reithrodontomys raviventris*)	14
Estuarine (Tidal Flats)	California seablite (*Suaeda californica*) California least tern (*Sternula antillarum*) California black rail (*Laterallus jamaicensis coturniculus*) California clapper rail (*Rallus longirostris obsoletus*)	80

TABLE 4.7-3
OTHER SPECIAL-STATUS SPECIES CONSIDERED IN THE IMPACT ANALYSIS ORGANIZED BY HABITAT TYPE

Habitat Type	Special-Status Species	Area in Planning Area (acres)
Annual Grasslands	Western pond turtle (*Actinemmys marmorata*) Ferruginous hawk (*Buteo regalis*) Northern harrier (*Circus cyaneus*) Short-eared owl (*Asio flammeus*) Burrowing owl (*Athene cunicularia*) Pallid bat (*Antrozous pallidus*) American badger (Taxidea taxus)	797
Coastal Scrub	Oregon polemonium (*Polemonium carneum*) Northern harrier (*Circus cyaneus*) Burrowing owl (*Athene cunicularia*) American badger (Taxidea taxus)	10
Coastal Oak Woodland	Ferruginous hawk (*Buteo regalis*) Northern harrier (*Circus cyaneus*) Pallid bat (*Antrozous pallidus*) American badger (*Taxidea taxus)*	528
Closed-Cone Pine-Cypress	Oregon polemonium (*Polemonium carneum*) Pallid bat (*Antrozous pallidus*)	<1
Eucalyptus Grove	No known	<1
Riparian forest	Foothill yellow-legged frog (*Rana boylii*) Western pond turtle (*Actinemmys marmorata*) Northern harrier (*Circus cyaneus*) Tricolored blackbird (*Agelaius tricolor*) Yellow-headed blackbird (*Xanthocephalus xanthocephalus*) Pallid bat (*Antrozous pallidus*) Western red bat (*Lasiurus blossevillii*) Silver-haired bat (*Lasionycteris noctivagans*)	41
Perennial Creek	Slender-leaved pondweed (*Potamogeton filiformis*) Foothill yellow-legged frog (*Rana boylii*) Western pond turtle (*Actinemmys marmorata*)	32
Intermittent Creek	No known	<1
Saline Emergent Wetland (Salt Marsh)	Bolander's water-hemlock (*Cicuta maculate var. bolanderi*) Western pond turtle (*Actinemmys marmorata*) Tricolored blackbird (*Agelaius tricolor*) Saltmarsh common yellowthroat (*Geothlypis trichas sinuosa*) Alameda song sparrow (*Melospiza melodia pusillula*) San Pablo song sparrow (*Melospiza melodia samuelis*) Yellow-headed blackbird (*Xanthocephalus xanthocephalus*) Short-eared owl (*Asio flammeus*) San Pablo vole (*Microtus californicus sanpabloensis*) Suisun shrew (*Sorex ornatus sinuosus*) Salt-marsh wandering shrew (*Sorex vagrans halicoetes*)	14
Estuarine (Tidal Flats)	No known	80



ID	Scientific Name	Common Name	Federal Listing	California Listing	CNPS Listing
1	*Antrozous pallidus*	Pallid Bat	None	None	
2	*Danaus plexippus*	Monarch Butterfly	None	None	
3	*Holocarpha macradenia*	Santa Cruz tarplant	Threatened	Endangered	1B.1
4	*Laterallus jamaicensis coturniculus*	California black rail	None	Threatened	
5	*Masticophis lateralis euryxanthus*	Alameda whipsnake	Threatened	Threatened	
6	*Melospiza melodia samuelis*	San Pablo song sparrow	None	None	
7	*Northern Coastal Salt Marsh*	Northern Coastal Salt Marsh	None	None	
8	*Xanthocephalus xanthocephalus*	Yellow-headed Blackbird	None	None	

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Figure 4.7-2
Recorded Occurrences of Special-status Species within the City of Pinole Planning Area

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Special-Status Plant Species Occurrences

Provided below are species accounts for each of the special-status plant species that, according to results of database searches and a habitat survey, have potential to occur within the Planning Area and therefore have been considered in the impact analysis. A full list of species from the database search is included in Table B-1 in **Appendix E**. Range and habitat information for the special-status wildlife and plant species below was obtained from the California Wildlife Habitat Relationship (CWHR) program version 8 (CDFG 2002) and CNPS online inventory (CNPS 2010).

Bent-flowered fiddleneck (*Amsinckia lunaris*) is designated by CNPS as List 1B.2 and is found in cismontane woodland and valley and foothill grassland. This species' blooming period is between March and June. This species has been found from 3 meters to 500 meters above mean sea level (CNPS, 2010). Suitable habitat is present within the Planning Area. There are 13 previously recorded occurrences within 5 miles of the Planning Area (CDFG, 2010).

Pallid manzanita (*Arctostaphylos pallida*) is federally threatened, state-listed as endangered, and designated by CNPS as List 1B.1. This species is found in broad-leaved upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, and coastal scrub. This species grows on uplifted marine terraces on siliceous shale or thin chert and may require fire. This species' blooming period is between December and March. This species has been found from 185 meters to 465 meters above mean sea level (CNPS 2010). Suitable habitat is present within the Planning Area. There are five previously recorded occurrences within 5 miles of the Planning Area (CDFG, 2010).

Alkali milk-vetch (*Astragalus tener* var. *tener*) is designated by CNPS as List 1B.2 by the CNPS. This plant occurs in alkali playa, valley and foothill grassland, and vernal pools. This species' blooming period is between March and June. This species has been found from 1 meter to 60 meters above mean sea level (CNPS, 2010). Alkaline soils may be present within the Planning Area. There are three previously recorded occurrences within 5 miles of the Planning Area (CDFG, 2010).

San Joaquin spearscale (*Atriplex joaquiniana*) is designated by CNPS as List 1B.2 and is found on chenopod scrub, alkali meadow, and valley and foothill grassland in seasonal alkali wetlands or alkali sink scrub with saltgrass (*Distichlis spicata)*, alkali heath (*Frankenia* spp.*)*, etc. This species' blooming period is between April and October. This species has been found from 1 meter to 835 meters above mean sea level. Suitable habitat is present within the Planning Area. There are two previously recorded occurrences within 10 miles of Planning Area (CDFG, 2010).

Big tarplant (*Blepharizonia plumosa*) is designated by CNPS as List 1B.1. This species is found in valley and foothill grassland on dry hills and plains with clay to clay-loam soils. It is usually found on slopes and often in burned areas. This species' blooming period is between July and October. This species has been found from 30 meters to 505 meters above mean sea level (CNPS, 2010). Suitable habitat is present within the Planning Area. There are two previously recorded occurrences within 10 miles of Planning Area (CDFG, 2010).

Round-leaved filaree (*California macrophylla*) is designated by CNPS as List 1B.1. This annual herb in the geranium family (Geraniaceae) is found in cismontane woodland and valley and foothill grassland in clay soils. This species' blooming period is between March and May. This species has been found from 15 to 1,200 meters above mean sea level (CNPS, 2010). Suitable habitat is present within the Planning Area. There is one previously recorded occurrence within 5 miles of the Planning Area (CDFG, 2010).

Mt. Diablo fairy-lantern (*Calochortus pulchellus*) is designated by CNPS as List 1B.2. This species is found in chaparral, cismontane woodland, riparian woodland, and valley and foothill woodland, on wooded and brushy slopes. This species blooms between April and June. This species has been found from 30 meters to 840 meters above mean sea level (CNPS, 2010). Suitable habitat is present within the Planning Area. There are two previously recorded occurrences within 5 miles of the Planning Area (CDFG, 2010).

Coastal bluff morning-glory (*Calystegia purpurata* ssp. *saxicola)* is designated by CNPS as List 1B.2. This species is found in coastal dunes and coastal scrub. This species' blooming period is between May and September. This species has been found from 15 meters to 105 meters above mean sea level (CNPS, 2010). Marginal habitat is present within the Planning Area. There is one previously recorded occurrence is within 5 miles of the Planning Area (CDFG, 2010).

Congdon's tarplant (*Centromadia parryi* ssp. *congdonii*) is designated by CNPS as List 1B.2. This species is found in valley and foothill grassland in alkaline soils, sometimes described as heavy white clay. This species' blooming period is between May and October, rarely until November. This species has been found from 1 meter to 230 meters above mean sea level (CNPS, 2010). Alkaline soils may be present within the Planning Area. There are five previously recorded occurrences within 5 miles of the Planning Area (CDFG, 2010).

Bolander's water-hemlock (*Cicuta maculate* var. *bolanderi*) is designated by CNPS as List 2.1. This perennial herb in the carrot family (Apiaceae) is found in marshes and swamps in coastal, fresh or brackish water. This species' blooming period is between July and September. This species has been found from sea level to 200 meters above mean sea level (CNPS, 2010). Suitable habitat is present within the Planning Area. There are two previously recorded occurrences within 5 miles of the Planning Area (CDFG, 2010).

San Francisco collinsia (*Collinsia multicolor*) is designated by CNPS as List 1B.2. This annual herb in the figwort family (Scrophulariaceae) is found in closed-cone coniferous forest and coastal scrub, sometimes serpentinite. This species' blooming period is between March and May. This species has been found from 30 to 250 meters above mean sea level (CNPS, 2010). Suitable habitat is present within the Planning Area. There are no previously recorded occurrences within 5 miles of the Planning Area (CDFG, 2010).

Point Reyes bird's-beak (*Cordylanthus maritimus* ssp. *palustris*) is designated by CNPS as List 1B.2. This hemi-parasitic annual herb is found in marshes and swamps usually in coastal salt marsh with *Salicornia, Distichlis, Jaumea, Spartina*, etc. This species' blooming period is between June and October. This species has been found from sea level to 10 meters above mean sea level (CNPS, 2010). Limited habitat is present within the Planning Area. There are five previously recorded occurrences within 5 miles of the Planning Area (CDFG, 2010).

Soft bird's-beak (*Cordylanthus mollis* ssp. *mollis)* is federally endangered, rare in California, and designated by CNPS as List 1B.2. This species is found in coastal salt marsh with *Distichlis, Salicornia, Frankenia*, etc. This species' blooming period is between July and November. This species has been found from sea level to 3 meters above mean sea level (CNPS, 2010). Limited habitat is present within the Planning Area. There are six previously recorded occurrences within 5 miles of the Planning Area (CDFG, 2010).

Western leatherwood (*Dirca occidentalis*) is designated by CNPS as List 1B.2. This species is found in broad-leafed upland forest, chaparral, closed-cone coniferous forest, cismontane woodlands, north coast coniferous forest, riparian forest, and riparian woodland, on brushy slopes, mesic sites, mostly in mixed evergreen and foothill woodlands communities. This species' blooming

period is between January and March, rarely until April. This species has been found from 30 meters to 395 meters above mean sea level (CNPS, 2010). Suitable habitat is present within the Planning Area. There are 17 previously recorded occurrences within 5 miles of the Planning Area (CDFG, 2010).

Fragrant fritillary (*Fritillaria liliacea*) is designated by CNPS as List 1B.2. This species is found in cismontane woodland, coastal prairie, coastal scrub, valley and foothill grassland, often on serpentine; however, it has been reported on various soils though usually clay, in grassland. This species' blooming period is between February and April. This species has been found from 3 meters to 410 meters above mean sea level (CNPS, 2010). Although serpentine soil is not located within the Planning Area, this species can grow in clay soils, which is found within the Planning Area. There are six previously recorded occurrences within 5 miles of the Planning Area (CDFG, 2010).

Diablo helianthella (*Helianthella castanea*) is designated by CNPS as List 1B.2. This species is found in broad-leaved upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland, usually in chaparral/oak woodland interface in rocky, azonal soils, often in partial shade. This species' blooming period is between March and June. This species has been found from 60 meters to 1,300 meters above mean sea level (CNPS, 2010). Limited habitat is present within the Planning Area. There are 27 previously recorded occurrences within 5 miles of the Planning Area (CDFG, 2010).

Pale yellow hayfield (seaside) tarplant (*Hemizonia congesta* ssp. *congesta*) is designated by CNPS as List 1B.2. This annual herb in the sunflower family (Asteraceae) is found in valley and foothill grassland, sometimes along roadsides. This species' blooming period is between April and November. This species has been found from 20 to 560 meters above mean sea level (CNPS, 2010). Suitable habitat is present within the Planning Area. There are two previously recorded occurrences within 5 miles of the Planning Area (CDFG, 2010).

Santa Cruz tarplant (*Holocarpha macradenia*) is federally threatened, state-listed as endangered, and designated by CNPS as List 1B.1. This species is found in coastal prairie, valley and foothill grassland. Light, sandy soil or sandy clay, often with non-natives. This species' blooming period is between June and October. This species has been found from 10 meters to 220 meters above mean sea level (CNPS, 2010). Suitable habitat is present within the Planning Area. There are 15 previously recorded occurrences within 5 miles of the Planning Area, two of which are within the city limits (CDFG, 2010).

Delta tule pea (*Lathyrus jepsonii* var. *jepsonii*) is designated by CNPS as List 1B.2. This species is found in freshwater and brackish marshes. Delta tule pea is often found with cattails (*Typha* spp.), Suisun marsh aster *(Symphyotrichum lentum)*, California rose (*Rosa californica)*, rushes (*Juncus* spp.), and sedges (*Scirpus* spp.), among others, usually on marsh and slough edges. This species' blooming period is between May and July, rarely until September. This species has been found from sea level to 4 meters above mean sea level (CNPS, 2010). Limited habitat is present within the Planning Area. There are nine previously recorded occurrences within 5 miles of the Planning Area (CDFG, 2010).

Mason's lilaeopsis (*Lilaeopsis masonii*) is rare in California and designated by CNPS as List 1B.1. It is found in freshwater and brackish marshes and riparian scrub. Generally, this species is found in tidal zones, in muddy or silty soil formed through river deposition or riverbank erosion. This species' blooming period is between April and November. Mason's lilaeopsis has been found from sea level to 10 meters above mean sea level (CNPS, 2010). Limited habitat is present within the

Planning Area. There are seven previously recorded occurrences within 5 miles of the Planning Area (CDFG, 2010).

Oregon meconella (*Meconella oregano)* is designated by CNPS as List 1B.1. This species is found in coastal prairie and scrub in open moist places. This species' blooming period is between March and April. This species has been found from 250 to 620 meters above mean sea level (CNPS, 2010). Limited habitat is present within the Planning Area. There are four previously recorded occurrences within 5 miles of the Planning Area (CDFG, 2010).

Robust monardella (*Monardella villosa* ssp. *globosa*) is designated by CNPS as List 1B.2 and is found in openings in broad-leaved upland forest, chaparral, cismontane woodland, and valley and foothill grassland. This species' blooming period is between June and July. This species has been found from 100 to 915 meters above mean sea level (CNPS, 2010). Suitable habitat is present within the Planning Area. There are four previously recorded occurrences within 5 miles of the Planning Area (CDFG, 2010).

Oregon polemonium (*Polemonium carneum*) is designated by CNPS as List 2.2. This perennial herb is found in coastal prairie, coastal scrub, and lower montane coniferous forest between sea level and 1,830 meters above mean sea level. This species' blooming period is between April and September (CNPS, 2010). Suitable habitat is present within the Planning Area. There is one previously recorded occurrence within 5 miles of the Planning Area (CDFG, 2010).

Slender-leaved pondweed (*Potamogeton filiformis*) is designated by CNPS as List 2.2. This aquatic rhizomatous herb is found in marshes and swamps in assorted shallow freshwater habitats between 300 and 2,150 meters above mean sea level. This species' blooming period is between May and July (CNPS, 2010). Limited habitat is present within the Planning Area. There is one previously recorded occurrence within 5 miles of the Planning Area (CDFG, 2010).

Santa Cruz microseris (*Stebbinsoseris decipiens*) is designated by CNPS as List 1B.2. This annual herb is endemic to California. It is found in broad-leaved upland forest, closed-cone coniferous forest, chaparral, coastal prairie, coastal scrub, and valley and foothill grassland in open areas, sometimes in serpentinite soils between 10 and 500 meters above mean sea level (CNPS, 2010). This species' blooming period is between April and May. Suitable habitat is present within the Planning Area. There is one previously recorded occurrence within 5 miles of the Planning Area (CDFG, 2010).

California seablite (*Suaeda californica*) is federally endangered and designated by CNPS as List 1B.1. This species is found in marshes and swamps on margins of coastal salt marshes from sea level to 15 meters above mean sea level. This species' blooming period is between July and October (CNPS, 2010). Limited habitat is present within the Planning Area. There is one previously recorded occurrence within 5 miles of the Planning Area (CDFG, 2010).

Suisun marsh aster (*Symphyotrichum lentum*) is designated by CNPS as List 1B.1. This perennial rhizomatous herb is found in brackish and freshwater marshes and swamps from sea level to 3 meters above mean sea level (CNPS, 2010). This species is most often seen along sloughs with reeds (*Phragmites* spp.*),* sedges, blackberry (*Rubus* spp.*),* cattails, etc. (CDFG, 2010). This species' blooming period is between May and November. Marginal habitat is present within the Planning Area. There is one previously recorded occurrence within 5 miles of the Planning Area (CDFG, 2010).

Showy Indian clover (*Trifolium amoenum*) is federally listed as endangered and designated by CNPS as List 1B.1. This annual herb is found valley and foothill grassland and coastal bluff scrub, in

open, sunny sites and swales, sometimes on serpentine soil between 5 and 415 meters above mean sea level. This species' blooming period is between April and June (CNPS, 2010). Suitable habitat is present within the Planning Area. There are three previously recorded occurrences within 5 miles of the Planning Area (CDFG, 2010).

Special-Status Wildlife Species Occurrences

Provided below are species accounts for each of the special-status wildlife species that, according to results of database searches and a habitat survey, have potential to occur within the Planning Area and therefore have been considered in the impact analysis. A full list of species from the database search is included in Table B-2 in **Appendix E**. Range and habitat information for the special-status wildlife and plant species below was obtained from the CWHR program version 8 (CDFG, 2002) and CNDDB (CDFG, 2010).

Amphibians

The **California red-legged frog** (*Rana aurora draytonii*) is listed as federally threatened and a California species of special concern. Red-legged frogs were formerly widely distributed on the floor of the Central Valley. Their decline has been linked to the introduction of the bullfrog (*Rana catesbiana*), non-native fishes, cattle grazing, and other factors. California red-legged frog occurs in lowlands and foothill streams, pool, and marshes in or near permanent or late season sources of deep water with dense, shrubby, riparian, or emergent vegetation (e.g., ponds, perennial drainages, well-developed riparian) below 3,936 feet in elevation. This species requires 11 to 20 weeks of permanent water for larval development. They also must have access to estivation habitat. Suitable habitat is present within Pinole Creek. A previously recorded occurrence is located upstream in Pinole Creek (CDFG, 2010). There are 25 previously recorded occurrences within 5 miles of the Planning Area (CDFG, 2010).

The **foothill yellow-legged frog** (*Rana boylii*) is a California species of special concern. This species occurs from northern Oregon west of the Cascades south along the coast to the San Gabriel Mountains, and south along the western side of the Sierra Nevada to Kern County, with an isolated population in the San Pedro Martir mountains of Baja California. It is found in partly shaded shallow streams and riffles with a rocky substrate in a variety of habitats. It frequents shallow, slow, gravelly streams and rivers with sunny banks, in forests, chaparral, and woodlands from sea level to 2,040 meters. Suitable habitat is present within Pinole Creek; however, there are no records of this species occurring in the creek. There is one previously recorded occurrence within 5 miles of the Planning Area (CDFG, 2010).

Reptiles

Western pond turtle (*Actinemmys marmorata*) is a California species of special concern. The western pond turtle includes two subspecies, the northwestern pond turtle (*A. marmorata marmorata*) and the southwestern pond turtle (*A. marmorata pallida*). The two subspecies range is interconnected within and around the San Francisco Bay Area. It is a thoroughly aquatic turtle of ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. The western pond turtle needs basking sites and suitable (sandy banks or grassy open fields) upland habitat for egg-laying. Suitable habitat is present in Pinole Creek within the Planning Area. There are 12 previously recorded occurrences within 5 miles of the Planning Area (CDFG, 2010).

Alameda whipsnake (*Masticophis lateralis euryxanthus*) is federally and state-listed as a threatened species. This species is restricted to valley-foothill hardwood habitat of the Coast

Ranges in the vicinity of Monterey and north San Francisco Bay. It inhabits south-facing slopes and ravines where shrubs form a vegetative mosaic with oak trees and grasses. Suitable habitat is present within the Planning Area. There are 41 previously recorded occurrences within 5 miles of the Planning Area, 13 of which are within the Planning Area (CDFG, 2010). Critical habitat for Alameda whipsnake is located to the east of the Planning Area (USFWS, 2010b); no critical habitat is located within the Planning Area.

Birds

California least tern (*Sternula antillarum*) is federally and state-listed as an endangered species and is federally protected as a migratory non-game bird of management concern under the Migratory Bird Treaty Act (MBTA). This species' nesting season is in the summer in the San Francisco Bay Area. There is an isolated colony in San Francisco Bay on sandy beaches bordering shallow water in estuaries. The bulk of its distribution is on the southern California coast. Limited habitat is present within the Planning Area. There are no previously recorded occurrences within 5 miles of the Planning Area (CDFG, 2010).

The **golden eagle** (*Aquila chrysaetos*) is federally protected under the Eagle Protection Act and the MBTA. It is also a California fully protected species. This species forages in grasslands, brushlands, deserts, oak savannas, open coniferous forests, and montane valleys. This species nests and winters in rolling foothills of mountain areas, sage-juniper flats, and deserts. Nest sites are located in niches in cliffs, escarpments, and bluffs as well as in large trees in open areas, most often in rugged, mountainous country. Prey includes primarily small mammals. Suitable nesting and foraging habitat is present within the Planning Area. There are two previously recorded occurrences within 5 miles of the Planning Area (CDFG, 2010).

Swainson's hawk (*Buteo swainsoni*) is listed as threatened in California and is federally protected as a migratory non-game bird of management concern under the MBTA. The preferred breeding habitat of this raptor consists of large trees, which serve as nesting sites, proximate to extensive areas of grassland and/or open fields, which serve as foraging habitat. Swainson's hawks begin to arrive in the Central Valley from South America in March to breed and raise their young. They typically nest in large, mature trees such as valley oak, cottonwood, willow, and native black walnut. Selected trees are typically located near suitable foraging habitat and often within riparian corridors. Swainson's hawks forage in open grasslands, agricultural fields, and pastures. Alfalfa, row crops, grain fields, and irrigated pastures are the Swainson's hawk's preferred foraging habitats, where they take advantage of the opportunities that harvesting and irrigating practices provide for the easy capture of small rodents. Grasslands and agricultural lands (with the exception of orchards and vineyards) provide suitable foraging habitat for this species. Suitable nesting and foraging habitat is present within the Planning Area. There are no previously recorded occurrences within 10 miles of the Planning Area (CDFG, 2010).

The **northern harrier** (*Circus cyaneus*) is a California species of special concern and is federally protected as a migratory non-game bird of management concern under the MBTA. It nests and forages in grasslands. Nesting habitat generally includes freshwater marshes and coastal salt marshes, and grasslands. It nests on ground in shrubby vegetation, usually at marsh edge. The nest is built of a large mound of sticks in wet areas. This species forages in grasslands, from salt grass in desert sinks to mountain ranges. Suitable nesting and foraging habitat is present within the Planning Area. There are four previously recorded occurrences within 5 miles of the Planning Area (CDFG, 2010).

The **white-tailed kite** (*Elanus leucurus*) is a California fully protected species. This species nests in rolling foothills and valley margins with scattered oaks, riparian woodlands, or marshes next to

deciduous woodland and forages in open grasslands, meadows, or marshes. White-tailed kites are known to forage for small rodents and insects in agricultural areas, especially alfalfa fields, open grasslands, meadows, and marshes close to isolated, dense-topped trees used for nesting and perching. Nests are generally built in available trees near hunting grounds. Suitable nesting and foraging habitat is present within the Planning Area. There are four previously recorded occurrences within 5 miles of the Planning Area (CDFG, 2010).

The **American peregrine falcon** (*Falco peregrinus anatum*) has been state and federally delisted. It is a California fully protected species and federally protected as a migratory non-game bird of management concern under the MBTA. This species is a seasonal migrant in the Bay Area. It inhabits open country near water where shorebirds feed. It may nest in high cliffs near rivers, wetlands, lakes, and human-made structures. Suitable nesting and foraging habitat is present within the Planning Area. There is one previously recorded occurrence within 5 miles of the Planning Area (CDFG, 2010).

Bald eagle (*Haliaeetus leucocephalus*) is federally protected under the Eagle Protection Act, state-listed as endangered, and is also federally protected as a migratory non-game bird of management concern under the MBTA. It has been delisted under the federal Endangered Species Act (ESA). This species breeds and roosts in remote coniferous forests in close proximity to a river, stream, lake, reservoir, marsh, or other large wetland area. It inhabits ocean shores, lake margins, and rivers for both nesting and wintering. Builds stick nests within large tall trees and typically within 1 mile of permanent water. Wintering populations occur along major rivers and reservoirs in Yuba County. It breeds February to July. Suitable nesting and foraging habitat is present within the Planning Area. There is one previously recorded occurrence within 5 miles of the Planning Area (CDFG, 2010).

California black rail (*Laterallus jamaicensis coturniculus*) is state-listed as threatened and a California fully protected species. It is also federally protected as a migratory non-game bird of management concern under the MBTA. This species mainly inhabits salt marshes bordering larger bays. It occurs in tidal salt marsh with heavy growth of pickleweed (*Salicornia* spp.) and in fresh water and brackish marshes. This species only occurs at low elevations. Suitable habitat is present within the Planning Area. There are 34 previously recorded occurrences within 5 miles of the Planning Area, one of which is within the Planning Area (CDFG, 2010).

California clapper rail (*Rallus longirostris obsoletus*) is federally and state-listed as endangered and a California fully protected species. It is also federally protected as a migratory non-game bird of management concern under the MBTA. This species inhabits salt water and brackish marshes traversed by tidal sloughs in the vicinity of San Francisco Bay. It is typically associated with abundant growths of pickleweed (*Salicornia europeae*) and cordgrass (*Spartina* sp.). Suitable habitat is present within the Planning Area. There are 33 previously recorded occurrences within 5 miles of the Planning Area (CDFG, 2010).

Tricolored blackbird (*Agelaius tricolor*) is a California species of special concern. It is federally protected as a migratory non-game bird of management concern under the MBTA. Tricolored blackbirds are highly colonial. They require a foraging area, usually open water, with insect prey within a few kilometers of the colony. This species typically nests in freshwater marsh or other areas with dense, emergent vegetation. Occasionally, the birds may be found nesting in other types of dense vegetation. Tricolored blackbirds nest in emergent wetlands with dense cattails or tules and in thickets of blackberry and willow. Potential nesting habitat for this species occurs in the perennial and seasonal marsh habitat and adjacent to ditches and open water habitats in the Planning Area. There are four previously recorded occurrences within 5 miles of the Planning Area (CDFG, 2010).

Saltmarsh common yellowthroat (*Geothlypis trichas sinuosa*) is a California species of special concern. This species is a resident of the San Francisco Bay region, in fresh and saltwater marshes. It requires thick, continuous cover down to the water surface for foraging and tall grasses, tule patches, and willows for nesting. Suitable habitat is present within the Planning Area. There are 32 previously recorded occurrences within 5 miles of the Planning Area (CDFG, 2010).

Alameda song sparrow (*Melospiza melodia pusillula*) is a California species of special concern and is also federally protected as a migratory non-game bird of management concern under the MBTA. It is a resident of salt marshes bordering the south arm of San Francisco Bay. This species inhabits pickleweed (*Salicornia* spp.*)* marshes and nests low in gumplant (*Grindelia* sp.*)* bushes (high enough to escape high tides) and in pickleweed. Suitable habitat is present within the Planning Area. There are five previously recorded occurrences within 5 miles of the Planning Area (CDFG, 2010).

San Pablo song sparrow (*Melospiza melodia samuelis*) is a California species of special concern and is also federally protected as a migratory non-game bird of management concern under the MBTA. This species is a resident of salt marshes along the north side of San Francisco Bay and San Pablo Bay. This species inhabits tidal sloughs in pickleweed marshes. It nests in gumplant species bordering slough channels. Suitable nesting and foraging habitat is present within the Planning Area. There are 31 previously recorded occurrences within 5 miles of the Planning Area (CDFG, 2010).

Yellow-headed blackbird (*Xanthocephalus xanthocephalus*) is a California species of species concern. It is also federally protected as a migratory non-game bird of management concern under the MBTA. This blackbird nests in freshwater emergent wetlands with dense vegetation and deep water, often along the borders of lakes or ponds. They nest only where large insects such as dragonflies and damselflies are abundant. Nesting is timed with maximum emergence of aquatic insects. Suitable habitat is present within saline and freshwater emergent wetlands in the Planning Area. There is one previously recorded occurrence within the Planning Area (CDFG, 2010).

Short-eared owl (*Asio flammeus*) is a California species of special concern and is also federally protected as a migratory non-game bird of management concern under the MBTA. Nesting habitat is located in swamp lands (fresh and salt), lowland meadows, and irrigated alfalfa fields. Tule patches or tall grass is needed for nesting and daytime seclusion. It nests on dry ground in depression concealed in vegetation. Suitable habitat is present within the Planning Area. There is one previously recorded occurrence within 5 miles of the Planning Area (CDFG, 2010).

The **burrowing owl** (*Athene cunicularia*) is a California species of special concern and is also federally protected as a migratory non-game bird of management concern under the MBTA. Burrowing owls are year-round residents in open, dry annual or perennial grasslands, deserts, and scrublands with low-growing vegetation. During fall and winter, local residents may move from nesting areas, and migrants may move in. Burrowing owls nest and take shelter in burrows in the ground, typically burrows excavated by other species such as California ground squirrels. They forage in grasslands and agricultural fields. Suitable habitat is present within the Planning Area. There are 10 previously recorded occurrences within 5 miles of the Planning Area (CDFG, 2010).

Mammals

Pallid bat (*Antrozous pallidus*) is a California species of special concern that inhabits deserts, grasslands, shrublands, woodlands, and forests. This species is most common in open, dry

habitats with rocky areas for roosting. Its roosts must protect bats from high temperatures. They are very sensitive to disturbance of roosting sites. Suitable habitat is present within the Planning Area. There are no previously recorded occurrences within 5 miles of the Planning Area (CDFG, 2010).

Western red bat (*Lasiurus blossevillii*) is a California species of special concern. Western red bats are solitary creatures that roost in broad-leaved trees, especially cottonwoods and willows in foothills and lower mountains and in fruit and nut orchards. They are often found near streams. Limited habitat is present within the Planning Area. There are no previously recorded occurrences within 5 miles of the Planning Area (CDFG, 2010).

Silver-haired bat (*Lasonyycteris noctivagans*) is a California species of concern. The silver-haired bat prefers forested (frequently coniferous) areas adjacent to lakes, ponds, and streams. During migration, it sometimes occurs in xeric or dry areas. Summer roosts and nursery sites are in tree foliage, cavities, or under loose bark, and sometimes in buildings. The silver-haired bat rarely hibernates in caves and is relatively cold tolerant. Its young are born and reared in tree cavities or similar situations. Limited habitat is present within the Planning Area. There are two previously recorded occurrences within 5 miles of the Planning Area (CDFG, 2010).

San Pablo vole (*Microtus californicus sanpabloensis*) is a California species of special concern. This species inhabits saltwater marshes of San Pablo Creek, on the south shore of San Pablo Bay. It constructs a burrow in soft soil, feeds on grasses, sedges, and herbs, and forms a network of runways leading from the burrow. Suitable habitat is present within the Planning Area. There are eight previously recorded occurrences within 5 miles of the Planning Area (CDFG, 2010).

Salt-marsh harvest mouse (*Reithrodontomys raviventris*) is federally and state-listed as endangered. It occurs only in the saline emergent wetlands of San Francisco Bay and its tributaries. Pickleweed is primary habitat. This species does not burrow; it builds loosely organized nests. This species requires higher areas for flood escape. Limited habitat is present within the Planning Area. There are 36 previously recorded occurrences within 5 miles of the Planning Area (CDFG, 2010).

Suisun shrew (*Sorex ornatus sinuosus*) is a California species of special concern that inhabits tidal marshes of the northern shores of San Pablo Bay and Suisun Bay. It requires dense, low-lying cover and driftwood and other litter above the mean high tide line for nesting and foraging. Marginal habitat is present within the Planning Area. There are nine previously recorded occurrences within 5 miles of the Planning Area (CDFG, 2010).

Salt-marsh wandering shrew (*Sorex vagrans halicoetes*) is a California species of special concern that inhabits salt marshes of the south arm of San Francisco Bay. This species is found in medium-high marshes 2 to 2.5 meters (6 to 8 feet) above sea level where abundant driftwood is scattered among pickleweed species. Marginal habitat is present within the Planning Area. There are two previously recorded occurrences within 5 miles of the Planning Area (CDFG, 2010).

The **American badger** (*Taxidea taxus*) is a California species of special concern that occupies dry, open, treeless regions, prairies, parklands, and cold desert areas. They require sufficient food (burrowing rodents), friable soils for burrowing, and open, uncultivated ground. This species is most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Suitable habitat is present within the Planning Area. There is one previously recorded occurrence within 5e miles of the Planning Area (CDFG, 2010).

4.1.2 REGULATORY FRAMEWORK

This section lists specific environmental review and consultation requirements and identifies permits and approvals that must be obtained from local, state, and federal agencies before implementation of the proposed project.

FEDERAL

Endangered Species Act

The Endangered Species Act (ESA) protects threatened and endangered plants and animals and their critical habitat. Candidate species are those proposed for listing; these species are usually treated by resource agencies as if they were actually listed during the environmental review process. Procedures for addressing impacts to federally listed species follow two principal pathways, both of which require consultation with the United States Fish and Wildlife Service (USFWS), which administers the ESA for all terrestrial species. The first pathway, Section 10(a) incidental take permit, applies to situations where a non-federal government entity must resolve potential adverse impacts to species protected under the ESA. The second pathway, Section 7 consultation, applies to projects directly undertaken by a federal agency or private projects requiring a federal permit or approval.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) implements international treaties between the United States and other nations devised to protect migratory birds, their parts, eggs, and nests from activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit. The State of California has incorporated the protection of birds of prey in Sections 3800, 3513, and 3503.5 of the Fish and Game Code (FGC).

All raptors and their nests are protected from take or disturbance under the MBTA (16 United States Code [USC], Section 703 et seq.) and California statute (FGC Section 3503.5). The golden eagle and bald eagle are also afforded additional protection under the Eagle Protection Act, amended in 1973 (16 USC, Section 669 et seq.).

Clean Water Act

Section 401 of the Clean Water Act (CWA) requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into waters of the United States to obtain a certification that the discharge will comply with the applicable effluent limitations and water quality standards. The appropriate Regional Water Quality Control Board regulates Section 401 requirements.

Section 404 of the CWA prohibits the discharge of dredged or fill material into waters of the United States without a permit from the United States Army Corps of Engineers (USACE). The USACE and the U.S. Environmental Protection Agency administer the act. In addition to streams with a defined bed and bank, the definition of waters of the U.S. includes wetland areas "that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 California Federal Regulations [CFR] 328.3 7b).

Substantial impacts to jurisdictional wetlands may require an individual permit. Small-scale projects may require a nationwide permit, which typically has an expedited process compared

to the individual permit process. Mitigation of wetland impacts is required as a condition of the 404 permit and may include on-site preservation, restoration, or enhancement and/or off-site restoration or enhancement. The characteristics of the restored or enhanced wetlands must be equal to or better than those of the affected wetlands to achieve no net loss of wetlands.

Executive Order 13112 – Invasive Species

This order directs all federal agencies to refrain from authorizing, funding, or carrying out actions or projects that may spread invasive species. The order further directs federal agencies to prevent the introduction of invasive species, control and monitor existing invasive species populations, restore native species to invaded ecosystems, research and develop prevention and control methods for invasive species, and promote public education on invasive species. As part of the proposed action, USFWS and USACE would issue permits and therefore would be responsible for ensuring that the proposed action complies with Executive Order 13112 and does not contribute to the spread of invasive species.

Coastal Zone Management Act (16 USC 1456 et seq.)

This act established national policy to preserve, protect, develop, and where possible, restore or enhance the nation's coastal zone. The coastal zone includes the territorial sea and inland bays. If a proposed project affects water use in the coastal zone, the activity must be consistent with the state's coastal zone management program to the maximum extent possible. This applies to actions taken by a federal entity or to actions that require a federal permit. The reauthorization amendments of the Coastal Zone Management Act (CZMA), passed in 1990, indicate that any federal action, regardless of its location, would be subject to the CZMA. Since the City of Pinole is located adjacent to San Francisco Bay, nearly any project action proposed in the city that requires a federal permit would be subject to the CZMA.

The Fish and Wildlife Coordination Act of 1958 (16 USC 661et seq.)

This act requires that whenever any body of water is proposed or authorized to be impounded, diverted, or otherwise controlled or modified, the lead federal agency must consult with the U.S. Fish and Wildlife Service (USFWS), the state agency responsible for fish and wildlife management, and the National Marine Fisheries Service. Section 662(b) of the act requires the lead federal agency to consider the USFWS' and other agencies' recommendations. The recommendations may include proposed measures to mitigate or compensate for potential damages to wildlife and fisheries associated with a modification of a waterway.

Marine Mammal Protection Act (P.L. 92-522; amended by P.L. 98-364, approved July 17, 1984)

This Act prohibits the taking or importing of marine mammals or marine mammal products except under special permit conditions. The term "take" is broadly defined to include harassing or attempting to harass marine mammals. The term "marine mammal" includes all seals, sea lions and other mammals that primarily occur in marine environments.

Executive Order 11990 Protection of Wetlands (42 FR 26961, 25 May 1977)

This executive order requires federal agencies to provide leadership and take action to minimize destruction, loss, or degradation of wetlands and to preserve and enhance the natural qualities of these lands. Federal agencies are required to avoid undertaking or providing support for new construction located in wetlands unless (1) no practicable alternative exists and (2) all practical measures have been taken to minimize harm to wetlands.

Estuary Protection Act (16 USC 1221 et seq.)

This act requires that consideration of estuaries and their natural resources and importance must be included in the planning for the use or development of water and land resources. Compliance with this act may be achieved through coordination with the Department of the Interior under the Fish and Wildlife Coordination Act and the National Environmental Policy Act.

STATE

California Endangered Species Act

Under the California Endangered Species Act (CESA), the California Department of Fish and Game (CDFG) has the responsibility for maintaining a list of endangered and threatened species (Fish and Game Code – FGC 2070). Sections 2050 through 2098 of the FGC outline the protection provided to California's rare, endangered, and threatened species. Section 2080 of the FGC prohibits the taking of plants and animals listed under the CESA. Section 2081 established an incidental take permit program for state-listed species. CDFG maintains a list of "candidate species," which are species that CDFG formally notices as being under review for addition to the list of endangered or threatened species.

Native Plant Protection Act of 1977

In addition, the Native Plant Protection Act of 1977 (FGC Section 1900 et seq.) prohibits the taking, possessing, or sale within the state of any plants with a state designation of rare, threatened, or endangered (as defined by CDFG). An exception to this prohibition in the act allows landowners, under specified circumstances, to take listed plant species, provided that the owners first notify CDFG and give that state agency at least 10 days to come and retrieve (and presumably replant) the plants before they are plowed under or otherwise destroyed (FGC, Section 1913 exempts from "take" prohibition "the removal of endangered or rare native plants from a canal, lateral ditch, building site, or road, or other right-of-way"). Project impacts to these species are not considered significant unless the species are known to have a high potential to occur within the area of disturbance associated with construction of the proposed project.

CDFG also maintains lists of "species of special concern" which serve as species "watch lists." Species with this status have limited distribution or the extent of their habitats has been reduced substantially, such that their populations may be threatened. Thus, their populations are monitored and they may receive special attention during environmental review. While they do not have statutory protection, they may be considered rare under the California Environmental Quality Act and thereby warrant specific protection measures.

Sensitive species that would qualify for listing but are not currently listed are afforded protection under CEQA. The CEQA Guidelines Section 15065 (Mandatory Findings of Significance) requires that a substantial reduction in numbers of a rare or endangered species be considered a significant effect. CEQA Guidelines Section 15380 (Rare or Endangered Species) provides for assessment of unlisted species as rare or endangered under CEQA if the species can be shown to meet the criteria for listing. Unlisted plant species on the California Native Plant Society's (CNPS) Lists 1A, 1B, and 2 would typically be considered under CEQA.

Sections 3500 to 5500 of the Fish and Game Code outline protection for fully protected species of mammals, birds, reptiles, amphibians, and fish. Species that are fully protected by these sections may not be taken or possessed at any time. The CDFG cannot issue permits or licenses that authorize the "take" of any fully protected species, except under certain circumstances

such as scientific research and live capture and relocation of such species pursuant to a permit for the protection of livestock.

Under Section 3503.5 of the FGC it is unlawful to take, possess, or destroy any birds in the orders of Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto.

Pursuant to the requirements of the CESA, an agency reviewing a proposed project within its jurisdiction must determine whether any state-listed endangered or threatened species may be present in the project study area and determine whether the proposed project will have a potentially significant impact on such species. In addition, CDFG encourages informal consultation on any proposed project that may impact a candidate species.

Project-related impacts to species on the CESA endangered or threatened list would be considered significant. State-listed species are fully protected under the mandates of the CESA. "Take" of protected species incidental to otherwise lawful management activities may be authorized under FGC Section 206.591. Authorization from CDFG would be in the form of an Incidental Take Permit.

California Wetlands Policy

The California Resources Agency and its various departments do not authorize or approve projects that fill or otherwise harm or destroy coastal, estuarine, or inland wetlands. Exceptions may be granted if all of the following conditions are met:

- The project is water-dependent;
- No other feasible alternative is available;
- The public trust is not adversely affected; and
- Adequate compensation is proposed as part of the project.

The objective of the Clean Water Act (CWA) (33 USC 1251 et seq.) is to restore and maintain the chemical, physical, and biological integrity of the nation's waters. Specific sections of the act control the discharge of pollutants and wastes into aquatic and marine environment. Section 404 (b)(1) of the CWA, as amended in 1977, requires that the U.S. Army Corps of Engineers evaluate the impact of the discharge of dredged or fill materials into the waters of the United States. Subpart A, Section 230.1(c) of Section 404 (b)(1) guidelines states the following: "Fundamental to these guidelines is the precept that dredged or fill materials should not be discharged into the aquatic ecosystem, unless it can be demonstrated that such a discharge would not have an unacceptable adverse impact either individually or in combination with known and/or probable impacts of other activities affecting ecosystems of concern."

Porter-Cologne Water Quality Control Act of 1966 (California Water Code Sec. 13000 et seq.; CCR Title 23, Chapter 3, Subchapter 15)

The Porter-Cologne Act is the primary state regulation that addresses water quality. The requirements of the act are implemented by the State Water Resources Control Board (SWRCB) at the state level and at the local level by the Regional Water Quality Control Board (RWCQB). The RWQCB carries out planning, permitting, and enforcement activities related to water quality

in California. The act provides for waste discharge requirements and a permitting system for discharges to land or water. Certification is required by the RWQCB for activities that can affect water quality.

Stream Alteration Agreement

State and local public agencies are subject to Section 1602 of the FGC, which governs construction activities that will substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by the CDFG. Under Section 1602, a discretionary Stream Alteration Agreement permit from the CDFG (Region 2 for the proposed project) must be issued by the CDFG to the project developer prior to the initiation of construction activities within lands under CDFG jurisdiction. As a general rule, this requirement applies to any work undertaken within the 100-year floodplain of a stream or river containing fish or wildlife resources.

California Coastal Act of 1976

Under the authorization of the California Coastal Act of 1976 (PRC Section 3000 et seq.), the Coastal Zone Management Plan (CZMP) was developed and has been approved by the U.S. Department of Commerce. All federal actions that affect the coast must be determined to be as consistent as practicable with this plan.

San Francisco Bay Conservation and Development Commission

The San Francisco Bay Conservation and Development Commission's primary mission is to analyze, plan, and regulate the San Francisco Bay as an ecological unit. BCDC has permit jurisdiction over San Francisco Bay, San Pablo Bay, and the Suisun Marsh—including levees, waterways, marshes, and grasslands—below the 10-foot contour line (as measured off a USGS quadrangle map from mean high water). Any person or public agency other than a federal agency that proposes certain activities in or around these areas must obtain a development permit from BCDC.

The area over which BCDC has jurisdiction for the purpose of carrying out the controls described above is defined in the McAteer-Petris Act and includes:

- The open water, marshes and mudflats of greater San Francisco Bay, including Suisun, San Pablo, Honker, Richardson, San Rafael, San Leandro, and Grizzly bays and the Carquinez Strait.
- The first 100 feet inland from the shoreline around San Francisco Bay.
- The portion of the Suisun Marsh—including levees, waterways, marshes and grasslands—below the 10-foot contour line.
- Portions of most creeks, rivers, sloughs, and other tributaries that flow into San Francisco Bay.
- Salt ponds, duck hunting preserves, game refuges, and other managed wetlands that have been diked off from San Francisco Bay.

Where necessary, particular portions of BCDC's jurisdiction may be further clarified by BCDCs regulations.

4.1.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

The impact analysis provided below is based on the following State CEQA Guidelines Appendix G thresholds of significance:

1) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies or regulations, or by the CDFG or USFWS.

2) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the CDFG or USFWS.

3) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

4) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

5) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

6) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

METHODOLOGY

The impact assessment was based on the project description (Section 3.0 of this DEIR), information described in the existing setting, and the standards of significance described above. The impact assessment discusses impacts to implementation of the proposed project which includes the proposed updates to the City's General Plan and Zoning Code, as well as the Three Corridors Specific Plan.

Prior to conducting a field survey of biological resources within the Planning Area, PMC biologists examined aerial photographs (GlobeXplorer, 2006) and General Plan land use designation maps (City of Pinole, 1995) to select representative vegetation in the area to investigate. Several different natural areas within the Planning Area were selected for investigation (**Appendix E**). PMC biologists Greg Matzuak and Tim Nosal undertook reconnaissance-level surveys on December 5, 2006, to map habitat types and identify the presence/absence of sensitive biological resources including special-status species and their potential to occur in the Planning Area based on habitat suitability. Methodology used for the surveys involved a combination of driving accessible roads and walking throughout the Planning Area. The biological baseline report is included in **Appendix E**.

Habitats within the Planning Area were defined based upon the following data: species composition, abundance, and spatial distribution. A habitat map was created for the Planning Area by delineating boundaries of distinct vegetation types on aerial photographs and

assigning habitat types based upon qualitative field assessment of local vegetation types (**Figure 4.7-1**). Important plants were noted for each habitat type and were identified (Hickman, 1993) to the level of species where practicable. Wildlife species were also noted (**Appendix E**). A comprehensive list of plant and wildlife species was not attempted for the entire Planning Area.

Prior to initiating field surveys, aerial photography was reviewed for potential habitat for the special-status species identified from the literature and database searches. A species was determined to have potential to occur in the Planning Area if its documented geographic range from the literature and database search included the project vicinity and if suitable habitat for the species was identified within or near the Planning Area. The CDFG's CNDDB was queried for a list of special-status wildlife, botanical, and fisheries resources with a potential to occur or known to occur within the Planning Area and in the vicinity of the Planning Area (CDFG, 2010a/b). The database search was performed for special-status species in the Mare Island, Richmond and Briones Valley United States Geologic Survey (USGS) 7.5-minute quadrangle and the surrounding quadrangles (Sears Point, Cuttings Wharf, Cordelia, Petaluma Point, Benicia, Vine Hill, San Quentin, Walnut Creek, San Francisco North, Oakland West, Oakland East, and Las Trampas Ridge). Locations of special-status species occurrences as recorded in CNDDB within the Planning Area are shown in **Figure 4.7-2**.

The CNPS inventory was also searched for rare or endangered plants that may occur within the Planning Area (CNPS, 2010). This query was performed for CNPS List 1A, List 1B, and List 2 special-status plants occurring in the surrounding USGS 7.5-minute quadrangles listed above. List 1A species are presumed extinct in California. List 1B species are considered rare or endangered in California and elsewhere. List 2 species are considered rare or endangered in California, but are more common elsewhere.

In addition, the USFWS list for the USGS 7.5-minute quadrangles listed above was consulted for federally listed or candidate plant and animal species that could potentially be affected by the proposed action (USFWS, 2010a). An electronic request was submitted online to the USFWS for a list of federal special-status species potentially occurring in the surrounding USGS 7.5-minute quadrangles.

When the USFWS lists a species as threatened or endangered under the Endangered Species Act, areas of habitat considered essential to its conservation and survival may be designated as critical habitat. These areas may require special consideration and/or protection due to their ecological importance. Potential critical habitat designations within the general vicinity of the Planning Area were checked using the USFWS Critical Habitat Portal (USFWS, 2010b). No critical habitat is located within the Planning Area (USFWS, 2010b).

Appendix E presents the results of the CNDDB, CNPS, and USFWS queries for special-status species that have the potential to occur within the Planning Area and within overlapping habitats with adjacent jurisdictions. **Appendix E** contains a consolidated list of special-status species from the database searches as well as rationale for including them in the impact analysis.

No species-specific surveys were conducted; however, plant and wildlife observations during habitat mapping efforts were documented (**Appendix E**). Historic records of surveys performed in the surrounding area reveal the presence of special-status species. Other species documented in the literature search were considered for further analysis based on whether or not habitat existed for the species within the Planning Area as well as whether the Planning Area was within range of the species.

Since the exact nature of all development associated with the Land Use Map of the proposed General Plan Update and its associated project components is not known at this time, a conservative approach was taken, and it was assumed that all natural resources within the proposed Planning Area would be removed, or otherwise modified by project activities, unless explicitly stated in the General Plan. Although it is likely that some level of natural resources would be retained within each project parcel, the location and extent of these resources cannot be determined. Therefore, this more conservative impact approach was taken to ensure that impacts are not underestimated.

IMPACT STATEMENTS AND MITIGATION MEASURES

Impacts to Special-status Species, Species of Concern, and Other Non-Listed Special-Status Species (Standard of Significance 1)

Impact 4.7.1 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would result in direct and indirect loss of habitat and individuals of endangered, threatened, rare, proposed, and candidate plant and wildlife species, plant species identified by the California Native Plant Society with a rating of List 1A or 1B (i.e., rare, threatened, or endangered plants) as well as animal and plant species of concern and other non-listed special-status species. This would be a **less than significant** impact.

Direct Impacts to Special-status Species

As discussed in the Existing Setting discussion above, suitable habitat for plant and wildlife species listed as endangered, threatened, rare, proposed, candidate, or List 1A or 1B (collectively referred to in this DEIR as "listed species") is found within the Planning Area. Future development under the proposed project could directly impact such habitat. Most direct impacts would occur from further impingement on the riparian corridor near Pinole Creek and other sensitive habitats, and from potential infill development and redevelopment in the Planning Area.

Development under the proposed General Plan Land Use Map could potentially cause direct impacts to approximately 1,505 acres of habitat types (total acreage minus open water and urban habitat) that serve as occupied or potential habitat for listed species (**Table 4.7-2**). As the final design of future development is not currently known, the acreages listed in **Table 4.7-4**, below, represent the maximum area that could be directly affected. Actual direct impacts to these habitat types may be less, depending on the ultimate design of individual developments as determined through application of proposed General Plan policies on a project-specific basis and project-specific compliance with state and federal agency requirements.

Development under the proposed General Plan Land Use Map could potentially cause significant impacts to an unspecified number of undeveloped parcels within the Planning Area including approximately 1,067 acres of habitat cover types that serve as occupied or potential habitat for common and special-status species (**Table 4.7-4**). The habitat type layer created by PMC (all habitat types except for urban) was overlain on the proposed General Plan Update Land Use Map to generate the potential land use conflicts outlined in **Table 4.7-4**. Areas designated as land use codes San Pablo Bay Conservation Area, water, and open space were removed, as impacts to these areas are not expected to occur with the implementation of the proposed project.

Direct Impacts to Species of Concern and Other Non-Listed Special-Status Species

Suitable habitat exists in the Planning Area for unlisted but nonetheless special-status species. These species are designated as a species of concern by the USFWS or the CDFG, listed as "fully protected" in the Fish and Game Code of California (Section 3511, 4700, 5050, 5515), and/or listed in the CNPS's *Inventory of Rare and Endangered Plants of California* (2001) as List 2. For a listing of special-status, unlisted species and their associated habitat types within the Planning Area, see **Table 4.7-3.**

Direct impacts to these species would occur for the same reasons and in the same manner as direct impacts to listed species as identified. See **Table 4.7-4** for information on the acreages of suitable habitat that would be affected by implementation of the proposed General Plan Update.

TABLE 4.7-4
HABITAT TYPES IMPACTED BY IMPLEMENTATION OF THE PROPOSED PROJECT

Habitat Types Within Land Use Codes	Acreage of Land Use Conflicts
High Density Residential	**1.3**
Coastal Oak Woodland	1.3
Low Density Residential	**19.4**
Annual Grassland	14.2
Coastal Oak Woodland	5.1
Medium Density Residential	**14.0**
Annual Grassland	3.2
Coastal Oak Woodland	9.6
Perennial Creek	0.4
Riparian Forest	0.8
Mixed Use Sub Area	**12.5**
Annual Grassland	4.2
Coastal Oak Woodland	8.3
Old Town	**7.4**
Annual Grassland	1.9
Coastal Oak Woodland	1.8
Perennial Creek	3.7
Parks and Recreation	**323.3**
Annual Grassland	64.7
Brackish Marsh	12.6
Coastal Oak Woodland	220.2
Coastal Scrub	5.9
Estuarine	2.5
Perennial Creek	3.6

Habitat Types Within Land Use Codes	Acreage of Land Use Conflicts
Riparian Forest	13.9
Public/Quasi-Public/Institutional	**12.4**
Annual Grassland	7.2
Coastal Oak Woodland	1.3
Estuarine	0.1
Perennial Creek	0.4
Riparian Forest	3.3
Regional Commercial	**3.3**
Annual Grassland	3.3
Rural	**507.9**
Annual Grassland	207.2
Coastal Oak Woodland	98.3
Coastal Scrub	2.9
Perennial Creek	2.3
Riparian Forest	6.0
Service Area	**25.1**
Annual Grassland	17.5
Coastal Oak Woodland	5.9
Perennial Creek	0.9
Riparian Forest	0.8
Annual Grassland	117.9
Coastal Oak Woodland	55.4
Coastal Scrub	0.8
Perennial Creek	2.7
Riparian Forest	14.6
Transportation	**140.4**
Annual Grassland	114.5
Brackish Marsh	0.8
Coastal Oak Woodland	18.9
Estuarine	0.4
Perennial Creek	3.8
Riparian Forest	1.9
TOTAL	**1,067**

Indirect Impacts to Special-Status Species

Suitable habitat for listed plant and wildlife species exists within the Planning Area and could be indirectly impacted by development under the proposed project (as identified in the Land Use Element of the City of Pinole General Plan). Information regarding these species is included in **Table 4.7-2**.

Indirect impacts occur for a number of reasons, though primarily through increased human/wildlife interactions, habitat fragmentation, encroachment by exotic weeds, and area-wide changes in surface water flows due to development of previously undeveloped areas.

Increased Human/Wildlife Interactions

The major circulation features identified in the Circulation Element of the General Plan Update would be heavily traveled with vehicular traffic and pedestrians, increasing the amount and severity of indirect impacts to wildlife and habitat in the Planning Area. Additionally, development of previously undeveloped land for residential uses can expose species to impacts from feral and unconfined pets.

Habitat Fragmentation

Much of the habitat within the Planning Area used by listed species is currently interconnected with large areas of agricultural land and sparse development that has a minor impact on plant and wildlife species in the Planning Area. However, wide-scale development of the Planning Area consistent with the proposed project could result in small pockets of conserved habitat that are no longer connected by streams and open space, resulting in indirect impacts to species diversity and movement within the Planning Area.

Encroachment by Exotic Weeds

Generally, landscaping installed as part of development in the region has relied heavily on exotic, non-native plant species for decoration; however, some of these species can spread to natural areas, causing native plant life to be replaced by exotic species. Construction activities, grading, and other ground- or vegetation-clearing disturbances can eliminate the native plant population and allow invasive non-native species to become established. As native plants are replaced by exotic species, indirect impacts to the habitat of listed species would occur such as modification or degradation of habitat.

Changes in Surface Water Flows

As development occurs, surface water flows normally increase due to an increase in impermeable surfaces through, for example, the placement of building materials and paving over permeable surfaces. In addition, surface water flows are modified due to changes in surface flow by point source stormwater infrastructure installed in order to handle greater flows from the increasing impermeable surfaces as well as from the introduction of drainage flows during seasons when waterways and wetland features are typically dry (commonly referred to as "summer nuisance flows"). Some cover types that contain habitat for listed species can be indirectly impacted by such changes. For example, seasonal wetland communities survive along a rigid set of soil, water, and climatic conditions. Alteration of current inundation and desiccation regimes due to altered hydrology could substantially alter the characteristics of seasonal wetland habitat, resulting in loss or degradation of seasonal wetland habitat in developed and undeveloped areas of the Planning Area.

Table 4.7-4 shows quantities of these habitats that may be impacted by development under the proposed project, and **Table 4.7-2** lists which species would be impacted. The actual acreage ultimately impacted may be less than the estimates shown in **Table 4.7-4**, because future development design proposals will be subject to the application of General Plan policies that address protection of biological resources, as well as possible further review on a project-by-project basis. These policies and possible further review are expected to reduce the impacts estimated in **Table 4.7-4**, which ensure that the worst-case impacts are considered in this DEIR. As discussed previously, further environmental review may be necessary, depending on whether the potential environmental impacts of future proposed projects within the Planning Area have the potential to cause one or more direct or reasonably foreseeable indirect physical change in the environment that has not already been adequately considered in this DEIR.

Indirect Impacts to Species of Concern and Other Non-Listed Special-Status Species

Suitable habitat exists within the GPU Planning Area for unlisted, special-status species, identified (along with other listed special-status species) in **Table 4.7-3**. The previously documented location of these species is shown in **Figure 4.7-2**. Indirect impacts to these species would occur for similar reasons as those identified for special-status species above.

Indirect impacts to habitat for non-listed, special-status species would most likely be less than the total impact identified above. The mitigating effect of many of the policies and action items in the proposed General Plan Update, addressing protection of biological resources, would ultimately reduce actual impacts. In estimating the amount of acreage potentially impacted, this discussion considers the worst-case outcome of implementation of the proposed project to ensure that potential environmental impacts are fully considered. In addition, some future development design proposals will be subject to additional environmental review, depending on whether all of the impacts of such proposals have been adequately considered in this DEIR. This environmental review may further reduce the indirect impacts of the proposed General Plan on non-listed special-status species. Therefore, the total acres of indirect impacts likely would be less. As the final design of development and roadways to be constructed under the proposed General Plan Update cannot be known, the actual quantity of habitat impacted may vary greatly.

Proposed General Plan Policies and Action Items that Address Impacts to Special-status Species, Species of Concern, and Other Non-Listed Special-Status Species

Policy OS.1.1 Habitat Preservation. The City shall protect and preserve open space and natural areas. Preserve oak/woodland, riparian vegetation, creeks, fisheries, saltwater and freshwater marsh, native bunchgrass grasslands, wildlife corridors and sensitive nesting sites. Loss of these habitats should be fully offset through creation of habitat of equal value. Compensation rate for habitat re-creation shall be determined by a qualified biologist in consultation with resource agencies.

Policy OS.1.2 Agency Cooperation. Work with Federal, State and local regulatory and trustee agencies to promote the long-term sustainability of local natural resources.

Policy OS.1.4 Protect and Mitigate Wetlands. All projects shall avoid impacts where feasible. If not feasible, projects shall mitigate impacts to wetlands consistent with Federal and State Policies to ensure there is no net loss in a regional context. Protect wetlands through careful environmental review of proposed

development applications. The City shall recognize the U.S. Army Corps of Engineers as the designated permitting agency that regulates wetlands.

Policy OS.1.5 Integrated Management. Work toward integrated management of tidal areas and drainages within the City limits.

Policy OS.1.8 Habitat Restoration. The City shall implement a re-vegetation plan which aims to identify and prioritize areas planned for habitat restoration. Areas planned for restoration may provide special-status species habitat, connectivity of wildlife corridors, transitional zones in between natural areas and incompatible land uses, or expansion of ecological functions such as flood management and water quality.

Policy OS.2.1 Protection of Native Vegetation. Protect, preserve and create the conditions that will promote the preservation of significant trees and other vegetation, particularly native to California and the region.

Policy OS.2.2 Invasive Species. The City shall attempt to prevent further expansion of invasive species and protect against noxious weeds through public education and development review of projects that occur adjacent to natural areas. These efforts shall include requiring the planting of native vegetation that supports native terrestrial and aquatic animal species.

Policy OS.2.3 Invasive Species. Consider adopting guidelines and standards to protect against the continued spread of invasive species, seek out opportunities to replace invasive, non-native vegetation with native vegetation on public property, and support efforts that enhance habitat by replacing invasive, nonnative vegetation with native California plant species over time within the City.

Policy OS.2.5 Riparian Habitat Restoration. Require restoration or replanting of riparian vegetation to the extent feasible, projects shall mitigate impacts to wetlands consistent with Federal and State policies to ensure that there is no net loss in a regional context.

Policy OS.2.6 Riparian Mitigation. Impacts to riparian habitats shall be mitigated at a no net loss of existing function and value based on field survey and analysis of the riparian habitat to be impacted.

Policy OS.2.8 Maintain and Improve Wildlife Movement Corridors. Continuous wildlife habitat, including corridors free of human disruption, shall be preserved and where necessary created by interconnecting open spaces, wildlife habitat and corridors.

Policy OS.2.9 Wildlife Movement Corridor Mitigation. The City will condition development permits in accordance with applicable mitigation measures to ensure that important corridors for wildlife movement and dispersal are protected. Features of particular importance to wildlife include riparian corridors, wetlands, bay shorelines, and protected natural areas with cover and water. Linkages and corridors shall be provided to maintain connections between habitat areas.

Policy OS.3.1 Continuous Open Space Planning. Plan for connectivity of open spaces and wildlife habitat and corridors using species area plans, neighborhood plans, subdivision maps or other applicable planning processes, consistent with Open Space Guidelines.

Policy OS.3.2 Regional Planning. Coordinate with Contra Costa County and adjoining jurisdictions, federal and state agencies to assure regional connectivity of open space and wildlife corridors.

Policy OS.3.3 Cluster Development. Encourage cluster development and other creative site planning techniques to preserve open space, trails and visual, habitat, recreation and archaeological resources.

Policy OS.3.5 Buffers for Sensitive Resources. When activities close to open space resources within or outside the urban area could harm these resources, the City will require buffers between the activities and the resources. The City will actively encourage individuals, organizations and other agencies to follow this policy. Buffers associated with new development shall be on the site of the development, rather than on neighboring land containing the open space resource. Buffers provide distance in the form of setbacks, within which certain features or activities are not allowed or conditionally allowed. Buffers shall also use techniques such as planting and wildlife-compatible fencing. Buffers shall be adequate for the most sensitive species in the protected area, as determined by a qualified professional and shall complement the protected area's habitat values. Buffers shall be required in the following situations:

- Between urban development – including parks and public facilities – and natural habitat such as creeks, wetlands, rocky outcrops and grassland features to address noise, lighting, storm runoff, spread of invasive, non-native species, and access by people and pets.

- Between agricultural operations and natural habitat, to address noise, chemical use, sediment transport, and livestock access.

Policy OS.3.6 Minimize Environmental Impacts. Encourage development patterns which minimize impacts on the City's biological, visual, and cultural resources, and integrate development with open space areas.

Policy OS.3.8 Protect Listed and Non-listed Special-status Species. Limit development in areas which support listed and non-listed special-status species. If development of these areas must occur, any loss of habitat should be fully compensated on-site. If off-mitigation is necessary, it should occur within the Pinole planning area whenever possible, and must be accompanied by plans and a monitoring program prepared by a qualified biologist.

Policy OS.3.9 Biological Resource Evaluation. The City shall require a biological resources evaluation for private and public development projects in areas identified to contain or possibly contain listed plant and/or wildlife species based upon the City's biological resource mapping provided in the General Plan EIR or other technical materials. This evaluation shall be conducted prior to the authorization of any ground disturbance.

Policy OS.3.10 Mitigation for Special-status Species. For those areas in which special-status species are found or are likely to occur or where the presence of species can be reasonably inferred, the City shall require mitigation of impacts to those species. Mitigation shall be designed by the City in coordination with the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Game (CDFG), and shall emphasize a multi-species approach to the maximum extent feasible. This may include development or participation in a habitat conservation plan.

In addition, Section 7.0, *Private Realm Design Guidelines*, includes site planning guidelines that promote the preservation of natural amenities such as views, mature trees, and similar features unique to a site.

Implementation of these General Plan goals and policies and associated action items, as well as the Specific Plan guidelines, would mitigate direct and indirect impacts to special-status listed species and non-listed special-status species in the GPU Planning Area. The proposed General Plan Update policies and actions contain specific, enforceable requirements that would ensure that direct and indirect impacts to special-status species are **less than significant**.

Mitigation Measures

No additional mitigation measures are necessary.

Impacts to Sensitive Biological Communities (Standard of Significance 2)

Impact 4.7.2 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would result in disturbance, degradation, and removal of riparian habitat, coastal oak woodland, and wetland habitats. This would be a **potentially significant** impact.

Implementation of the proposed project would result in disturbance, degradation, and removal of riparian, coastal oak woodland, and wetland habitats.

Riparian habitat is under the jurisdiction of the CDFG under Section 1602 of the Fish and Game Code. CDFG regulates work that will substantially affect resources associated with rivers, streams, and lakes in California, pursuant to Fish and Game Code Sections 1600–1607. Any action from a project that substantially diverts or obstructs the natural flow or changes the bed, channel, or bank of any river or stream, or uses material from a streambed must be previously authorized by CDFG in a Streambed Alteration Agreement under Section 1602 of the Fish and Game Code. This requirement may, in some cases, apply to any work undertaken within the 100-year floodplain of a body of water or its tributaries, including intermittent streams. As a general rule, however, it applies to any work done within the annual high-water mark of a river or stream, that contains or once contained fish and wildlife, or that supports or once supported riparian vegetation. Implementation of the proposed project would result in direct and indirect impacts to riparian conditions along the Pinole Creek.

Riparian habitat supports a high diversity of wildlife species and provides shade for streams and wetlands, maintaining stream temperatures and reducing stream evaporation. The proposed project does not fully address buffer zones for riparian habitat. Riparian obligates (those species dependent on riparian habitat) require a minimum of a 100-foot setback (Ledwith, 1996) (see mitigation measure **MM 4.7.2a** below). Buffers are not only important to the species they support but they also can reduce sediment and nutrient inputs into streams. The length of buffers is also

important for stream functions. The benefits of riparian corridor buffers increase if they are adjacent to larger tracts of conserved land.

Coastal oak woodland occurs in the GPU Planning Area. Implementation of the General Plan Update would result in the loss of oak woodland providing habitat for common wildlife species. The loss of oak woodland and associated common wildlife is significant because this biological community is classified as a sensitive community.

Wetland habitats will be discussed under Impact 4.7.3.

Consequently, prior to approval of projects proposing to affect these habitats, focused studies should be conducted to determine the presence/absence of these habitats within the GPU Planning Area. If they do occur within the survey area, the appropriate resource agency should be contacted and specific management strategies should be developed to ensure the protection of these habitats. These communities in the GPU Planning Area are considered sensitive by CDFG because of their rarity, high biological diversity, and/or susceptibility to disturbance or destruction.

Proposed General Plan Policies and Action Items that Address Impacts to Special Biological Communities

Policy OS.1.1 Habitat Preservation. The City shall protect and preserve open space and natural areas. Preserve oak/woodland, riparian vegetation, creeks, fisheries, saltwater and freshwater marsh, native bunchgrass grasslands, wildlife corridors and sensitive nesting sites. Loss of these habitats should be fully offset through creation of habitat of equal value. Compensation rate for habitat re-creation shall be determined by a qualified biologist in consultation with resource agencies.

Policy OS.1.4 Protect and Mitigate Wetlands. All projects shall avoid impacts where feasible. If not feasible, projects shall mitigate impacts to wetlands consistent with Federal and State Policies to ensure there is no net loss in a regional context. Protect wetlands through careful environmental review of proposed development applications. The City shall recognize the U.S. Army Corps of Engineers as the designated permitting agency that regulates wetlands.

Policy OS.1.5 Integrated Management. Work toward integrated management of tidal areas and drainages within the City limits.

Policy OS.1.8 Habitat Restoration. The City shall implement a re-vegetation plan which aims to identify and prioritize areas planned for habitat restoration. Areas planned for restoration may provide special-status species habitat, connectivity of wildlife corridors, transitional zones in between natural areas and incompatible land uses, or expansion of ecological functions such as flood management and water quality.

Policy OS.2.1 Protection of Native Vegetation. Protect, preserve and create the conditions that will promote the preservation of significant trees and other vegetation, particularly native to California and the region.

Policy OS.2.2 Invasive Species. The City attempt to prevent further expansion of invasive species and protect against noxious weeds through public education and development review of projects that occur adjacent to natural areas. These

efforts shall include requiring the planting of native vegetation that supports native terrestrial and aquatic animal species.

Policy OS.2.3 Invasive Species. Consider adopting guidelines and standards to protect against the continued spread of invasive species, seek out opportunities to replace invasive, non-native vegetation with native vegetation on public property; and support efforts that enhance habitat by replacing invasive, non-native vegetation with native California plant species over time within the City.

Policy OS.2.5 Riparian Habitat Restoration. Require restoration or replanting of riparian vegetation to the extent feasible, projects shall mitigate impacts to wetlands consistent with Federal and State policies to ensure that there is no lest loss in a regional context.

Policy OS.2.6 Riparian Mitigation. Impacts to riparian habitats should be mitigated at a no net loss of existing function and value based on field survey and analysis of the riparian habitat to be impacted.

Policy OS.3.1 Continuous Open Space Planning. Plan for connectivity of open spaces and wildlife habitat and corridors using species area plans, neighborhood plans, subdivision maps or other applicable planning processes, consistent with Open Space Guidelines.

Policy OS.3.3 Cluster Development. Encourage cluster development and other creative site planning techniques to preserve open space, trails and visual, habitat, recreation and archaeological resources.

Policy OS.3.5 Buffers for Sensitive Resources. When activities close to open space resources within or outside the urban area could harm these resources, the City will require buffers between the activities and the resources. The City will actively encourage individuals, organizations and other agencies to follow this policy. Buffers associated with new development shall be on the site of the development, rather than on neighboring land containing the open space resource. Buffers provide distance in the form of setbacks, within which certain features or activities are not allowed or conditionally allowed. Buffers shall also use techniques such as planting and wildlife-compatible fencing. Buffers shall be adequate for the most sensitive species in the protected area, as determined by a qualified professional and shall complement the protected area's habitat values. Buffers shall be required in the following situations:

- Between urban development – including parks and public facilities – and natural habitat such as creeks, wetlands, rocky outcrops and grassland features to address noise, lighting, storm runoff, spread of invasive, non-native species, and access by people and pets.

- Between agricultural operations and natural habitat, to address noise, chemical use, sediment transport, and livestock access.

Policy OS.3.6 Minimize Environmental Impacts. Encourage development patterns which minimize impacts on the City's biological, visual, and cultural resources, and integrate development with open space areas.

Policy OS.3.7 Preserve Natural Features. Retain sensitive habitat areas in their natural state, where possible, and protect from inappropriate development and landscaping. New development shall incorporate natural features present on the site such as a creek, steep topography or natural vegetation, where feasible, unless appropriate mitigation measures can be incorporated.

Policy OS.3.9 Biological Resource Evaluation. The City shall require a biological resources evaluation for private and public development projects in areas identified to contain or possibly contain listed plant and/or wildlife species based upon the City's biological resource mapping provided in the General Plan EIR or other technical materials. This evaluation shall be conducted prior to the authorization of any ground disturbance.

Policy OS.8.6 Water for Riparian Communities. Protect water sources for water-dependent species and the health of riparian communities.

Policy OS.8.7 Interagency Water Resource Projects. Help implement interagency projects, such as expansion of wastewater treatment capacity, joint development of new treatment or distribution infrastructure, water exchanges, and reclaimed water sales with local, regional and state water suppliers and water resource managers to ensure a sustainable water supply.

In addition, Chapter 7.0, *Private Realm Design Guidelines*, of the proposed Three Corridors Specific Plan encourages the preservation of mature trees in good health and appearance during site design.

Mitigation Measures

MM 4.7.2a The following mitigation shall be incorporated as an action under proposed General Plan Update Policy OS.1.1: Require a minimum 100-foot setback from the top of creek banks (Pinole Creek, Catty Creek, Duncan Canyon/Cole Creek, Shady Draw, Faria Creek, and Roble Creek) for development and associated above-ground infrastructure. Analyze the adequacy of a 100-foot setback as a part of project and environmental review, and require a larger setback where necessary to mitigate project impacts.

MM 4.7.2b The following mitigation shall be incorporated as an action under proposed General Plan Update Policy OS.1.1: The City shall require biological resources evaluation for discretionary projects in areas identified to contain or possibly contain plant and/or wildlife species designated by state and federal agencies as rare, threatened, or endangered. This evaluation shall be conducted prior to the authorization of any ground disturbance.

For proposed projects in which plant and/or wildlife species designated by state and federal agencies as rare, threatened, or endangered are found, the City shall require feasible mitigation of impacts to those species that ensure that the project does not contribute to the decline of the affected species such that their decline would impact the viability of the species. Such

mitigation measures may include providing and permanently maintaining similar quality and quantity of replacement habitat, enhancing existing habitat areas, or paying fees towards to an approved habitat mitigation bank. Replacement habitat may occur either on-site or at approved off-site locations. Feasible mitigation shall be determined by the City after the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Game (CDFG) are provided an opportunity to comment. Mitigation shall emphasize a multi-species approach to the maximum extent feasible. This may include development or participation in a habitat conservation plan.

The General Plan Update designates the majority of land within the riparian corridor as Public/Quasi-Public/Institutional, as well as areas designated as park/open space, general industrial, and industrial reserve. Implementation of General Plan policies and associated action items, Specific Plan guidelines, and mitigation measures **MM 4.7.2a** and **MM 4.7.2b**, would ensure that all development projects within the City's jurisdiction comply with federal, state, and local regulations. Impacts from the proposed project will therefore be reduced to a **less than significant** level.

Impacts to Jurisdictional Waters (Standard of Significance 3)

Impact 4.7.3 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would result in substantial adverse impacts to and the potential loss of jurisdictional waters of the U.S. This would be a **less than significant** impact.

Implementation of the proposed project, specifically development identified in the General Plan Land Use Map and roadway construction and improvement identified in the Circulation Element, could result in direct and indirect impacts to jurisdictional waters within the Planning Area. Improvements identified in the Circulation Element and implementation of the General Plan Update could impact as much as 34.8 acres of brackish marsh and 21.4 acres of perennial creek, and unknown acreage of intermittent creek and other wetlands. Jurisdictional waters of the U.S. may occur in any of the habitat types within the Planning Area. Impacts 4.7.1 and 4.7.2 above contain more information regarding acreages of and possible direct and indirect impacts to these habitat types due to implementation of the proposed General Plan Update. Impacts to jurisdictional features would require a 404 permit from USACE and a 401 Water Quality Certification from the Regional Water Quality Control Board. Potential impacts to Pinole Creek will also require a Streambed Alteration Agreement (CDFG Code Section 1603). USACE and CDFG have a "no net loss" policy for jurisdictional features; therefore, this impact would be considered potentially significant.

Jurisdictional waters of the U.S. provide for a variety of functions for plants and wildlife within the Planning Area. Jurisdictional waters provide habitat, foraging, cover, migration and movement corridors, and water sources for special-status and other species found in the Planning Area. In addition to habitat functions, jurisdictional waters provide physical conveyance of surface water flows as well as channels for the handling of large stormwater events. Large storms can produce extreme flows that cause bank cutting and sedimentation of ephemeral drainage and water bodies such as open water and streams in the Planning Area. Jurisdictional waters found within the Planning Area can slow these flows and lessen the effects of these large storm events, protecting habitat and other resources. Impacts to surface water flows are discussed further in Section 4.9, Hydrology and Water Quality, of this DEIR.

Proposed General Plan Policies and Action Items that Address Impacts to Jurisdictional Waters

Policy OS.1.1 Habitat Preservation. The City shall protect and preserve open space and natural areas. Preserve oak/woodland, riparian vegetation, creeks, fisheries, saltwater and freshwater marsh, native bunchgrass grasslands, wildlife corridors and sensitive nesting sites. Loss of these habitats should be fully offset through creation of habitat of equal value. Compensation rate for habitat re-creation shall be determined by a qualified biologist in consultation with resource agencies.

Policy OS.1.2 Agency Cooperation. Work with Federal, State and local regulatory and trustee agencies to promote the long-term sustainability of local natural resources.

Policy OS.1.4 Protect and Mitigate Wetlands. All projects shall avoid impacts where feasible. If not feasible, projects shall mitigate impacts to wetlands consistent with Federal and State Policies to ensure there is no net loss in a regional context. Protect wetlands through careful environmental review of proposed development applications. The City shall recognize the U.S. Army Corps of Engineers as the designated permitting agency that regulates wetlands.

Policy OS.1.5 Integrated Management. Work toward integrated management of tidal areas and drainages within the City limits.

Policy OS.1.8 Habitat Restoration. The City shall implement a re-vegetation plan which aims to identify and prioritize areas planned for habitat restoration. Areas planned for restoration may provide special-status species habitat, connectivity of wildlife corridors, transitional zones in between natural areas and incompatible land uses, or expansion of ecological functions such as flood management and water quality.

Policy OS.2.1 Protection of Native Vegetation. Protect, preserve and create the conditions that will promote the preservation of significant trees and other vegetation, particularly native to California and the region.

Policy OS.2.2 Invasive Species. The City should review landscape plans to prohibit invasive species and protect against noxious weeds through regulatory standards for construction activities that occur adjacent to natural areas to inhibit the establishment of noxious weeds through accidental seed import.

Policy OS.2.3 Invasive Species. Consider adopting guidelines and standards to protect against the introduction of invasive species, replace invasive, non-native vegetation with native vegetation, and enhance habitat by removing invasive, non-native vegetation and be replacing it with native California plant species.

Policy OS.2.5 Riparian Habitat Restoration. Require restoration or replanting of riparian vegetation to the extent feasible, projects shall mitigate impacts to wetlands consistent with Federal and State policies to ensure that there is no lest loss in a regional context.

Policy OS.2.6 Riparian Mitigation. Impacts to riparian habitats should be mitigated at a no net loss of existing function and value based on field survey and analysis of the riparian habitat to be impacted.

Policy OS.3.3 Cluster Development. Encourage cluster development and other creative site planning techniques to preserve open space, trails and visual, habitat, recreation and archaeological resources.

Policy OS.3.5 Buffers for Sensitive Resources. When activities close to open space resources within or outside the urban area could harm these resources, the City will require buffers between the activities and the resources. The City will actively encourage individuals, organizations and other agencies to follow this policy. Buffers associated with new development shall be on the site of the development, rather than on neighboring land containing the open space resource. Buffers provide distance in the form of setbacks, within which certain features or activities are not allowed or conditionally allowed. Buffers shall also use techniques such as planting and wildlife-compatible fencing. Buffers shall be adequate for the most sensitive species in the protected area, as determined by a qualified professional and shall complement the protected area's habitat values. Buffers shall be required in the following situations:

- Between urban development – including parks and public facilities – and natural habitat such as creeks, wetlands, rocky outcrops and grassland features to address noise, lighting, storm runoff, spread of invasive, non-native species, and access by people and pets.

- Between agricultural operations and natural habitat, to address noise, chemical use, sediment transport, and livestock access.

Policy OS.3.6 Minimize Environmental Impacts. Encourage development patterns which minimize impacts on the City's biological, visual, and cultural resources, and integrate development with open space areas.

Policy OS.3.7 Preserve Natural Features. Retain sensitive habitat areas in their natural state, where possible, and protect from inappropriate development and landscaping. New development shall incorporate natural features present on the site such as a creek, steep topography or natural vegetation, where feasible, unless appropriate mitigation measures can be incorporated.

Policy OS.8.6 Water for Riparian Communities. Protect water sources for water-dependent species and the health of riparian communities.

Policy OS.8.7 Interagency Water Resource Projects. Help implement interagency projects, such as expansion of wastewater treatment capacity, joint development of new treatment or distribution infrastructure, water exchanges, and reclaimed water sales with local, regional and state water suppliers and water resource managers to ensure a sustainable water supply.

Policy OS.8.8 Protect creeks and San Pablo Bay within the Planning Area by implementing stormwater pollution-prevention activities.

The General Plan Update includes goals and policies that preserve habitat (Policy OS 1.1), protect wetlands (Policies OS 1.4 and 1.5), restore habitat (Policy OS 1.8), protect native vegetation (Policy OS 2.1), control invasive species (Policy OS 2.2 and 2.3), provide setbacks to creeks and riparian mitigation (Policy OS 2.5 and 2.6), preserve natural features (Policy OS 3.7), and buffer sensitive resources (OS 3.5). In addition, there are other policies to work in cooperation with government agencies (OS 1.2), require a biological resource evaluation (OS 3.9), and minimize environmental impacts (OS 3.6). Policy OS 3.3 will conserve sensitive resources. In addition, there are policies to prevent water pollution (OS 8.6), protect water for riparian communities (OS 8.7), and protect creeks and San Pablo Bay (OS. 8.8). There will not be an overall loss of wetland resources in the GPU Planning Area because of the no-net-loss policy of the USACE and the CDFG. Implementation of the proposed project will result in a **less than significant** impact to jurisdictional waters of the U.S.

Mitigation Measures

No additional mitigation measures are necessary.

Impacts to Migratory Corridors (Standard of Significance 4)

Impact 4.7.4 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could interfere substantially with the movement of native resident or migratory fish or wildlife species. This would be a **less than significant** impact.

Although this portion of the San Francisco Bay Area is a part of the Pacific Flyway, implementation of the proposed project would not result in the obstruction of the movement of migratory birds. Migratory birds may, however, use detention ponds, irrigation ditches, and wastewater treatment ponds during migration. The major area with remaining natural lands includes the riparian corridor along Pinole Creek, which provides adequate cover and vegetation to be used as a migratory corridor for common and special-status fish and wildlife species. Implementation of the proposed project would result in disturbance, degradation, and removal of the riparian corridor, an important corridor for the movement of common and special-status species. In addition, open space, including agricultural lands, provides an opportunity for dispersal and migration of wildlife species. These actions could result in habitat degradation due to additional traffic, increased human presence, and degradation of the water quality. This would be considered **potentially significant**.

Proposed General Plan Policies and Action Items that Impacts to Migratory Corridors

Policy OS.1.1 Habitat Preservation. The City shall protect and preserve open space and natural areas. Preserve oak/woodland, riparian vegetation, creeks, fisheries, saltwater and freshwater marsh, native bunchgrass grasslands, wildlife corridors and sensitive nesting sites. Loss of these habitats should be fully offset through creation of habitat of equal value. Compensation rate for habitat re-creation shall be determined by a qualified biologist in consultation with resource agencies.

Policy OS.1.4 Protect and Mitigate Wetlands. All projects shall avoid impacts where feasible. If not feasible, projects shall mitigate impacts to wetlands consistent with Federal and State Policies to ensure there is no net loss in a regional context. Protect wetlands through careful environmental review of proposed

development applications. The City shall recognize the U.S. Army Corps of Engineers as the designated permitting agency that regulates wetlands.

Policy OS.1.5 Integrated Management. Work toward integrated management of tidal areas and drainages within the City limits.

Policy OS.1.8 Habitat Restoration. The City shall implement a re-vegetation plan which aims to identify and prioritize areas planned for habitat restoration. Areas planned for restoration may provide special-status species habitat, connectivity of wildlife corridors, transitional zones in between natural areas and incompatible land uses, or expansion of ecological functions such as flood management and water quality.

Policy OS.2.1 Protection of Native Vegetation. Protect, preserve and create the conditions that will promote the preservation of significant trees and other vegetation, particularly native to California and the region.

Policy OS.2.2 Invasive Species. The City shall attempt to prevent further expansion of invasive species and protect against noxious weeds through public education and development review of projects that occur adjacent to natural areas. These efforts shall include requiring the planting of native vegetation that supports native terrestrial and aquatic animal species.

Policy OS.2.3 Invasive Species. Consider adopting guidelines and standards to help protect against the continued spread of invasive species, seek out opportunities to replace invasive, non-native vegetation with native vegetation on public property; and support efforts that enhance habitat by replacing invasive, nonnative vegetation with native California plant speciesover time within the City.

Policy OS.2.5 Riparian Habitat Restoration. Require restoration or replanting of riparian vegetation to the extent feasible, projects shall mitigate impacts to wetlands consistent with Federal and State policies to ensure that there is no lest loss in a regional context.

Policy OS.2.6 Riparian Mitigation. Impacts to riparian habitats should be mitigated at a no net loss of existing function and value based on field survey and analysis of the riparian habitat to be impacted.

Policy OS.2.8 Maintain and Improve Wildlife Movement Corridors. Continuous wildlife habitat, including corridors free of human disruption, shall be preserved and where necessary created by interconnecting open spaces, wildlife habitat and corridors.

Policy OS.2.9 Wildlife Movement Corridor Mitigation. The City will condition development permits in accordance with applicable mitigation measures to ensure that important corridors for wildlife movement and dispersal are protected. Features of particular importance to wildlife include riparian corridors, wetlands, bay shorelines, and protected natural areas with cover and water. Linkages and corridors shall be provided to maintain connections between habitat areas.

Policy OS.3.1 Continuous Open Space Planning. Plan for connectivity of open spaces and wildlife habitat and corridors using species area plans, neighborhood plans, subdivision maps or other applicable planning processes, consistent with Open Space Guidelines.

Policy OS.3.3 Cluster Development. Encourage cluster development and other creative site planning techniques to preserve open space, trails and visual, habitat, recreation and archaeological resources.

Policy OS.3.5 Buffers for Sensitive Resources. When activities close to open space resources within or outside the urban area could harm these resources, the City will require buffers between the activities and the resources. The City will actively encourage individuals, organizations and other agencies to follow this policy. Buffers associated with new development shall be on the site of the development, rather than on neighboring land containing the open space resource. Buffers provide distance in the form of setbacks, within which certain features or activities are not allowed or conditionally allowed. Buffers shall also use techniques such as planting and wildlife-compatible fencing. Buffers shall be adequate for the most sensitive species in the protected area, as determined by a qualified professional and shall complement the protected area's habitat values. Buffers shall be required in the following situations:

- Between urban development – including parks and public facilities – and natural habitat such as creeks, wetlands, rocky outcrops and grassland features to address noise, lighting, storm runoff, spread of invasive, non-native species, and access by people and pets.

- Between agricultural operations and natural habitat, to address noise, chemical use, sediment transport, and livestock access.

Policy OS.3.7 Preserve Natural Features. Retain sensitive habitat areas in their natural state, where possible, and protect from inappropriate development and landscaping. New development shall incorporate natural features present on the site such as a creek, steep topography or natural vegetation, where feasible, unless appropriate mitigation measures can be incorporated.

Incorporation of the above General Plan policies and associated action items would reduce potential impacts to migratory/movement corridors to a **less than significant** level.

Mitigation Measures

None required.

Conflict with Adopted Habitat Conservation Plan, Natural Community Conservation Plan, or Any Adopted Biological Resources Recovery or Conservation Plan of any Federal or State Agency (Standards of Significance 5 and 6)

Impact 4.7.5 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or any adopted biological resources recovery or

conservation plan of any federal or state agency. Therefore, there is **no impact.**

The project would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. The Planning Area is within the boundaries of the Recovery Plan for Serpentine Soil Species of the San Francisco Bay Area (USFWS, 1998). However, the Planning Area does not contain habitat for species listed in the recovery plan and therefore implementation of the General Plan Update would not conflict with the recovery plan.

The Planning Area is not within the boundaries of any Habitat Conservation Plan/Natural Community Conservation Plan. Implementation of the General Plan Update would not conflict with any such plan. Thus, no further analysis of the issue is required.

As the proposed General Plan Update would not conflict with any local policies, ordinances, or plans protecting biological resources, there is **no impact**.

Mitigation Measures

None required.

4.7.4 CUMULATIVE SETTING, IMPACTS AND MITIGATION MEASURES

The City of Pinole and the surrounding area of Contra Costa County as a whole must be considered for the purpose of evaluating land use conversion issues associated with biological resources on a cumulative level. In particular, this cumulative setting condition includes the proposed and approved projects listed in **Table 4.0-1**, existing land use conditions and planned development, including land areas within the City's Sphere of Influence, existing land use conditions, and planned and proposed land uses in communities near the city, as well as consideration of development patterns on communities in the rest of Contra Costa County and the East Bay from growth pressures from the rest of the Bay Area.

The City of Pinole is located in Contra Costa County in the northeastern portion of the San Francisco Bay Area. Habitat in this region is critically important for the protection of several sensitive species, as there is little natural habitat left in the region due to the tremendous growth pressures of the San Francisco Bay Area.

The Planning Area is located within the coverage area of *Recovery Plan for Serpentine Soil Species of the San Francisco Bay Area* (USFWS, 1998). The primary objective of this recovery plan is the recovery of 28 species of plants and animals that occur exclusively or primarily on serpentine soils and serpentine grasslands in the San Francisco Bay Area. The recovery plan does not identify the area within and surrounding the proposed project as having regional biological significance for the species covered within the recovery plan. The Planning Area is not near or within areas proposed for reserves or where connectivity and linkages should be promoted.

Increased development and disturbance created by human activities will result in direct mortality, habitat loss, deterioration of habitat suitability, and avoidance of habitat. Habitats most likely to be affected are oak woodlands, riparian habitat, and wetlands. The wildlife species associated with each habitat will likely be affected as well.

Cumulative Impacts to Special-Status Species

Impact 4.7.6 Implementation of the proposed General Plan and associated project components (Three Corridors Specific Plan and Zoning Code Update), together with past, present, and probable future projects in the Planning Area and larger regional context, would result in a cumulatively significant loss of biological resources in the region. The project's incremental contribution to this significant cumulative impact is **less than cumulatively considerable**.

As identified under Impacts 4.8.1 through 4.8.5 above, development arising through implementation of the proposed project would result in direct and indirect impacts to listed and non-listed special-status species as well as impacts to jurisdictional waters of the U.S. and non-special-status species, trees, habitat, and movement corridors. Further development under way in areas such as the cities as well as in unincorporated areas of Contra Costa County would increase indirect impacts in the cumulative area.

In addition to these direct impacts, the cumulative loss of habitat and associated wildlife could result in declines in special-status species and other regulated biological resources. In addition, the proposed project would contribute to an increased human presence, which would result in indirect impacts to biological resources (e.g., wildlife struck by vehicles, increased nighttime lighting). The proposed project and other projects in the region would result in adverse impacts on:

- Large trees and riparian habitat that provide important habitat for a wide variety and high diversity of wildlife;
- Special-status species and the habitat(s) they use;
- Habitat used by migratory birds and raptors; and
- Jurisdictional features (wetlands and waters of the U. S.).

Wetlands and riparian habitat provide an invaluable services such as water purification through retention of nutrients, sediments, and pollutants, groundwater recharge (the movement of water from the wetland down into the underground aquifer), and stabilization of local climate conditions, particularly rainfall and temperature. The loss of wetlands and riparian forest along Pinole Creek would result in declines in water quality conditions. This potential reduction to water quality in Pinole Creek could result in adverse effects to downstream aquatic resources and riparian habitat.

A portion of the Planning Area is disturbed as a result of previous residential and commercial development activities and agricultural production. Even so, disturbed lands provide habitat for many common species and may provide habitat for several special-status species. Many of the species potentially occurring within the Planning Area are not only a concern in the city but also regionally throughout the county and the state. The riparian corridors, agricultural lands, and open space within the Planning Area provide habitat for numerous listed and non-listed special-status species. Further population declines for listed species may jeopardize species survival, while non-listed species may become listed with further losses or degradation of suitable habitat. Implementation of the proposed project would contribute to the overall loss of open space.

While additional impacts may result from the implementation of individual projects within the Planning Area and surrounding areas, mitigation would be required of any discretionary projects impacting natural resources. The establishment of mitigation requirements such as those

recommended in this document would adequately address these impacts. The proposed General Plan policies for preservation of wildlife and their habitats would ensure that the cumulative impacts would be properly mitigated by preserving mitigation lands for wildlife and sensitive communities in the Contra Costa County.

Proposed General Plan Policies and Action Items that Address Cumulative Impacts to Special-status Species

The proposed General Plan update contains several goals, policies, and action items that would assist in reducing this potential impact to biological resources. The following list contains those policies and action items that contain specific, enforceable requirements and/or restrictions and corresponding performance standards that assist in reducing (though not eliminating) this impact. Since these policies and action items have been described in detail in prior impact discussions for this section, the following is limited to only listing the policy and action item numbers.

Natural Resource and Open Space Element

Policy OS.1.1; Policy OS.1.2; Policy OS.1.4; Policy OS.1.5; Policy OS.1.8; Policy OS.2.1; Policy OS.2.2; Policy OS.2.3; Policy OS.2.5; Policy OS.2.6; Policy OS.2.8; Policy OS.2.9; Policy OS.3.1; Policy OS.3.2; Policy OS.3.3; Policy OS.3.5; Policy OS.3.6; Policy OS.3.7; Policy OS.3.8; Policy OS.3.9; Policy OS.3.10; Policy OS.8.6; Policy OS.8.7; Policy OS.8.8

In addition, Section 7.0, *Private Realm Design Guidelines*, includes site planning guidelines that promote the preservation of natural amenities such as views, mature trees, and similar features unique to a site.

Mitigation Measures

Implementation of the above Specific Plan guidelines, General Plan policies, associated action items, and mitigation measures **MM 4.7.2a** and **MM 4.7.2b** would reduce the proposed project's contribution to cumulative biological impacts in the region to a **less than cumulatively considerable** level.

REFERENCES

Becker, Sally de. 1988. Saline Emergent Wetland. In Mayer and Laudenslayer 1988.

California Department of Fish and Game (CDFG). 2002. California Interagency Wildlife Task Group. 2002. California Wildlife Habitat Relationships (CWHR) version 8.0 personal computer program. Sacramento, CA.

California Department of Fish and Game (CDFG). 2010a. California Natural Diversity Database (CNDDB), Wildlife and Habitat Data Analysis Branch, Rarefind Version 3.1.1. Commercial version dated February 28, 2010.

California Department of Fish and Game (CDFG). 2010b. California Natural Diversity Data Base (CNDDB) Quickviewer. Data Base Record Search for Special-Status Species: *Walnut Creek, Briones Valley, Oakland East, Las Trampas Ridge, Richmond, San Quentin, San Francisco North, Oakland West, Cordelia, Benecia, Vine Hill, Cuttings Wharf, Sears Point, Petaluma Point, and Mare Island*, 7.5-Minute United States Geologic Survey Quadrangles. Accessed online April 16, 2010. California Department of Fish and Game, Sacramento, CA.

California Native Plant Society (CNPS). 2010. *Inventory of Rare and Endangered Plants* (online edition, v7-10a 1-19-10). http://www.cnps.org/inventory (accessed April 16, 2010).

GlobeXplorer. 2006. Aerial photograph of the Planning Area.

Hickman, J., ed. 1993. *The Jepson Manual: Higher Plants of California*. University of California Press: Berkeley, CA.

Holland, R. F. 1986. *Preliminary Descriptions of the Terrestrial Natural Communities of California*. Unpublished Report. California Department of Fish and Game: Sacramento CA.

Holland, V. L. 2005. Coastal Oak Woodland. In Mayer and Laudenslayer 1988.

Jensen, D. B. 1988. Closed-Cone Pine-Cypress. In Mayer and Laudenslayer 1988.

Kie, John G. 2005. Annual Grassland. In Mayer and Laudenslayer 1988.

Ledwith, T. 1996. *The Effects of Buffer Strip Width on Air Temperature and Relative Humidity in a Stream Riparian Zone*. Six Rivers National Forest, Eureka, CA.

Mayer, Kenneth E., and William F. Laudenslayer, Jr. 1988. *A Guide to Wildlife Habitats of California*. 1988. Edited by Kenneth E. Mayer and William F. Laudenslayer, Jr. State of California, Resources Agency, Department of Fish and Game: Sacramento, CA.

McBride Joe R., and Chris Reid. 1988. Urban. In Mayer and Laudenslayer 1988.

Pearson, D.C. 1988. Eucalyptus. In Mayer and Laudenslayer 1988.

Pinole, City of. 1995. *General Plan*.

Pinole, City of. 2007. City of Pinole website. http://www.ci.pinole.ca.us/

Pinole, City of. 2007. *General Plan Update*.

Sawyer, J., and T. Keeler-Wolf. 1995. *A Manual of California Vegetation*. California Native Plant Society: Sacramento CA.

Smith, Kent. 1988. Estuarine. In Mayer and Laudenslayer 1988.

Springer, Paul. 1988. Saline Emergent Wetland. In Mayer and Laudenslayer 1988.

United States Department of Agriculture (USDA). 2006. *Soil Survey of Contra Costa County, California*. Natural Resources Conservation Service: Sacramento, California.

United States Environmental Protection Agency (USEPA). 2006. *Locate Your Watershed*. http://cfpub1.epa.gov/surf/locate/index.cfm (accessed December 2006).

United States Fish and Wildlife Service (USFWS). 1998. *Recovery Plan for Serpentine Soil Species of the San Francisco Bay Area.* Diane R. Elam, David H. Wright, Bradley Goettle (eds.). U.S Fish and Wildlife Service, Region 1. Portland, Oregon. http://ecos.fws.gov/docs/recovery_plans/1998/980930c.pdf

United States Fish and Wildlife Service (USFWS). 2010a. *Federal Endangered and Threatened Species that may be Affected by Projects in the Walnut Creek, Briones Valley, Oakland East, Las Trampas Ridge, Richmond, San Quentin, San Francisco North, Oakland West, Cordelia, Benecia, Vine Hill, Cuttings Wharf, Sears Point, Petaluma Point, and Mare Island*, *7.5-Minute United States Geologic Survey Quadrangles*. USFWS, Sacramento Fish and Wildlife Office: Sacramento, California. Document Number 100416011716. April 16, 2010.

United States Fish and Wildlife Service (USFWS). 2010b. *Critical Habitat Mapper*. http://criticalhabitat.fws.gov/ (accessed April 16, 2010).

Western Regional Climate Center. 2006. *Current and Historical Climate Data for the City of Pinole*. http://www.wrcc.dri.edu/.

4.8 Geology and Soils

This section of the Draft Environmental Impact Report (Draft EIR; DEIR) describes the geology and soils of the Pinole General Plan Update (GPU) Planning Area and analyzes issues such as potential exposure of people and property to geologic hazards, landform alteration, and erosion. In addition, potential seismic/geologic hazards such as earthquakes and ground failure, slope instability, and landslides are discussed.

4.8.1 EXISTING SETTING

TOPOGRAPHY & LOCAL GEOLOGY

Planning Area Setting

The City of Pinole GPU Planning Area encompasses approximately 13.3 square miles, which includes 5.45 square miles of land and 7.85 square miles of water. The water portions of the city include the San Pablo Bay tidal marshes and bay waters.

The Planning Area is located within the Coast Ranges geomorphic province, which is characterized by nearly parallel northwest-trending ridges interspersed with alluvium-filled valleys. Terraces and alluvial fans border the ridges of the Coast Ranges before they hit the San Francisco, San Pablo, and Suisun bays and merge into tidal flats along the bay margins. The Coast Ranges were structurally formed by faulting and folding of the Farallon and North American plates, recorded by rocks of the Franciscan Complex of Cretaceous and Jurassic age (100 to 65 million years old). Subsequent shearing between the North American and Pacific plates has been recorded in the rocks of the Tertiary Complex of sedimentary and volcanic rocks of the Berkeley and Oakland Hills. Surface elevations within the Coast Ranges generally range from several feet below mean sea level to more than 3,849 feet above sea level at its highest peak at Mount Diablo, located in central Contra Costa County.

The topography of the City of Pinole is characterized by upland terrain of the East Bay Hills in the eastern portions of the city and lowland terrain with subdivisions of valley lands and bay lands in the western portions of the city. The East Bay Hills are a segment of the Coast Ranges with northwesterly-trending, moderate to steeply sloping hillsides and surface elevations ranging from 0 to 75 percent slopes. The ground surface elevation in the vicinity of the Planning Area, as shown on a collection of United States Geological Survey USGS Topographic Map quadrangles, ranges from approximately mean sea level (msl) to 790 feet above msl.

GEOTECHNICAL CONDITIONS

Soils

The geologic units of the GPU Planning Area primarily consist of existing fill, landslide deposits, colluviums, younger alluvial fan deposits, bay mud, older alluvial fan deposits consisting of clays and clay loams, and undifferentiated bedrock.

According to the U.S. Department of Agriculture *Soil Survey of Contra Costa County*, the GPU Planning Area contains 24 separate soil types (**Table 4.8-1**). The primary native soils in the vicinity of the Planning Area are older alluvial fan deposits derived from granite rock. Additional native soils consist of younger alluvial fan deposits consisting of Clear Lake Clay (0 to 2 percent slopes), Cropley Clay (2 to 5 percent slopes), and Diablo Clay (15 to 30 percent slopes). Non-native soils, which comprise a large percentage of the total land of the GPU Planning Area, consist of existing cut and fill materials, which are classified as well drained. The non-native materials

consist of cut and fill material of Los Osos complex (9 to 30 percent slopes), Millsholm complex (9 to 30 percent slopes), and Diablo complex (9 to 30 percent slopes). The alluvial-derived soil material that comprises a large portion of the Planning Area is considered to have low to moderately low drainage capacity. The non-native cut and fill material is considered to have well to moderately well drainage capacity. **Figure 4.8-1** describes the locations of the specific soil types found in the Planning Area.

These base geological conditions can lend to structural failures and property damage from low subsoil strength and geologic hazards such as landslides, creeping, slaking (breakdown upon exposure to air or water), or exposure to expansive soils (shrinking and swelling of soil). Properly designed foundations, buildings, and roads can help to prevent potential damage to structures and foundations from geological hazards present in the Planning Area.

TABLE 4.8-1
PLANNING AREA SOIL TYPES

Soil Name	Approximate Percentage of Land in Planning Area*
Altamont-Fontana Complex, 30 to 50 percent slopes	0.6
Botella Clay Loam, 2 to 9 percent slopes	4.7
Clear Lake Clay	6.5
Conejo Clay Loam, 0 to 2 percent slopes	0.4
Conejo Clay Loam, 2 to 5 percent slopes	1.8
Cropley Clay, 2 to 5 percent slopes	3.3
Cut and Fill Land – Diablo Complex, 9 to 30 percent slopes	5.5
Cut and Fill Land – Los Osos Complex, 9 to 30 percent slopes	7.6
Cut and Fill Land – Millsholm Complex, 9 to 30 percent slopes	9.7
Cut and Fill Land – Millsholm Complex, 30 to 50 percent slopes	6.7
Diablo Clay, 15 to 30 percent slopes	2.6
Diablo Clay, 30 to 50 percent slopes	1.0
Joice Muck	0.7
Lodo Clay Loam, 9 to 30 percent slopes	0.2
Lodo Clay Loam, 30 to 50 percent slopes	4.8
Los Gatos Loam, 15 to 30 percent slopes	0.4
Los Gatos Loam, 30 to 50 percent slopes	1.9
Los Osos Clay Loam, 15 to 30 percent slopes	7.4
Los Osos Clay Loam, 30 to 50 percent slopes	14.1
Los Osos – Los Gatos Complex	1.2
Millsholm Loam, 15 to 30 percent slopes	2.7
Millsholm Loam, 30 to 50 percent slopes	14.1
Tierra Loam, 2 to 9 percent slopes	0.9
Tierra Loam, 9 to 15 percent slopes	0.1
Waterways	1.1

Source: Natural Resource Conservation Service, 2010
**Excludes submerged areas of the Planning Area*

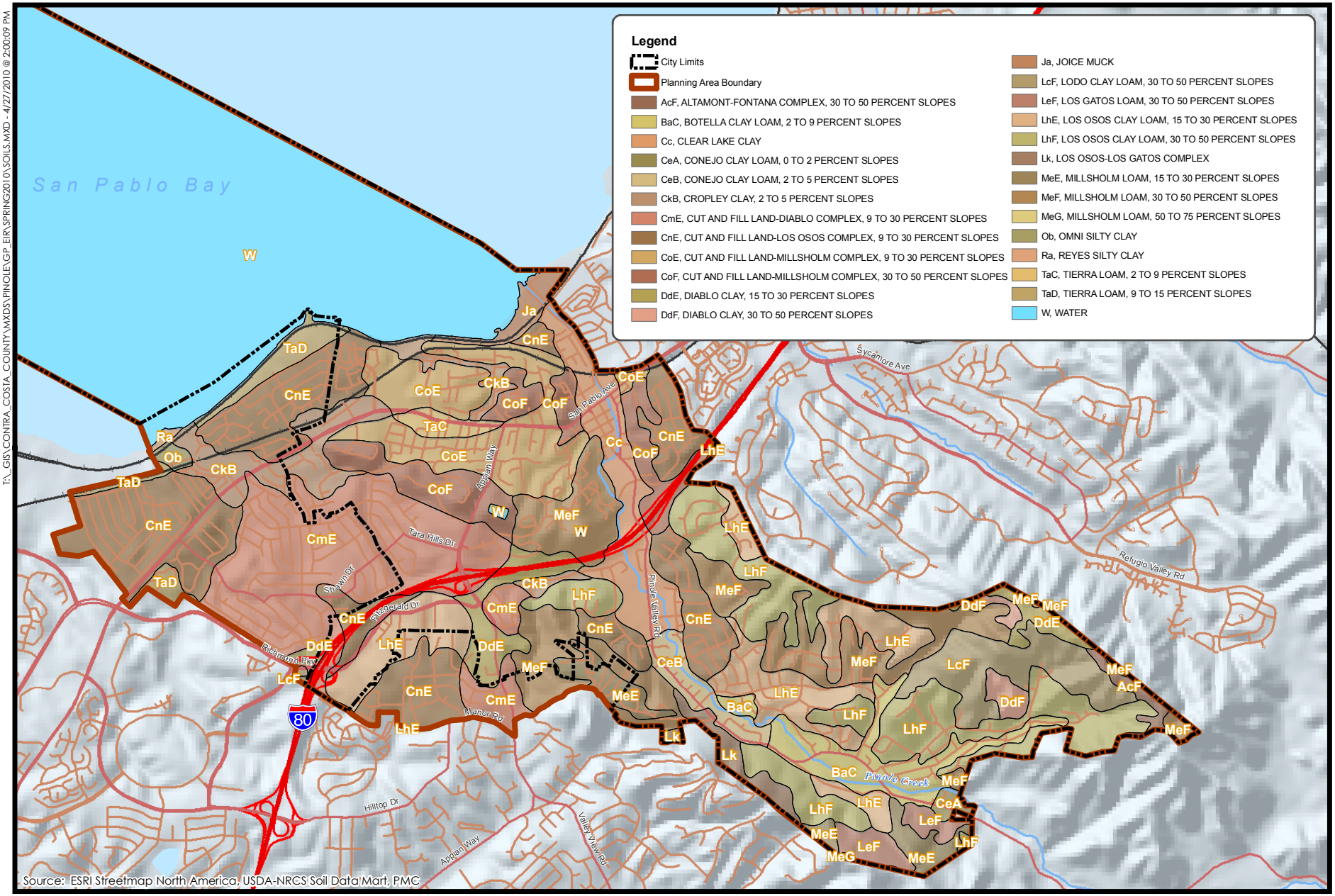

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Figure 4.8-1
Soils Map

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Potential Soils Hazards

Expansive Soils

Expansive soils are soils that shrink or swell depending on the level of moisture they absorb. These swelling soils typically contain clay minerals, as the amount and kind of clay affects the fertility and physical condition of soil and the ability of the soil to adsorb and retain moisture. As the soils get wet, the clay minerals absorb water molecules and expand; conversely, as they dry they shrink, leaving large voids in the soil. When structures are located on expansive soils, foundations have the tendency to rise during the wet season and sink during the dry season. Unless accommodated by design, this movement can create new stresses on various sections of the foundation and connected utilities and can lead to structural failure and damage to infrastructure.

The lowland areas of the Planning Area containing alluvium and bay mud that consist of rich clay soils have a moderate potential for expansion under changing conditions. However, the city's biggest threat comes from large and erratic settlements in areas where fill material overlays soft, compressible bay mud.

Landslides and Slope Instability

Landslides may be triggered by both natural and human-induced changes in the environment that result in slope instability. The term landslide includes a wide range of ground movement, such as rock falls, deep failure of slopes, and shallow debris flows. Although gravity acting on an over-steepened slope is the primary reason for a landslide, there are other contributing factors:

- Erosion by rivers, glaciers, or ocean waves create over steepened slopes;
- Rock and soil slopes are weakened through saturation by snowmelt or heavy rains;
- Earthquakes create stresses that make weak slopes fail;
- Earthquakes of magnitude 4.0 and greater have been known to trigger landslides;
- Volcanic eruptions produce loose ash deposits, heavy rain, and debris flows; and
- Excess weight from accumulation of rain or snow, stockpiling of rock or ore, from waste piles, or from man-made structures may stress weak slopes to failure and other structures.

Slope material that becomes saturated with water may develop a debris or mud flow. The resulting slurry of rock and mud may pick up trees, houses, and cars, blocking bridges and tributaries and causing flooding along its path (California Geological Survey, 2002a).

Human activities such as mining, construction, and changes to surface drainage areas can also affect landslide potential in an area. Landslides often accompany other natural hazard events such as floods, wildfires, or earthquakes. Landslides can occur slowly or very suddenly and can damage and destroy structures, roads, utilities, and forested areas and can cause injuries and death.

There is a high potential in the Planning Area for seismically induced landslides and slope instability hazards. Seismically induced landslides are likely to occur along the steep to intermediate hillside areas of the GPU Planning Area. These areas can occur along the East Bay

Hills, areas where previous land sliding or soil creeping has occurred, areas where non-engineered grading and uncontrolled drainage on slopes has occurred, and areas with deep colluvial deposits. Slope stability hazards can result in loose debris flows and landslides. In April 2006, the city experienced a large landslide induced by heavy rainfall on Interstate 80 (I-80) between Pinole Valley Road and Appian Way that closed westbound State Route (SR) 4 (City of Pinole, 2009b).

Erosion/Accelerated Erosion

The Natural Resource Conservation Service (NRCS) classifies soils based on the hazard of soil loss from off-road and off-trail areas after disturbance activities that expose the soil surface. NRCS erosion factor K indicates the susceptibility of a soil to erode by water. This estimate is based primarily on the percentage of silt, sand, and organic matter and on soil structure and saturated hydraulic conductivity (NRCS, 2010). Values of K range from 0.02 to 0.69. The higher the value, the more susceptible the soil is to the eroding effects of water flow. The soils of the Planning Area generally fall within a K range of 0.2 to 0.32 (NRCS, 2010), which represents a moderate to moderately severe susceptibility to erosion.

The NRCS wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion. The Millsholm Loam complex possesses the highest susceptibility to wind erosion of all soil types in the Planning Area (NRCS, 2010). The Millsholm Loam complex consists of approximately 18 percent of soils located in the GPU Planning Area.

Tsunamis

Tsunamis are significant sea waves resulting from the vertical displacement of the ocean floor due to a large earthquake. The potential for a significant tsunami event to occur within the GPU Planning Area and cause any significant damage is considered low. Tsunami hazards within the GPU Planning Area could include temporary high water levels, possible loss of property or property damage, erosion, and possible loss of life or injury. The GPU Planning Area is located along the shores of the San Pablo Bay, which is subject to the possible effects of a tsunami. However, the San Francisco Bay significantly attenuates tsunamis that might reach Pinole, which lies on its northern extension of San Pablo Bay.

Geologic Hazards Faults and Seismicity

Earthquakes

Earthquakes are the product of the buildup and sudden release of strain along a fault or zone of weakness in the earth's crust. Stored energy may be released as soon as it is generated or it may be accumulated and stored for long periods of time. Individual releases may be so small that they are detected only by sensitive instruments or they may be violent enough to cause destruction over vast areas. Strong ground shaking associated with earthquakes can cause structural damage, injury, and loss of life, as well as damage to infrastructure networks such as water, power, gas, communication, and transportation lines. Other damage-causing effects of earthquakes include surface rupture, fissuring, settlement, and permanent horizontal and vertical shifting of the ground. Secondary impacts can include landslides, seiches, liquefaction, and dam failure.

Earthquakes are generally expressed in terms of *intensity* and *magnitude*. Intensity is based on the observed effects of ground shaking on people, buildings, and natural features. An earthquake's intensity varies from region to region, depending on the location of the observer with respect to the earthquake epicenter. By comparison, an earthquake's magnitude is related to the amount of seismic energy released at the hypocenter of the earthquake. Magnitude is based on the amplitude of the earthquake waves recorded on instruments, which have a common calibration. The magnitude or strength of earth movement associated with seismic activity is typically quantified using the Richter scale. This scale is a measure of the strength of an earthquake or strain energy released by it, as determined by seismographic observations. This is a logarithmic value originally defined by Charles Richter in 1935. An increase of one unit of magnitude (for example, from 4.6 to 5.6) represents a tenfold increase in wave amplitude on a seismogram, or approximately a 30-fold increase in the energy released. In other words, a magnitude 6.7 earthquake releases over 900 times (30 times 30) the energy of a 4.7 earthquake.

The Modified Mercalli (MM) Intensity Scale is used in the United States to evaluate earthquake movement. The MM scale is composed of 12 increasing levels of intensity designated by Roman numerals. The intensity scale consists of a series of certain key responses such as people awakening, movement of furniture, damage to chimneys, and, finally, total destruction. The levels range from imperceptible shaking to catastrophic destruction. The MM scale does not have a mathematical basis; instead, it is an arbitrary ranking based on observed effects. The lower numbers of the intensity scale generally deal with the manner in which the earthquake is felt by people. The higher numbers of the scale are based on observed structural damage. **Table 4.8-2** provides a description and a comparison of intensity and magnitude and describes the typical effects observed at locations near the epicenter of earthquakes of different magnitudes.

TABLE 4.8-2
MAGNITUDE AND INTENSITY

Magnitude	Intensity	Typical Maximum Modified Mercalli Intensity and Typical Effects of Earthquake Activity*
1.0 – 3.0	I	I. Not felt except by a very few under especially favorable conditions.
3.0 – 3.9	II – III	II. Felt only by a few persons at rest, especially on upper floors of buildings. III. Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibrations similar to the passing of a truck. Duration estimated.
4.0 – 4.9	IV – V	IV. Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably. V. Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.
5.0 – 5.9	VI – VII	VI. Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight. VII. Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken.
6.0 – 6.9	VIII – IX	VIII. Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned. IX. Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse.

Magnitude	Intensity	Typical Maximum Modified Mercalli Intensity and Typical Effects of Earthquake Activity*
		Buildings shifted off foundations.
7.0 and higher	VIII or higher	X. Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent. XI. Few, if any (masonry) structures remain standing. Bridges destroyed. Rails bent greatly. XII. Damage total. Lines of sight and level are distorted. Objects thrown into the air.

Source: California Geological Survey, 2002a

*Notes: *Abbreviated Modified Mercalli Intensity Scale*

The California Geological Survey (CGS) identifies low, medium, and high severity zones within the state of California. The Planning Area is located within Seismic Zone 4. A Seismic Zone 4 is an area that can expect to experience ground motion of high severity. Based on seismologic and geologic conditions, the maximum level of ground motion potentially experienced in the Planning Area would occur as a result of a 7.25 magnitude earthquake on the Hayward fault zone or of an 8.5 magnitude along the San Andreas Fault.

In accordance with the severity zones, the CGS also defines the following:

- *Fault* – A fracture or zone of closely associated fractures along which rocks on one side have been displaced with respect to those on the other side.

- *Fault Zone* – A zone of related faults, which commonly are braided, and sub parallel, but may be branching and divergent. A fault zone has a significant width (with respect to the scale at which the fault is being considered, portrayed, or investigated), ranging from a few feet to several miles.

- *Potentially Active Fault* – A fault that showed evidence of surface displacement during Quaternary time (last 1.6 million years). The purpose of this designation indicates the evaluation of possible zonation.

- *Sufficiently Active Fault* – A fault that has evidence of Holocene (10,000 years) surface displacement along one or more of its segments or branches.

- *Well-Defined Fault* – A fault whose trace is clearly detectable by a trained geologist as a physical feature at or just below the ground surface. The geologist should be able to locate the fault in the field with sufficient precision and confidence to indicate that the required site-specific investigations would meet with some success.

Sufficiently active faults and well defined faults are the two criteria used by the State of California in order to determine whether a fault should be zoned under the Alquist-Priolo Act, further discussed in subsection 4.8.2, Regulatory Framework. The City of Pinole Planning Area is not located within an Alquist-Priolo earthquake hazard zone (formerly known as special study zones), although several active faults are identified in the vicinity of the Planning Area. **Table 4.8-3** identifies known primary faults in the vicinity of the Planning Area, their activity, the approximate distance from the Planning Area, and the maximum magnitude associated with each fault. **Figure 4.8-2** shows the location of the faults within the Planning Area.

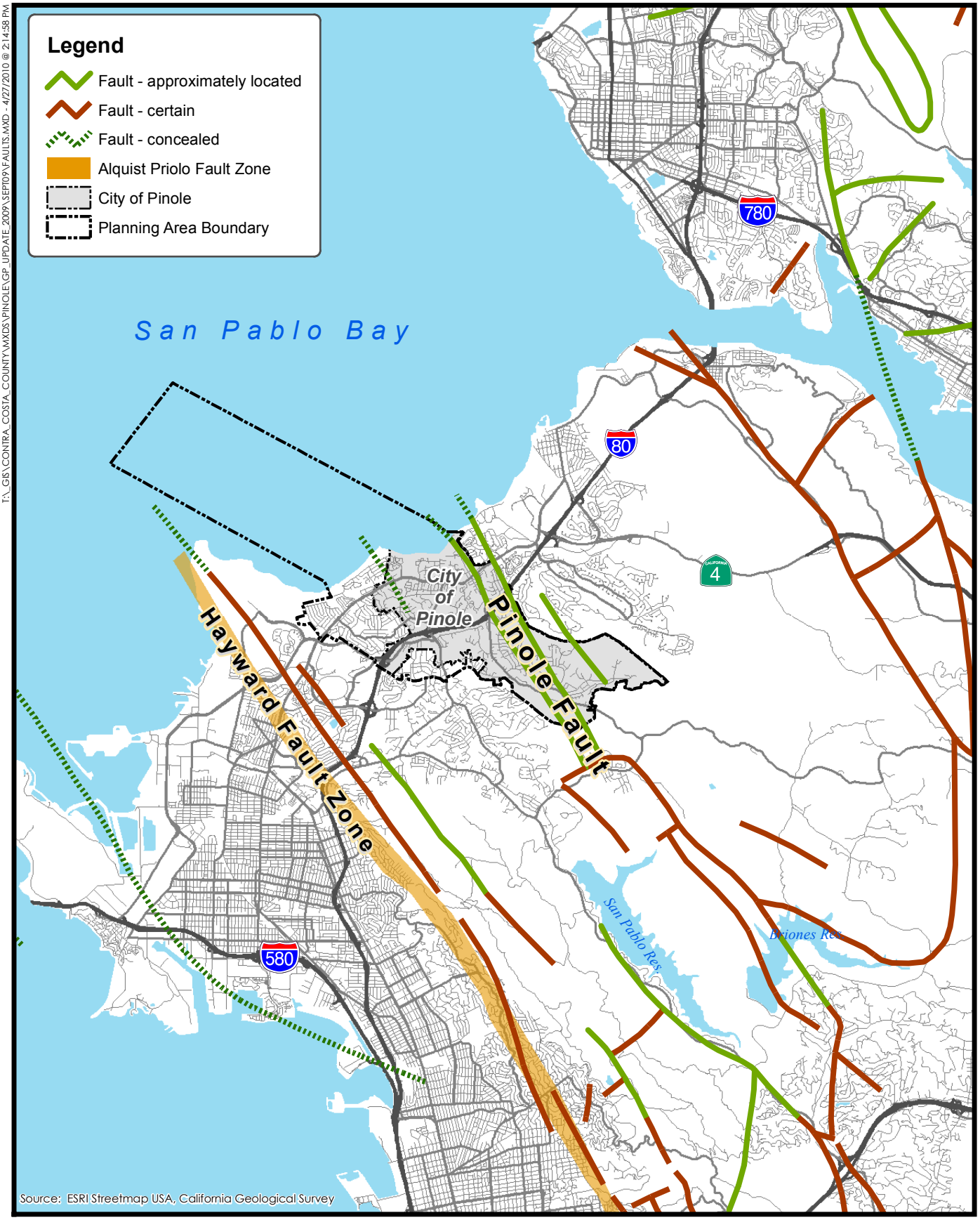

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Figure 4.8-2
Faults Hazard Map

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TABLE 4.8-3
FAULTS IN THE VICINITY OF THE GPU PLANNING AREA

Name	Approximate Distance from GPU Planning Area (in miles)	Activity	Maximum Magnitude (MW)
Antioch Fault	26	Portions active within the past 200 years	6.5
Calaveras Fault	22	Portions active within the past 200 years	7.25
Clayton Fault	18	Portions active within the past 200 years	6.25
Concord Fault	12	Portions active within the past 200 years	6.5
Green Valley Fault	12	Active	5.5
Greenville Fault	40	Portions active within the past 200 years	5.5
Hayward Fault	1.5–3.9	Portions active within the past 200 years	7.25
Marsh Creek Fault	32	Not reported	6.9
Mt. Diablo Thrust Fault	18	10,000 years	6.6
Pinole fault	0	10,000 years	6.8
Rodgers Creek Fault	23	Portions active within the past 200 years	7.0
San Andreas	18–20	Portions active within the past 200 years	8.5
San Gregorio	30	Portions active within the past 200 years	7.9
West Napa	15	Active	6.5

Source: Contra Costa County, 2005

The Hayward and San Andreas fault zones are considered the faults of greatest concern to Contra Costa County and throughout the Bay Area due to their location and size. Subsurface data indicate that there has been appreciable movement on the San Andreas Fault and Hayward Fault in the last 200 years. Recent historic surface faulting along these faults were creep and surface rupture earthquakes. The San Andreas Fault was the cause of the Loma Prieta earthquake of 1989 and the 1906 San Francisco earthquake, both of which caused widespread damage throughout the Bay Area. Additionally, earthquakes occurred on the Hayward Fault in the years 1836 and 1868. The Working Group of California Earthquake Probabilities (WGO2) evaluated the likelihood of one or more earthquakes of magnitude 6.7 or higher occurring in the San Francisco Bay Area. The results concluded that the San Andreas Fault has a 21 percent chance and the Hayward Fault has a 27 percent chance of experiencing a 6.7 magnitude earthquake or higher within the next 30 years. Due to the Planning Area's proximity to the Hayward Fault, this fault poses the greatest threat to the City of Pinole.

The Pinole Fault bisects the GPU Planning Area. The Pinole Fault is the southeastern-most, onshore continuation of the Rodgers Creek Fault. The Pinole Fault branches northerly through the GPU Planning Area, forming a "Y." The trunk and eastern leg of the "Y" essentially follow the Pinole Creek drainage, and the western leg extends from Pinole Creek northwesterly to the bay margin just west of Wilson Point. The Pinole Fault was believed to be inactive (no activity within the last 10,000 years); however, recent research has shown that the Pinole Fault has undergone activity within the last 10,000 years and should be considered as an active fault (Fenton, 1997). Age dating of sediment in San Pablo Bay shows that the Pinole Fault has a recurrence interval of approximately every 900 years, with repeated movement over the last 10,000 years. Additionally,

the Pinole Fault may be a potentially linking structure between the Rogers Creek Fault and the Hayward Fault, thereby significantly increasing the potential rupture length and the maximum earthquake which may be generated by these faults.

Ground Shaking

The City of Pinole is not located within an Alquist-Priolo Study Zone. However, the GPU Planning Area is bisected by the Pinole Fault, an active fault, and it is located relatively close to an Alquist-Priolo Study Zone along the Hayward Fault and to several active faults.

In populated areas, the greatest potential for loss of life and property damage is a result of ground shaking from a nearby earthquake. The degree of damage depends on many interrelated factors. Among these factors are the Richter magnitude, focal depth, distance from the causative fault, source mechanism, duration of shaking, high rock accelerations, type of surficial deposits or bedrock, degree of consolidation of surficial deposits, presence of high ground water, topography, and design, type, and quality of building construction. A critical factor affecting the intensity of ground shaking is the geologic material underneath a site. Deep, loose soils will amplify and prolong the shaking. Ground shaking can be several times greater on sites underlain by weak sediments like bay mud, rather than on bedrock such as granite.

Losses from shaking can occur where tall structures are built on thick, soft sediments. The amount of damage from shaking is also influenced by the structural integrity of buildings before an earthquake. Damage to buildings and utilities in Pinole is likely to be greatest on those sites underlain by deep, loose, compressible deposits of bay mud, non-engineered fill, and marginally stable hillside areas. Areas within the GPU Planning Area that are highly susceptible to damages resulting from ground shaking are located between San Pablo Avenue and the San Pablo Bay shoreline, in the western portions of the city, especially in the Tara Hills Mobile Home Park.

Liquefaction

Liquefaction is the loss of soil strength due to seismic forces generating various types of ground failure. The potential for liquefaction must account for soil types and density, the groundwater table, and the duration and intensity of ground shaking.

Based upon known soil, groundwater, and ground shaking conditions within the GPU Planning Area, the potential for liquefaction beneath the GPU Planning Area is considered low. Areas potentially susceptible to liquefaction are located along the San Pablo Bay shoreline, the locations in the western portions of the GPU Planning Area discussed above, and in areas located underneath deposits of active/recently active stream channels. Additionally, the potential for ground lurching, differential settlement, or lateral spreading occurring during or after seismic events is also considered to be low except for the locations discussed above.

4.8.2 REGULATORY FRAMEWORK

STATE

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act was passed in 1972 to mitigate the hazard of surface faulting to structures for human occupancy. A direct result of the 1971 San Fernando earthquake and the extensive surface fault ruptures that damaged numerous homes, commercial buildings, and other structures, the Alquist-Priolo Earthquake Fault Zoning Act's main

purpose is to prevent the construction of buildings used for human occupancy on the surface trace of active faults. The act only addresses the hazard of surface fault rupture and is not directed toward other earthquake hazards. The Seismic Hazards Mapping Act (discussed below) addresses non-surface fault rupture earthquake hazards, including liquefaction and seismically induced landslides.

The law requires the State Geologist to establish regulatory zones (known as Earthquake Fault Zones) around the surface traces of active faults and to issue appropriate maps. The maps are distributed to all affected cities, counties, and state agencies for their use in planning and controlling new or renewed construction. The law requires that before a project can be permitted, cities and counties must require a geologic investigation to demonstrate that proposed buildings will not be constructed across active faults. An evaluation and written report of a specific site must be prepared by a licensed geologist. If an active fault is found, a structure for human occupancy cannot be placed over the trace of the fault and must be set back from the fault (generally 50 feet) (DOC, 2009). According to the State Department of Conservation, the City of Pinole itself is not listed as a city which is affected by earthquake fault zones and, by extension, is not subject to the Alquist-Priolo Earthquake Fault Zoning Act. However, Contra Costa County, which encompasses the city, is listed as a county which is affected by earthquake fault zones and subject to the requirements of the Alquist-Priolo Earthquake Fault Zoning Act. While Pinole is not located within an Alquist-Priolo earthquake hazard zone, the unincorporated portions of the GPU Planning Area are in Contra Costa County and are considered to be in an earthquake hazard zone.

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act (SHMA) of 1990 (Public Resources Code, Chapter 7.8, Sections 2690–2699.6), passed by the legislature following the 1989 Loma Prieta earthquake, directs the Department of Conservation, California Geological Survey to identify and map areas prone to liquefaction, earthquake-induced landslides, and amplified ground shaking. The purpose of the SHMA is to minimize loss of life and property through the identification, evaluation, and mitigation of seismic hazards.

Staff geologists in the Seismic Hazard Zonation Program gather existing geological, geophysical, and geotechnical data from numerous sources to produce the Seismic Hazard Zone Maps. They integrate and interpret these data regionally in order to evaluate the severity of the seismic hazards and designate as Zones of Required Investigation (ZORI) those areas prone to liquefaction and earthquake-induced landslides. Cities and counties are then required to use the Seismic Hazard Zone Maps in their land use planning and building permit processes. The Seismic Hazards Mapping Act requires that site-specific geotechnical investigations be conducted within the Zones of Required Investigation to identify and evaluate seismic hazards and formulate mitigation measures prior to permitting most developments designed for human occupancy (DOC, 2009).

California Building Code

In addition to the requirements of the Uniform Building Code, California Code of Regulations, Title 24, also known as the California Building Standard Code or the California Building Code (CBC), establishes further guidance for foundation design, shear wall strength, and other structurally related concerns. The purpose of the CBC is to provide minimum standards to safeguard life or limb, health, property, and public welfare by regulating and controlling the design, construction, quality of materials, use and occupancy, location, and maintenance of all building and structures within its jurisdiction. The provisions of the CBC apply to the construction,

alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal, and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures throughout the State of California (CBSC, 2008). The CBC modified UBC regulations for specific conditions found in California and included a large number of more detailed and/or more restrictive regulations. For example, the CBC includes common engineering practices requiring special design and construction methods that reduce or eliminate potential expansive soil related impacts. The CBC requires structures to be built to withstand ground shaking in areas of high earthquake hazards, and the placement of strong motion instruments in larger buildings to monitor and record the response of the structure and the site of seismic activity. Compliance with CBC regulations ensures the adequate design and construction of building foundations to resist soil movement. In addition, the CBC also contains drainage requirements in order to control surface drainage and to reduce seasonal fluctuations in soil moisture content.

Published by the International Conference of Building Officials, the International Building Code is a widely adopted model building code in the United States. The CBC incorporates by reference the International Building Code (IBC) with necessary California amendments. These amendments include significant building design criteria that have been tailored for California earthquake conditions. Design criteria for seismic loading and other geologic hazards are included in the design standards in the CBC. The CBC provides design criteria for geologically induced loading that govern sizing of structural members and provides calculation methods to assist in the design process.

LOCAL

Association of Bay Area Governments

The Association of Bay Area Governments (ABAG) has adopted a Manual of Standards for Erosion and Sediment Control Measures (May 1995), a comprehensive field guide for controlling soil erosion in the area.

City of Pinole Erosion and Sediment Control Plan Ordinance

The City's Erosion and Sediment Control Plan Ordinance (Title 15, Chapter 15.36.190 of the City Code) establishes that erosion and sediment control plans, prepared by a registered civil engineer, shall be submitted to the City for review for any building or construction activities. This ordinance applies to project sites over 0.25 acre or when more than 150 cubic yards of excavation or fill will take place, if there is a slope of greater than 15 percent, or if the project grading would pose a threat to adjacent or downstream property or obstruct a drainage channel. Erosion control plans must effectively minimize soil erosion and sedimentation from the project site and must also provide for the control of runoff from the site.

The Erosion and Sediment Control Plan Ordinance establishes administrative procedures, minimum standards of review, and implementation and enforcement procedures for controlling erosion, sedimentation, and other pollutant runoff, including construction debris and hazardous substances used on construction sites. The plan also establishes interim erosion control and sedimentation plans for rainy seasons that must be approved by the Public Works Director. The intent of the ordinance is to minimize damage to surrounding properties and public rights-of-way, the degradation of the water quality of water courses, and the disruption of natural or City-authorized drainage flows caused by construction activities.

4.8.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

The impact analysis in this section is based, in part, on the following State CEQA Guidelines Appendix G thresholds of significance.

The CEQA Guidelines (Appendix G) indicate that a proposed project may have potentially significant geologic impacts if it results in any of the following:

1) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury or death, involving:

    a. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault;

    b. Strong seismic ground shaking;

    c. Seismic-related ground failure, including liquefaction;

    d. Landslides.

2) Result in substantial soil erosion of the loss of topsoil.

3) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse.

4) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property.

5) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.

Since geologic conditions in the Planning Area do not include ultramafic rock conditions that could support naturally occurring asbestos, no public health exposure impacts to naturally occurring asbestos are expected to occur.

METHODOLOGY

The evaluation of geology and related soils located within the proposed Planning Area was based on a review of regional reports prepared by Contra Costa County, the State of California, and various consultants. The proposed General Plan land uses were compared to existing geologic conditions in order to identify impacts to the Planning Area resulting from implementation of the proposed project.

PROJECT IMPACTS AND MITIGATION MEASURES

Seismic Hazards (Standard of Significance 1)

Impact 4.8.1 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would result in the construction of projects over a seismically hazardous area. This is considered **less than significant** impact.

General Plan Update

The Planning Area is located in a fault zone that is expected to experience ground motion of high severity. The maximum level of ground motion potentially experienced in the Planning Area would occur as a result of a 7.25 magnitude earthquake on the Hayward fault zone or of an 8.5 magnitude along the San Andreas Fault. While the City of Pinole is not located within an Alquist-Priolo earthquake hazard zone, the unincorporated portions of the GPU Planning Area are in Contra Costa County and are considered to be in an earthquake hazard zone. Due to the proximity to the Hayward Fault to the GPU Planning Area, this fault poses the greatest threat to Pinole.

The Pinole Fault has a recurrence interval of approximately every 900 years, with repeated movement over the last 10,000 years. Additionally, the Pinole Fault may be a potentially linking structure between the Rogers Creek Fault and the Hayward Fault, thereby significantly increasing the potential rupture length and the maximum earthquake which may be generated by these faults.

Damage to buildings and utilities in Pinole is likely to be greatest on those sites underlain by deep, loose, compressible deposits of bay mud, non-engineered fill, and marginally stable hillside areas. Areas within the GPU Planning Area that are highly susceptible to damages resulting from ground shaking are located between San Pablo Avenue and the San Pablo Bay shoreline, in the western portions of the city, especially in the Tara Hills Mobile Home Park. However, the City has adopted the CBC into their building standards for all development within the city limits. CBC standards address foundation design, shear wall strength, and other structural-related conditions. All development projects associated with the proposed General Plan Update are subject to the CBC, which requires a seismic evaluation and particular seismic design criteria to reduce ground shaking effects. Compliance with CBC regulations ensures the adequate design and construction of building foundations to resist soil movement. Therefore, this impact is **less than significant**.

Three Corridors Specific Plan

Implementation of the proposed Three Corridors Specific Plan would consist of the revitalization of the San Pablo Avenue, Pinole Valley Road, and Appian Way corridors, which could include new development and/or redevelopment of various urban uses. The updated General Plan and the Three Corridors Specific Plan direct the majority of the city's future growth to sites designated for mixed and multiple-family use in the San Pablo Avenue, Pinole Valley Road, and Appian Way corridors. The Three Corridors Specific Plan also identifies opportunity sites for infill mixed-use development along the city's commercial corridors in close proximity to transit and other amenities. Areas within the GPU Planning Area that are highly susceptible to damages resulting from ground shaking are located between San Pablo Avenue and the San Pablo Bay shoreline, in the western portions of the city, especially in the Tara Hills Mobile Home Park. However it should be noted that the City has adopted the CBC into their building standards which would

require all new development projects to conduct a seismic evaluation and to incorporate particular seismic design criteria to reduce ground shaking effects. Therefore, this impact is **less than significant**.

Zoning Code Update

Adoption of the updated General Plan would require amendments to the Zoning Code for consistency with the General Plan land use designations and various General Plan policies. The City plans to update its Zoning Code as part of the proposed General Plan Update project. These updates would involve the deletion, addition, and modification of certain zoning districts and development standards in order to make the Zoning Code consistent with the updated General Plan (see Section 3.0, Project Description, for more details). These updates would not result in any development activities beyond those analyzed for the proposed GPU. Therefore, the Zoning Code Update would have an impact similar to that for the General Plan Update as discussed above.

Proposed General Plan Policies and Action Items that Address Seismic Hazards

The General Plan Update contains the following policies and actions that are specific, enforceable requirements and/or restrictions and corresponding performance standards that assist in mitigating potential seismic hazards impacts.

Policy HS.3.1 Require geotechnical studies for development proposals. Such studies should determine the actual extent of geotechnical hazards, optimum location for structures, the advisability of special structural requirements, and the feasibility and desirability of a proposed facility in a specified location.

Action HS.3.1.1 Continually update the geologic hazard map with new information provided by geotechnical studies.

Policy HS.3.2 Require soils and geologic review of development proposals in accordance with City procedures to assess potential seismic hazards, liquefaction, land sliding, mud sliding, erosion, sedimentation, hydromodification and settlement in order to determine whether these hazards can be adequately mitigated.

Policy HS.3.3 Require that all geologic hazards be adequately addressed and mitigated through project development. Development proposed in areas of potential geological hazards should not be endangered by, nor contribute to, the hazardous conditions on the site or on adjoining properties.

Policy HS.3.4 Assure existing and new structures are designed to protect people and property from seismic hazards. Evaluate new development on sites which may have involved hazardous materials prior to development approvals.

Action HS.3.4.1 Update the Building Code and other codes as necessary to address earthquake, fire and other hazards, and support programs for the identification, abatement or mitigation of existing hazardous structures.

Action HS.3.4.2 Implement actions to address safety issues related to unreinforced masonry buildings in coordination with historic preservation policies and programs.

As mentioned above, the City has adopted the CBC into their building standards for all development within the city limits. All development projects associated with the proposed General Plan Update are subject to the CBC, compliance with which would ensure adequate design and construction of building foundations to resist soil movement. In addition, implementation of the above General Plan policies and action items would also reduce impacts associated with seismic hazards. Therefore, seismic hazard impacts associated with implementation of the proposed project would be reduced to a **less than significant** level.

Mitigation Measures

None required.

Soil Erosion or Loss of Topsoil (Standard of Significance 2)

Impact 4.8.2 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would result in increased soil, wind, and water erosion and loss of topsoil, due to grading activities within the Planning Area. This is considered a **less than significant** impact.

General Plan Update

Implementation of the proposed General Plan Update would provide for the intensification of urbanization, including residential and commercial development, from excavation and grading activities in areas that have been previously undeveloped or are changing to more intense land uses. Although no specific development is proposed as part of the proposed project, the General Plan Update would provide for improvements to existing roadways, substantial infrastructure, and varying densities of commercial, residential, and industrial development.

The grading and site preparation for future development would remove topsoil, disturbing and potentially exposing the underlying soils to erosion from a variety of sources, including wind and water. In addition, construction activities generally involve the use of water, which could further erode the topsoil as the water moves across the ground. Proposed development would also involve paving and other site improvements, substantially increasing the amount of impervious surfaces. These impervious surfaces generate higher levels of urban runoff (i.e., erosion from site preparation, sediment deposition from stormwater runoff, and vehicle fluids). The areas of silty or loamy soils within the Planning Area could be susceptible to erosion by both wind and water.

However, construction activities involving clearing, grading, or excavation that causes soil disturbance on 1 or more acres (or any project involving less than 1 acre that is part of a larger development plan and includes clearing, grading, or excavation) would be subject to coverage under the state's National Pollutant Discharge Elimination System (NPDES) General Construction Storm Water Permit. Project applicants are required to prepare and comply with a stormwater pollution prevention plan (SWPPP) that specifies best management practices (BMPs) to avoid soil erosion and associated pollution of waterways and are also required to report any water pollution and remediate the pollution occurrence (refer to the Regulatory Framework subsection of Section 4.9, Hydrology and Water Quality, for an expanded discussion on SWPPP requirements). In addition, the City's Erosion and Sediment Control Plan Ordinance establishes that erosion and sediment control plans, prepared by a registered civil engineer, shall be submitted to the City for review for any building or construction activities. Therefore these measures, along with the implementation of proposed General Plan policies, would reduce impacts associated with erosion and loss of topsoil to **less than significant**.

Three Corridors Specific Plan

Implementation of the proposed Three Corridors Specific Plan could result in the construction of new infrastructure. Grading, earthmoving, and other site preparation activities associated with the construction of new roadway segments could remove topsoil, disturbing the underlying soils and exposing them to potential erosion from a variety of sources, including wind and water. However, the City's Erosion and Sediment Control Plan Ordinance, the requirements of the NPDES permits, and implementation of proposed General Plan policies would reduce impacts associated with loss of topsoil and erosion to a **less than significant** level. In addition, Chapter 8.20 of the City Municipal Code requires that all construction contractors performing work in the city conform to the requirements of the Association of Bay Area Governments (ABAG) Manual of Standards for Erosion and Sediment Control Measures. The ABAG Manual of Standards for Erosion and Sediment Control Measures was developed by a team of experts and provides the detailed specifications and explanations for erosion control in the Bay Area and northern California jurisdictions. Since its initial publication, ABAG has revised the manual to incorporate advances in technologies and techniques for erosion and sediment control developed over the last decade.

Zoning Code Update

Adoption of the updated General Plan would require amendments to the Zoning Code for consistency with the General Plan land use designations and various General Plan policies. The City plans to update its Zoning Code as part of the proposed General Plan Update project. These updates would involve the deletion, addition, and modification of certain zoning districts and development standards in order to make the Zoning Code consistent with the updated General Plan (see Section 3.0, Project Description, for more details). These updates would not result in any development activities beyond those analyzed for the proposed GPU. Therefore, the Zoning Code Update would have an impact similar to that for the General Plan Update as discussed above.

Proposed General Plan Policies and Action Items that Address Soil Erosion or Loss of Topsoil

The following proposed General Plan update policies and action items address soil erosion through the use of enforceable performance standards.

Policy HS.3.1 Require geotechnical studies for development proposals. Such studies should determine the actual extent of geotechnical hazards, optimum location for structures, the advisability of special structural requirements, and the feasibility and desirability of a proposed facility in a specified location.

Action HS.3.1.1 Continually update the geologic hazard map with new information provided by geotechnical studies.

Policy HS.3.2 Require soils and geologic review of development proposals in accordance with City procedures to assess potential seismic hazards, liquefaction, land sliding, mud sliding, erosion, sedimentation, hydromodification and settlement in order to determine whether these hazards can be adequately mitigated.

Policy HS.3.3 Require that all geologic hazards be adequately addressed and mitigated through project development. Development proposed in areas of potential geological hazards should not be endangered by, nor contribute to, the hazardous conditions on the site or on adjoining properties.

Policy HS.3.7 Limit development and require appropriate control measures in conjunction with proposed development in areas susceptible to erosion.

Action HS.3.7.2 Establish riparian and stream restoration programs that include stormwater treatment, erosion control measures, stream cleanup projects and revegetation plans for denuded areas. These programs may also result in the removal of invasive, non-native vegetation that would be replaced with native plant materials to stabilize slopes and enhance wildlife habitat.

Action HS.7.1.2 Prohibit development in areas that are particularly susceptible to erosion and sediment loss.

In addition, Chapter 7.0, *Private Realm Design Guidelines*, of the proposed Three Corridors Specific Plan encourages the integration of the natural topography into site designs, minimizing grading, and maximizing pervious surfaces and the use of swales to reduce runoff by utilizing onsite infiltration.

Implementation of the above proposed General Plan policies and action items and Specific Plan guidelines, as well as compliance with NPDES requirements and the City's Erosion and Sediment Control Plan Ordinance, would ensure that future development projects would be evaluated for potential soil erosion impacts on a site-by-site basis and that runoff and erosion control measures would be integrated into the construction process and project site design. Therefore, impacts associated with loss of topsoil and erosion resulting from implementation of the proposed project would be reduced to a **less than significant** level.

Mitigation Measures

None required.

Landslide/Slope Instability (Standard of Significance 3)

Impact 4.8.3 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) may result in construction in areas subject to landslide. This impact is **less than significant.**

General Plan Update

As stated in the Existing Setting discussion, there is a high potential in the Planning Area for seismically induced landslides and slope instability hazards. Seismically induced landslides are likely to occur along the steep to intermediate hillside areas of the Planning Area. Additionally, areas within the Planning Area prone to slope instability include areas with pronounced and steeper slopes located along the East Bay Hills, areas where previous land sliding or soil creeping has occurred, areas where non-engineered grading and uncontrolled drainage on slopes has occurred, and areas with deep colluvial deposits. Slope stability hazards can result in loose debris flows and landslides. Therefore, this is a **potentially significant** impact. However, as mentioned under Impact 4.8.3, the City has adopted the CBC into their building standards which would require all new development projects to conduct a seismic evaluation and to incorporate particular seismic design criteria to reduce ground shaking effects.

Three Corridors Specific Plan

Implementation of the proposed Three Corridors Specific Plan would consist of the revitalization of the San Pablo Avenue, Pinole Valley Road, and Appian Way corridors, which could include new development and/or redevelopment of various urban uses. The Three Corridors Specific Plan is intended to establish more housing choices and job opportunities within the city's commercial corridors. The updated General Plan and the Three Corridors Specific Plan direct the majority of the city's future growth to sites designated for mixed and multiple-family use in the San Pablo Avenue, Pinole Valley Road, and Appian Way corridors. The Three Corridors Specific Plan also identifies opportunity sites for infill mixed-use development along the city's commercial corridors in close proximity to transit and other amenities. Implementation of the proposed Three Corridors Specific Plan could result in the construction of new infrastructure in areas of the city that are largely developed. As previously stated, there are areas within the Planning Area prone to slope instability, e.g., the East Bay Hills. However, the Three Corridors Specific Plan area is already developed, and no new exposure to slopes and instable soils would be encountered. Therefore, this is a **less than significant** impact.

Zoning Code Update

Adoption of the updated General Plan would require amendments to the Zoning Code for consistency with the General Plan land use designations and various General Plan policies. The City plans to update its Zoning Code as part of the proposed General Plan Update project. These updates would involve the deletion, addition, and modification of certain zoning districts and development standards in order to make the Zoning Code consistent with the updated General Plan (see Section 3.0, Project Description, for more details). These updates would not result in any development activities beyond those analyzed for the proposed GPU. Therefore, the Zoning Code Update would have an impact similar to that for the General Plan Update as discussed above.

Proposed General Plan Policies and Action Items that Address Landslide or Slope Instability

The following proposed General Plan policies and action items address soil and geologic stability through specific performance-based standards.

Policy HS.3.1 Require geotechnical studies for development proposals. Such studies should determine the actual extent of geotechnical hazards, optimum location for structures, the advisability of special structural requirements, and the feasibility and desirability of a proposed facility in a specified location.

Action HS.3.1.1 Continually update the geologic hazard map with new information provided by geotechnical studies.

Policy HS.3.2 Require soils and geologic review of development proposals in accordance with City procedures to assess potential seismic hazards, liquefaction, land sliding, mud sliding, erosion, sedimentation, hydromodification and settlement in order to determine whether these hazards can be adequately mitigated.

Policy HS.3.3 Require that all geologic hazards be adequately addressed and mitigated through project development. Development proposed in areas of potential geological hazards should not be endangered by, nor contribute to, the hazardous conditions on the site or on adjoining properties.

Action HS.3.7.2 Establish riparian and stream restoration programs that include stormwater treatment, erosion control measures, stream cleanup projects and revegetation plans for denuded areas. These programs may also result in the removal of invasive, non-native vegetation that would be replaced with native plant materials to stabilize slopes and enhance wildlife habitat.

The City has adopted the CBC into their building standards for all development within the city limits. All development projects associated with the proposed General Plan Update are subject to the CBC, which address foundation design, shear wall strength, and other structural-related conditions. Compliance with CBC standards would minimize impacts related to landslides and slope instability. In addition, implementation of the above policies and action items, as well as compliance with applicable state, and local regulations regarding landslides and slope instability, would ensure that slope instability resulting from implementation of the proposed project would be reduced to a **less than significant** level.

Mitigation Measures

None required.

Location on Expansive and Unstable Soils (Standard of Significance 4)

Impact 4.8.4 Implementation of the proposed (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would expose buildings, pavements, and utilities to significant damage as a result of underlying expansive or unstable soil properties. This is considered a **less than significant** impact.

General Plan Update

Implementation of the proposed General Plan Update could result in construction activities overlying expansive or unstable soils. Newly constructed buildings, pavements, and utilities could be damaged by differential settlement due to soil expansion and contraction. When structures are located on expansive soils, foundations have the tendency to rise during the wet season and shrink during the dry season. Movements can vary under the structures, which in turn create new stresses on various sections of the foundation and connected utilities. These variations in ground settlement can lead to structural failure and damage to infrastructure.

The lowland areas of the Planning Area containing alluvium and bay mud that consist of rich clay soils have a moderate potential for expansion under changing conditions. However, the city's biggest threat comes from large and erratic settlements in areas where fill material overlays soft, compressible bay mud. The clayey soils are considered to be slightly to highly expansive. Therefore, new development allowed by the project may expose structures to potential damage from expansive soils. This impact is **potentially significant**.

Three Corridors Specific Plan

Implementation of the proposed Three Corridors Specific Plan would consist of the revitalization of the San Pablo Avenue, Pinole Valley Road, and Appian Way corridors, which could include new development and/or redevelopment of various urban uses. The Three Corridors Specific Plan is intended to establish more housing choices and job opportunities within the city's commercial corridors. Due to the city's small supply of developable land, the updated General Plan and the Three Corridors Specific Plan direct the majority of the city's future growth to sites designated for mixed and multiple-family use in the San Pablo Avenue, Pinole Valley Road, and

Appian Way corridors. The Three Corridors Specific Plan also identifies opportunity sites for infill mixed-use development along the city's commercial corridors in close proximity to transit and other amenities. Implementation of the proposed Three Corridors Specific Plan could result in the construction of new infrastructure. As previously stated, there are expansive soils within the Planning Area. Therefore, this is a **potentially significant** impact.

Zoning Code Update

Adoption of the updated General Plan would require amendments to the Zoning Code for consistency with the General Plan land use designations and various General Plan policies. The City plans to update its Zoning Code as part of the proposed General Plan Update project. These updates would involve the deletion, addition, and modification of certain zoning districts and development standards in order to make the Zoning Code consistent with the updated General Plan (see Section 3.0, Project Description, for more details). These updates would not result in any development activities beyond those analyzed for the proposed GPU. Therefore, the Zoning Code Update would have an impact similar to that for the General Plan Update as discussed above.

Proposed General Plan Policies and Action Items that Address Location on Expansive or Unstable Soils

The following proposed General Plan update policies and action items address impacts related to unstable and expansive soils through the use of enforceable performance standards.

Policy HS.3.1 Require geotechnical studies for development proposals. Such studies should determine the actual extent of geotechnical hazards, optimum location for structures, the advisability of special structural requirements, and the feasibility and desirability of a proposed facility in a specified location.

Action HS.3.1.1 Continually update the geologic hazard map with new information provided by geotechnical studies.

Policy HS.3.2 Require soils and geologic review of development proposals in accordance with City procedures to assess potential seismic hazards, liquefaction, land sliding, mud sliding, erosion, sedimentation, hydromodification and settlement in order to determine whether these hazards can be adequately mitigated.

Policy HS.3.3 Require that all geologic hazards be adequately addressed and mitigated through project development. Development proposed in areas of potential geological hazards should not be endangered by, nor contribute to, the hazardous conditions on the site or on adjoining properties.

Action HS.3.7.2 Establish riparian and stream restoration programs that include stormwater treatment, erosion control measures, stream cleanup projects and revegetation plans for denuded areas. These programs may also result in the removal of invasive, non-native vegetation that would be replaced with native plant materials to stabilize slopes and enhance wildlife habitat.

Implementation of the above policies and action items, as well as compliance with applicable state, and local regulations regarding expansive and unstable soils, would reduce impacts to expansive and unstable soils to **less than significant** levels.

Mitigation Measures

None required.

4.8.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The setting for this cumulative analysis includes existing, proposed, approved, and planned projects in the GPU Planning Area and surrounding portions of unincorporated Contra Costa County. Development in the region identified in Section 4.0 would change the intensity of land uses in the region. However, impacts associated with geology, soils, and seismicity are generally site-specific rather than cumulative in nature as geologic properties can vary by site. Individual development projects would be subject to, at a minimum, uniform site development and construction standards relative to seismic and other geologic conditions that are prevalent in the region.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Geologic, Soils, and Seismic Impacts

Impact 4.8.5 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update), in combination with existing, planned, proposed, and reasonably foreseeable development, would not contribute to cumulative geologic, seismic, and soil impacts, as the impacts would be site-specific and not additive in character. Thus, this impact would be **less than cumulatively considerable**.

Geology and soil-related impacts are generally site-specific and are determined by a particular site's soil characteristics, topography, and proposed land uses. Development projects are analyzed on an individual basis and must comply with established requirements of the City as they pertain to protection against known geologic hazards and potential geologic and soil-related impacts. Standards may include over-excavation, modification to foundations, additional bracing, or drainage to reduce or eliminate impacts associated with geology. As such, the proposed project's contribution to cumulative geology-related impacts is considered **less than cumulatively considerable.**

Proposed General Plan Policies and Action Items that Address Cumulative Geologic, Soils, and Seismic Impacts

The proposed General Plan Update contains several policies and action items that would assist in reducing the cumulative geology and soils impact. The following list contains those policies and action items that contain specific, enforceable requirements and/or restrictions and corresponding performance standards that assist in reducing this impact. Since these policies and action items have been described in detail in prior impact discussions for this section, the following is limited to only listing the policy and action item numbers.

Health and Safety Element

Policy HS.3.1, Action HS.3.1.1, Policy HS.3.2, Policy HS.3.3, Policy HS.3.4, Action HS.3.4.1, Action HS.3.4.2, Policy HS.3.7, Action HS.3.7.2, Action HS.7.1.2.

Adherence to all state, and local requirements, in addition to implementation of the above General Plan policies, would further minimize the City of Pinole's contribution to cumulative geology, soils, and seismicity impacts. Therefore, the General Plan's contribution to cumulative geology, soils, and seismicity impacts would be **less than cumulatively considerable**.

Mitigation Measures

None required.

REFERENCES

California Building Standards Commission (CBSC). Effective January 1, 2008. *2007 California Building Code*.

California Department of Conservation (DOC). 2009. http://www.conservation.ca.gov/

California Division of Mines and Geology. 1996. *Probabilistic Seismic Hazard Assessment for the State of California. Open-file Report 96-08.*

California Geological Survey. 2002a. *Note 32, How Earthquakes and Their Effects Are Measured*. Sacramento, California.

Contra Costa County. 2005. *County of Contra Costa General Plan*. Martinez, CA.

Fenton, Clark. 1997. *Geomorphic Investigations of the Pinole Fault, Contra Costa County, California, and its Implications to Seismic Hazards to the Northeastern San Francisco Bay Region.*

Harlan, Tait Associates. 1993a. *Geotechnical Background Report*.

Harlan, Tait Associates. 1993b. *Recommendations Regarding City Requirements for Geologic Geotechnical Reports and Review Procedures*.

Pinole, City of. 1995. *City of Pinole General Plan*.

Pinole, City of. 2009a. *Municipal Code*. http://www.amlegal.com/pinole_ca/ (accessed February 2010).

Pinole, City of. 2009b. *City of Pinole General Plan Background Report*. http://www.ci.pinole.ca.us/planning/genplan07/documents.html#GeneralPlanBackgroundDocuments

State Water Resources Control Board. 2010. Geotracker. http://geotracker.swrcb.ca.gov/

U.S. Department of Agriculture, Natural Resource Conservation Service (NRCS). 2010. *Web Soil Survey*. http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx (accessed May 7, 2010).

U.S. Department of Agriculture, Soil Conservation Service. 1987. *Soil Survey of Contra Costa County, California*.

4.9 Hydrology and Water Quality

This section of the Draft Environmental Impact Report (Draft EIR; DEIR) identifies the hydrologic resources, existing drainage conditions, and surface and groundwater quality of the General Plan Update (GPU) Planning Area. This section also evaluates the potential impacts of implementing the proposed General Plan Update and its associated project components with respect to flooding, drainage, erosion, water quality, and water supply (as it relates to groundwater resources) and identifies appropriate mitigation measures to lessen the identified impacts, where necessary. The reader is referred to Section 4.12, Public Services and Utilities, for further discussion of water supply. The reader is also referred to Section 4.7, Biological Resources, for a discussion of wetlands.

4.9.1 EXISTING SETTING

CLIMATE AND PRECIPITATION

Contra Costa County has a moderate climate, similar to a Mediterranean climate. Measurable rainfall recorded annually in the county seat, the City of Richmond, averages about 21.8 inches per year, with the majority falling between October and April. Average temperatures are mild and generally range from 50 and 66 degrees Fahrenheit in Richmond (Contra Costa County, 2005). Snow is rarely seen in Contra Costa County. Marine fog is more characteristic of the county, occurring throughout the year, particularly in the winter months. Fog usually occurs in the morning hours and may continue for several days if atmospheric conditions are stagnant.

TOPOGRAPHY AND HYDROLOGIC SOILS GROUPS

The topography of the Planning Area is characterized by upland terrain of the East Bay Hills in the eastern portions of the Planning Area and lowland terrain with subdivisions on valley lands and bay lands in the western portions of the Planning Area. The East Bay Hills are a segment of the Coast Ranges with northwesterly-trending, moderate to steeply sloping hillsides and surface elevations ranging from 0 to 75 percent slopes. The ground surface elevation in the vicinity of the Planning Area ranges from mean sea level (msl) to 790 feet above msl.

The U.S. Department of Agriculture, Natural Resource Conservation Service (NRCS) (2010) identifies 24 mapped soil series units within the Planning Area. These soils and their associated hydrologic units are described in **Table 4.9-1** below.

TABLE 4.9-1
PLANNING AREA SOILS

Soil Name	Approximate Percentage of Land in Planning Area*	Runoff Potential
Altamont-Fontana Complex, 30 to 50 percent slopes	0.6	D
Botella Clay Loam, 2 to 9 percent slopes	4.7	B
Clear Lake Clay	6.5	D
Conejo Clay Loam, 0 to 2 percent slopes	0.4	C
Conejo Clay Loam, 2 to 5 percent slopes	1.8	C
Cropley Clay, 2 to 5 percent slopes	3.3	D
Cut and Fill Land – Diablo Complex, 9 to 30 percent slopes	5.5	D

Soil Name	Approximate Percentage of Land in Planning Area*	Runoff Potential
Cut and Fill Land – Los Osos Complex, 9 to 30 percent slopes	7.6	D
Cut and Fill Land – Millsholm Complex, 9 to 30 percent slopes	9.7	D
Cut and Fill Land – Millsholm Complex, 30 to 50 percent slopes	6.7	D
Diablo Clay, 15 to 30 percent slopes	2.6	D
Diablo Clay, 30 to 50 percent slopes	1.0	D
Joice Muck	0.7	D
Lodo Clay Loam, 9 to 30 percent slopes	0.2	–
Lodo Clay Loam, 30 to 50 percent slopes	4.8	D
Los Gatos Loam, 15 to 30 percent slopes	0.4	–
Los Gatos Loam, 30 to 50 percent slopes	1.9	C
Los Osos Clay Loam, 15 to 30 percent slopes	7.4	–
Los Osos Clay Loam, 30 to 50 percent slopes	14.1	C
Los Osos – Los Gatos Complex	1.2	C
Millsholm Loam, 15 to 30 percent slopes	2.7	–
Millsholm Loam, 30 to 50 percent slopes	14.1	D
Tierra Loam, 2 to 9 percent slopes	0.9	D
Tierra Loam, 9 to 15 percent slopes	0.1	D
Waterways	1.1	–

Source: NRCS, 2010
**Excludes submerged areas of the Planning Area.*

The NRCS uses hydrologic soil groups to categorize soils according to their runoff potential. These groups are defined as:

Group A: Low runoff potential soils having high infiltration rates even when thoroughly wetted and consisting chiefly of deep, well-drained sands or gravels. These soils have a high rate of water transmission.

Group B: Soils having moderate infiltration rates when thoroughly wetted and consisting chiefly of moderately deep to deep, moderately well to well-drained sandy-loam with moderately fine to moderately coarse textures. These soils have a moderate rate of water transmission.

Group C: Soils having a low infiltration rate when thoroughly wetted and consisting chiefly of silt-loam soils with a layer that impedes downward movement of water, or soils with moderately fine to fine texture. These soils have a slow rate of water transmission.

Group D: High runoff potential soils having very slow infiltration rates when thoroughly wetted and consisting chiefly of clay soils with a high swelling potential, soils with a permanent high water table, soils with a clay pan or clay layer at or

near the surface, and shallow soils over nearly impervious material. These soils have a slow rate of water transmission.

As shown in **Table 4.9-1** above, the Planning Area contains soils from NRCS Hydrologic Soil Groups B, C, and D (NRCS, 2010).

SURFACE HYDROLOGY

Contra Costa County is bounded by the San Francisco Bay-Delta System, which is considered one of the most important waterbodies in California. The San Francisco Bay-Delta System in Contra Costa County consists of the San Francisco Bay and San Pablo Bay to the west, Suisun Bay to the north, the Sacramento and San Joaquin River Delta Channels to the north, and several small tributaries throughout the county. There are 29 watershed systems throughout Contra Costa County. Western Contra Costa, where the GPU Planning Area is located, consists of nine major watersheds: San Pablo Creek, Wildcat Creek, Pinole Creek, Refugio Creek, Rheem Creek, Rodeo Creek, Baxter/Cerrito Richmond Drainages, Garrity Creek, and the Carquinez Strait Drainages. The hydrologic processes of these watersheds are influenced by rainfall runoff, snowmelt, and base flow from groundwater, reservoir releases, and water diversions. The largest watershed in western Contra Costa County is the San Pablo Creek watershed, which covers approximately 43.6 square miles of land. The headwaters of the San Pablo Creek watershed begin in the City of Orinda. Main tributaries include San Pablo Creek, Cascade Creek, Bear Creek, Castro Creek, Wilkie Creek, and the San Pablo and Briones reservoirs (Contra Costa County, 2003). **Figure 4.9-1** illustrates the location of the Contra Costa County watersheds (UC Berkeley, 2010).

The GPU Planning Area is located within the Pinole Creek watershed, which encompasses approximately 15.2 square miles (9,705 acres) of land in western Contra Costa County. The primary waterbodies within the watershed include Pinole Creek, Pavson Creek, Oak Moth Creek, Costa Creek, Lagoons Creek, Pereira Creek, April Creek, and Cottonwood Creek. Pinole Creek bisects the Planning Area and is the primary surface waterbody within the city. The Pinole Creek headwaters begin in the Briones Hills and follow a northwesterly direction for approximately 11 miles before draining into San Pablo Bay. The creek crosses through a variety of land uses including urban areas, East Bay Municipal Utility District (EBMUD) protected watershed and open space land, and rural unincorporated agricultural lands. Pinole Creek enters the Planning Area as it exits the East Bay Hills, crossing underneath Interstate 80 (I-80) and moving northward through the city limits before reaching the bay. The U.S. Army Corp of Engineers (USACE) conducted extensive work on Pinole Creek in the 1950s to control flooding in Pinole's downtown area (Contra Costa County, 2003).

DRAINAGE AND FLOODING

The GPU Planning Area contains both natural waterways and man-made features (e.g., channels, storm drain inlets, siphons, overchutes [spillways], v-ditches [ditches with little or no flat bottom], detention basins) that convey drainage. Drainage primarily flows in an east and west direction into the Pinole Creek watershed and eventually into San Pablo Bay.

A large portion of the GPU Planning Area is designated by the Federal Emergency Management Agency as Zone X. Zone X is defined as areas outside the 1 percent annual chance floodplain, or 100-year floodplain, and is considered to be at moderate to low risk of flooding. The entire Pinole Creek corridor and the majority of the San Pablo Bay shoreline are designated by FEMA as being within the 100-year floodplain. In addition, portions of the Pinole Creek corridor are located within the 500-year floodplain (see **Figure 4.9-2**).

The city experiences infrequent and localized flooding and standing water in streets, intersections, and the sanitation facility during brief intense storms when runoff exceeds storm sewer capacity. However, the risk of flooding in Pinole is considered minimal. Areas that are susceptible to localized flooding within the city include the Pinole/Hercules Water Pollution Control Plant (WPCP) and the freeway underpass at Interstate 80 and Pinole Valley Road. The WPCP is impacted by flooding of the creek when tidal surge and heavy rain runoff occurs (City of Pinole, 2009). The ability for the WPCP to vent/drain is hampered by these conditions. Flooding is also caused along Pinole Creek when the creek bed is littered with debris. During heavy rains the debris is gathered into natural dams, providing the opportunity for debris plugs adversely affecting the creek's normal flow. The backup created by debris flows then causes the water to flow over and around the infrastructure designed to accommodate the normal runoff of water. During heavy rains when the storm drains are clogged with debris, there is also the potential for the freeway underpass at I-80 and Pinole Valley Road to flood (City of Pinole, 2009).

The City of Pinole owns and maintains 34 miles of storm drain infrastructure. The City does not maintain v-ditches that are located on private property. The general condition of the City's storm drains is good (Dudek, 2009).

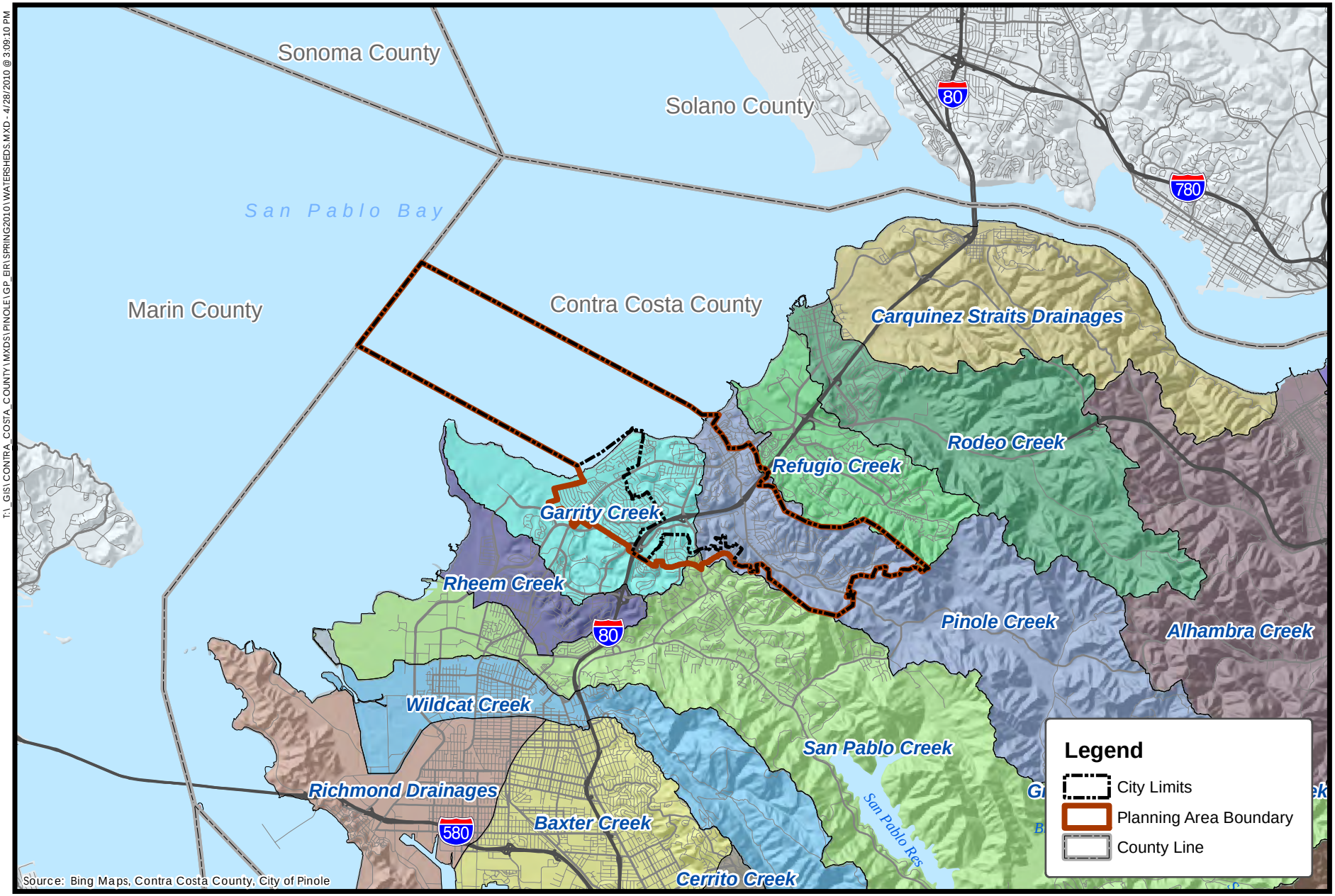

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Figure 4.9-1
Watershed Map

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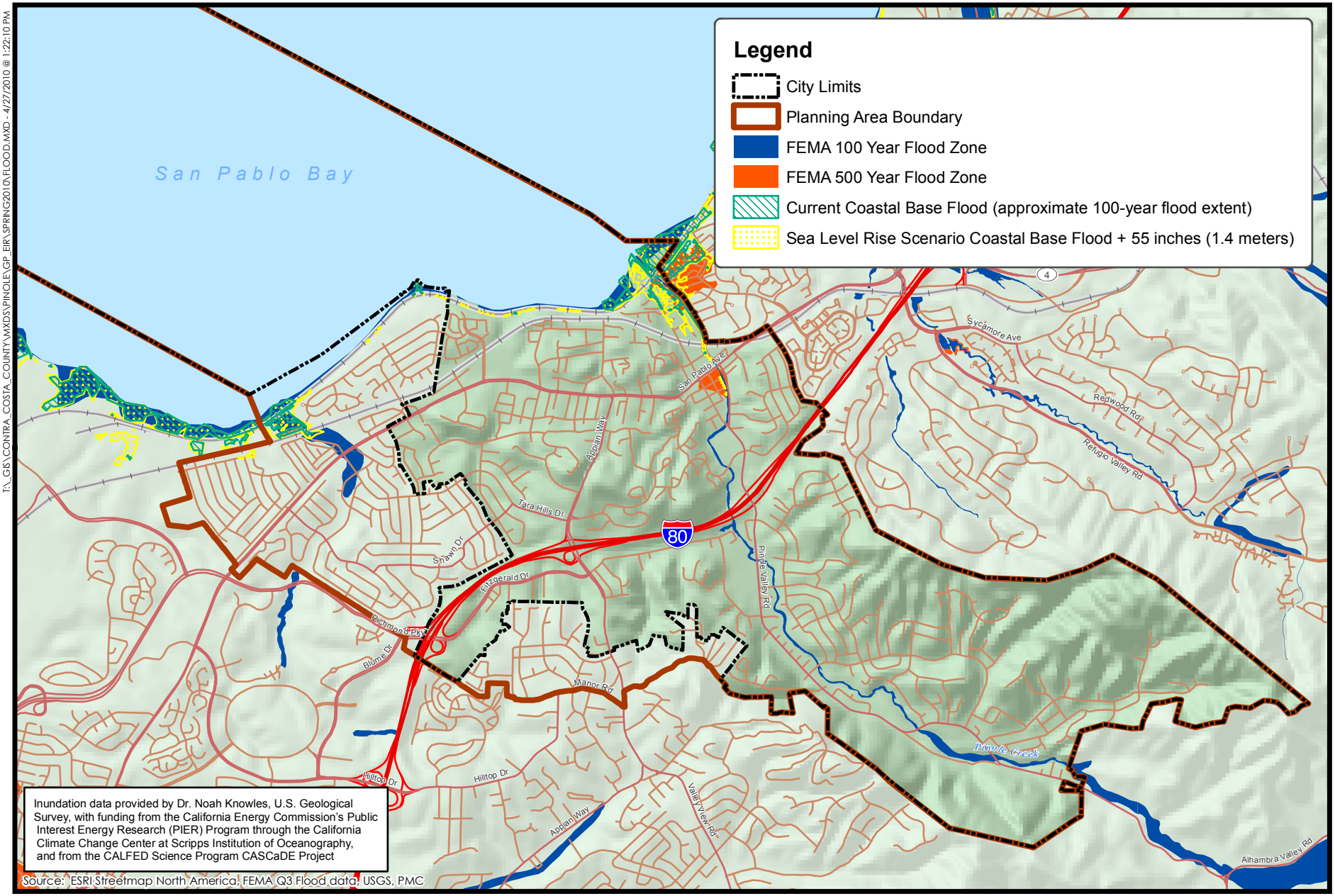

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Figure 4.9.2
Flood Map

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DAM FAILURE

Dams are man-made structures built for a variety of uses including flood protection, power, agriculture, water supply, and recreation. When dams are constructed for flood protection, they usually are engineered to withstand a flood with a computed risk of occurrence. For example, a dam may be designed to contain a flood at a location on a stream that has a certain probability of occurring in any one year. If a larger flood occurs, then that structure will be overtopped. Overtopping is the primary cause of earthen dam failure. Failed dams can create floods that are catastrophic to life and property as a result of the tremendous energy of the released water. A catastrophic dam failure could easily overwhelm local response capabilities and require mass evacuations to save lives.

Dam inundation zones generally follow the existing streams and drainage areas, and areas subject to flooding from a dam failure would likely be those areas located along these streams and drainages. Pinole itself does not have any navigable waters or dams.

Dam safety is regulated by the California Department of Water Resources, Division of Safety and Dams. All large reservoirs in Contra Costa County have been investigated and many have been strengthened (Contra Costa County, 2005). Further, the Office of Emergency Services (OES) has produced inundation maps and emergency plans covering various scenarios of dam failure in Contra Costa County (Contra Costa County, 2005).

GROUNDWATER HYDROLOGY

The GPU Planning Area does not have significant underlying groundwater resources and is not located within a recognized groundwater subbasin (DWR, 2003). Groundwater levels in the city can fluctuate over time due to variations in rainfall and water levels in nearby Pinole Creek. When groundwater levels are high, causing ground saturation, groundwater seepage can enter structures through foundations. Groundwater seepage, which can damage property, is a common occurrence in the residential bayside area, and many residents do not have sump pumps to remove standing water from behind their houses. Saline conditions can further complicate problems from groundwater seepage.

The East Bay Municipal Utility District (EBMUD) provides domestic water service to the GPU Planning Area (described in more detail below). EBMUD is planning to operate a groundwater injection/extraction program for use during dry years. This program would be operated in the San Lorenzo area, which overlies the East Bay Plain Groundwater Subbasin (EBMUD, 2005).

WATER QUALITY

Surface Water

A number of different factors can contribute to the degradation of water quality. Much of the pollution affecting Pinole Creek comes from many small diffuse sources, or non-point sources, and includes the following:

- Stormwater Pollution – Stormwater runoff carries a variety of harmful substances used in urban environments, including fertilizers, pesticides, and automotive fluids, which are transported to local creeks and eventually into San Pablo Bay. Of particular concern is I-80, which crosses the watershed and carries thousands of cars each day. Runoff from I-80 flows directly into Pinole Creek.

- Illegal Dumping and Litter – There are several illegal dumping areas along Pinole Creek that regularly receive debris, including large items such as furniture and electronics equipment. These dumpsites include various road pullouts along Pinole Valley Road in the upper watershed and the reach of the creek behind the Pinole Valley Shopping Center. Dumped materials can break down and pollute water, and litter from streets and parks can also drift into the creek.

- Animal Waste – Of particular concern in the upper watershed is animal waste pollution from horse boarding facilities. Horse keeping is allowed without special permit on agriculturally zoned land in Contra Costa County or without specific limits on the number of horses allowable per acre.

- Sediment – Sediment erosion from private properties, including eroding hillsides, creek banks, dirt roads, and construction sites, contributes excessive sediment to the creek channel and is of particular concern within the watershed. Lack of technical assistance and the high cost of prevention techniques have been cited as obstacles to addressing this issue.

- Mosquito Abatement – The use of chemicals to eradicate mosquito populations within stagnant water adjacent to the creek channel may degrade water quality (City of Pinole, 2009).

In addition, a number of hazards are present in Pinole that potentially damage surface water quality, such as the leaking of 12 underground toxic storage tanks along San Pablo Avenue and leaking underground storage tanks along Appian Way and Pinole Valley Road. Other hazards, including environmental hazards such as earthquakes and flooding, all pose significant threats to water quality within the Planning Area. Potential hazards to the Planning Area are explored further in Section 4.6, Human Health/Risk of Upset, and Section 4.8, Geology and Soils.

Pinole Creek and San Pablo Bay, located in the Planning Area, are included on the Clean Water Act (CWA) Section 303(d) List of Water Quality Limited Segments as waterbodies that contain pollutants. Pinole Creek contains the pollutant diazinon, which is an insecticide used to control pests on crops. The potential sources of this pollution are urban runoff and stormwater sewers (SFBRWQCB, 2006). The San Francisco Bay Area Urban Creeks Pesticide Toxicity Total Maximum Daily Load (TMDL) was prepared for over 30 creeks and creek segments in the Bay Area, including Pinole Creek. This TMDL was approved by the USEPA in 2005 and by the State Water Resources Control Board in 2006 (SFBRWQCB, 2007).

A sediment source assessment and baseline water quality study for Pinole Creek was completed in 2005 by the San Francisco Estuary Institute on behalf of the Contra Costa Resource Conservation District. The study gathered data on hillslope, road, and streambed/bank sediment erosion and storage along the creek, nutrient concentrations in the creek, and water and sediment discharge to the flood control channel. According to the data, sediment erosion in the Pinole Creek watershed is occurring from three primary sources: (1) active landslides contributing about 61 percent of total annual average sediment supply to the creek; (2) active gullies contributing 17 percent; and (3) road-related sources contributing 14 percent. Sediments derived from creek bed and bank erosion are only minor contributors to the overall sediment budget of the watershed. The study also determined that the watershed is generally nitrogen-limited and suspended sediment export was approximately 2.5 times greater than the Bay Area average. Based on these results, the study made several recommendations for improving water quality and reducing sediment erosion, including encouraging implementation of land-use-specific sediment control measures, implementing projects to stabilize gully head cuts, planning

for creek setbacks where feasible, continuing water quality monitoring, and encouraging collaboration between interested parties (SFEI, 2005).

In 2002, Contra Costa County initiated a macro-invertebrate sampling program to assess water quality in Pinole Creek. The results from the first year of sampling have been compiled. Overall, the sampling found that segments of Pinole Creek owned by EBMUD had the best water quality, while the samples taken in the upper and lower watersheds were of lower quality (Urban Creeks Council, 2004).

San Pablo Bay contains the chemical and biological contaminants chlordane, DDT, dieldrin, dioxin compounds, exotic species, furan compounds, mercury, nickel, polychlorinated biphenyls (PCB), and selenium. The potential sources of these pollutants are multiple, including non-point sources, atmospheric deposition, and ballast water (SFBRWQCB, 2006). The San Francisco Bay Regional Water Quality Control Board prepared TMDLs for PCB and mercury in San Pablo Bay in 2003 and 2004, respectively. TMDLs for the remaining contaminants are under development or are planned for development in the future (SFBRWQCB, 2007).

Groundwater

The GPU Planning Area and surrounding region do not have significant underlying groundwater resources and are not located within a recognized groundwater subbasin (DWR, 2003). The nearest groundwater subbasin, the East Bay Plain Subbasin, is located approximately 3 miles to the southwest of the City of Pinole at its closest and is separated from the city by Franciscan Basement rock (DWR, 2003). The East Bay Plain Subbasin is characterized as a series of deep and shallow aquifers at very high levels. The San Francisco Regional Water Quality Control Board identified 13 distinct locations as areas of major groundwater pollution. These were identified as having plumes of contamination greater than 1,000 feet in length. Most contamination is due to release of fuels and solvents and appears to be restricted to the upper 50 feet of the subsurface (DWR, 2003).

DOMESTIC WATER SERVICE

Water Purveyors

The Planning Area is provided water service by the East Bay Municipal Utility District (EBMUD). EBMUD is a public agency that provides drinking water to 1.3 million people and wastewater systems for 640,000 people in portions of Contra Costa and Alameda counties. The service boundaries for the EBMUD drinking water system extend from the unincorporated communities of Crockett on the north to San Lorenzo on the south (including the cities of Oakland and Berkeley) and encompasses approximately 325 square miles. The EBMUD water system provides service to the entire GPU Planning Area. The wastewater system boundaries extend from Richmond on the north to San Leandro on the south and encompass approximately 83 square miles. The EBMUD wastewater system does not extend to the GPU Planning Area (EBMUD, 2005). See Section 4.12, Public Services and Utilities, for a discussion of wastewater service in the Planning Area.

Water Supplies

EBMUD's water supplies are obtained primarily from the Mokelumne River watershed (90 percent) and from local area watersheds (10 percent). Most of the water obtained from the Mokelumne watershed is derived from snowmelt from the Sierra Nevada mountain range and

local rainfall. Water acquired from local area watersheds is primarily derived from runoff and rainfall that is collected in reservoirs maintained by EMBUD.

EBMUD has water rights that permit the delivery of up to a maximum of 325 million gallons per day (mgd) from the Mokelumne River to EBMUD reservoirs. This permit is subject to the availability of Mokelumne River runoff and senior water rights of other users. Additionally, EBMUD receives 15 to 25 million gallons per day during normal hydrologic years from local area watersheds. Average daily water consumption for EBMUD was approximately 205 mgd in 2005.

EBMUD does not currently obtain any of its water supplies from groundwater sources. However, the district has identified increased water storage in groundwater aquifers as a potential future alternative water supply to meet demands in dry periods. This project, referred to as the Bayside Groundwater Project, would involve groundwater injection/extraction operations in the San Leandro/San Lorenzo area, several miles south of the Planning Area (EBMUD, 2005).

4.9.2 REGULATORY FRAMEWORK

FEDERAL

Clean Water Act

The Clean Water Act (CWA) regulates the water quality of all discharges into waters of the United States, including wetlands and perennial and intermittent stream channels. Section 401, Title 33, Section 1341 of the CWA sets forth water quality certification requirements for "any applicant applying for a federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge into the navigable waters." Section 404, Title 33, Section 1344 of the CWA in part authorizes the U.S. Army Corps of Engineers to:

- Set requirements and standards pertaining to such discharges: subparagraph (e);
- Issue permits "for the discharge of dredged or fill material into the navigable waters at specified disposal sites": subparagraph (a);
- Specify the disposal sites for such permits: subparagraph (b);
- Deny or restrict the use of specified disposal sites if "the discharge of such materials into such area will have an unacceptable adverse effect on municipal water supplies and fishery areas": subparagraph (c);
- Specify type of and conditions for non-prohibited discharges: subparagraph (f);
- Provide for individual state or interstate compact administration of general permit programs: subparagraphs (g), (h), and (j);
- Withdraw approval of such state or interstate permit programs: subparagraph (i);
- Ensure public availability of permits and permit applications: subparagraph (o);
- Exempt certain federal or state projects from regulation under this Section: subparagraph (r); and

- Determine conditions and penalties for violation of permit conditions or limitations: subparagraph (s).

- Section 401 certification is required prior to final issuance of Section 404 permits from the U.S. Army Corps of Engineers.

Section 303(d) of the Clean Water Act requires that all states in the U.S. identify waterbodies that do not meet specified water quality standards and that do not support intended beneficial uses. Identified waters are placed on the Section 303(d) List of Impaired Waterbodies. Once placed on this list, states are required to develop a water quality control plan – called a total maximum daily load – for each waterbody and each associated pollutant/stressor.

National Pollutant Discharge Elimination System

As authorized by the Clean Water Act, the National Pollutant Discharge Elimination System (NPDES) Permit Program controls water pollution by regulating point sources that discharge pollutants into waters of the United States. It is the responsibility of the local water boards to preserve and enhance the quality of the state's waters through the development of water quality control plans and the issuance of waste discharge requirements (WDRs). WDRs for discharges to surface waters also serve as NPDES permits (SWRCB, 2009). The NPDES program is discussed in more detail below.

Total Maximum Daily Loads

Under CWA Section 303(d) and California's Porter-Cologne Water Quality Control Act of 1969, the State of California is required to establish beneficial uses of state waters and to adopt water quality standards to protect those beneficial uses. Section 303(d) establishes the total maximum daily load process to assist in guiding the application of state water quality standards. This process also requires the states to identify waters whose water quality is "impaired" (affected by the presence of pollutants or contaminants) and to establish a TMDL or the maximum quantity of a particular contaminant that a waterbody can assimilate without experiencing adverse effects on the beneficial use identified. TMDLs serve as a regulatory mechanism to identify and implement additional controls on both point and non-point source discharges in waterbodies that are impaired from one or more pollutants and are not expected to be restored through normal point source controls. Within California, the regional water quality control boards (RWQCB) generally prepare TMDLs for the impaired waterbodies under their jurisdiction. Implementation of the TMDL is accomplished through amendments.

Section 303(d) of the federal CWA requires states to identify the waters of the state that do not meet the CWA's national goal of "fishable, swimmable" and to develop "total maximum daily loads" (TMDLs) for such waters, with oversight of the U.S. Environmental Protection Agency (USEPA). The majority of the Planning Area is a "closed basin" that drains to the Buena Vista Lake Bed as its point of terminal discharge and is not affected by the CWA Section 303(d) List of Water Quality Limited Segments. However, as discussed above, the San Francisco Bay RWQCB has included Pinole Creek and San Pablo Bay, both located within the Planning Area, on their Clean Water Act (CWA) Section 303(d) List of Water Quality Limited Segments. Pinole Creek contains the pollutant diazinon and San Pablo Bay contains the contaminants chlordane, DDT, dieldrin, dioxin compounds, exotic species, furan compounds, mercury, nickel, PCBs, and selenium.

Federal Emergency Management Agency

The City of Pinole and Contra Costa County are participants in the National Flood Insurance Program (NFIP), a federal program administered by the Federal Emergency Management Agency (FEMA). Participants in the NFIP must satisfy certain mandated floodplain management criteria. The National Flood Insurance Act of 1968 has adopted, as a desired level of protection, an expectation that developments should be protected from floodwater damage of the Intermediate Regional Flood (IRF). The IRF is defined as a flood of a magnitude that has a 1 percent chance of occurring in any given year. It is also referred to as a 100-year return period flood, although such a flood may occur in any given year. The City of Pinole and Contra Costa County are occasionally audited by the California Department of Water Resources to ensure the proper implementation of FEMA floodplain management regulations.

STATE AND REGIONAL

Porter-Cologne Water Quality Act

The Porter-Cologne Water Quality Act governs the coordination and control of water quality in the state and includes provisions relating to non-point source pollution. The California Coastal Commission, pursuant to the coastal act, specified duties regarding the federally approved California Coastal Management Program. This law required that the State Water Resources Control Board, along with the California Coastal Commission, regional boards, and other appropriate state agencies and advisory groups, prepare a detailed program to implement the state's non-point source management plan on or before February 1, 2001. The law also requires that the state board, in consultation with the Commission and other agencies, submit copies of prescribed state and regional board reports containing information related to non-point source pollution, on or before August 1 of each year.

State Water Resources Control Board

Created by the State Legislature in 1967, the five-member State Water Resources Control Board (SWRCB) allocates water rights, adjudicates water right disputes, develops statewide water protection plans, establishes water quality standards, and guides the nine regional water quality control boards located in the major watersheds of the state. The joint authority of water allocation and water quality protection enables SWRCB to provide comprehensive protection for California's waters (SWRCB, 2009).

SWRCB is responsible for implementing the Clean Water Act and issues NPDES permits to cities and counties through the regional water quality control boards. The GPU Planning Area is located in a portion of the state that is regulated by the San Francisco Bay RWQCB. The San Francisco Bay RWQCB first issued a municipal stormwater NPDES permit to Contra Costa County and its 19 cities and towns, including the City of Pinole, in 1993.

San Francisco Bay Regional Water Quality Control Board

The San Francisco Bay Regional Water Quality Control Board (RWQCB) regulates surface water and groundwater quality in San Francisco Bay. The area under the RWQCB's jurisdiction comprises all of the San Francisco Bay segments extending to the mouth of the Sacramento-San Joaquin Delta (Winter Island near Pittsburg). In its efforts to protect surface waters and groundwaters of the San Francisco region, the RWQCB addresses region-wide water quality concerns through the creation and triennial update of a Water Quality Control Plan and adopts,

monitors compliance with, and enforces waste discharge requirements and National Pollutant Discharge Elimination System (NPDES) permits.

San Francisco Bay Regional Water Quality Control Plan (Basin Plan)

The Basin Plan is a master policy document that contains descriptions of the legal, technical, and programmatic bases of water quality regulation in the San Francisco Bay region. This plan describes the beneficial uses to be protected in these waterways, water quality objectives to protect those uses, and implementation measures to make sure those objectives are achieved. On July 17, 2007, the State Water Resources Control Board approved the Basin Plan amendment that established new water quality objectives for mercury in the tissues of Bay fish and a TMDL for mercury in San Francisco Bay. On March 29, 2010, the U.S. Environmental Protection Agency approved a TMDL for PCBs in San Francisco Bay. The Basin Plan amendment incorporating this TMDL and an implementation plan to achieve the TMDL was formerly adopted or approved by the San Francisco Bay Water Board (2/13/08), the State Water Resources Control Board (10/19/09), and the state Office of Administrative Law (2/15/10) (SWRCB, 2010).

General Permit – Stormwater

Under Phase I of the NPDES requirements, which started in 1990, the Regional Water Quality Control Boards have adopted NPDES stormwater permits for medium (serving between 100,000 and 250,000 people) and large (serving more than 250,000 people) municipalities. As part of Phase II, SWRCB adopted a General Permit for the Discharge of Storm Water from Small MS4s (WQ Order No. 2003-0005-DWQ) to provide permit coverage for smaller municipalities, including non-traditional Small MS4s, which are governmental facilities such as military bases, public campuses, and prison and hospital complexes. The MS4 permits require the discharger to develop and implement a stormwater management plan/program with the goal of reducing the discharge of pollutants to the maximum extent practicable (MEP). MEP is the performance standard specified in Section 402(p) of the Clean Water Act. The management programs specify what best management practices (BMPs) will be used to address certain program areas. The program areas include public education and outreach, illicit discharge detection and elimination, construction and post-construction, and good housekeeping for municipal operations (SWRCB, 2009).

The City of Pinole Department of Public Works has jurisdiction over stormwater management in the City of Pinole. The Contra Costa County Department of Public Works has jurisdiction over the remainder of the GPU Planning Area.

The City's Department of Public Works is a co-permittee of the Contra Costa County Clean Water Project, which binds the City to uphold the federal legislation entitled from the National Pollution Discharge Elimination System Act and the Clean Water Act. The Public Works Department monitors compliance with the Contra Costa County Clean Water Program, including compliance with NPDES permits from commercial activities, construction sites, and private discharges. To ensure compliance with the Clean Water Program, the City follows compliance guidelines found in the Contra Costa County *Stormwater C.3. Guidebook* and the best management practices set forth by the Public Works Department for a variety of land use activities throughout the city.

The City of Pinole is a joint participant with Contra Costa County's NPDES permit. The permit was renewed in June 1998 and allows the City to discharge urban runoff from Municipal Separate Storm Sewer Systems (MS4s) in their municipal jurisdiction. The permit requires that the City impose water quality and watershed protection measures for all development projects. The

NPDES also requires a permit for every new construction project that implements the following measures:

- Eliminate or reduce non-stormwater discharges to stormwater systems and other waters of the nation;
- Develop and implement a program stormwater pollution prevention plan (SWPPP); and
- Perform inspections of stormwater control structures and pollution prevention measures.

General Permit – Construction

In addition, under Phase II requirements, dischargers in any location whose projects disturb 1 or more acres of soil, or whose projects disturb less than 1 acre but are part of a larger common plan of development that in total disturbs 1 or more acres, are required to obtain coverage under the statewide General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit, 99-08-DWQ). Construction activity subject to this permit includes clearing, grading, and disturbances to the ground such as stockpiling or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The Construction General Permit requires the development and implementation of a stormwater pollution prevention plan (SWPPP). The SWPPP should contain a site map(s) which shows the construction site perimeter, existing and proposed buildings, lots, roadways, stormwater collection and discharge points, general topography both before and after construction, and drainage patterns across the project. The SWPPP must list which best management practices the discharger will use to protect stormwater runoff and the placement of those best management practices (SWRCB, 2009).

On September 2, 2009, the SWRCB adopted a new NPDES Construction General Permit that will become effective on July 1, 2010 and will replace Order 99-08-DWQ. The new Permit has some significantly different requirements from the existing permit. Under the existing Permit, dischargers who implement BMPs to the best of their ability are deemed to be in compliance with the Permit. The new Permit, however, sets quantitative standards that must be achieved, regardless of the BMPs that are implemented. In addition, whereas the existing Permit relies on discharger-developed SWPPPs, as its primary compliance mechanism, the effect of SWPPPs is much more limited under the new Permit. Significant changes and additions to the new Permit include a new risk-based permitting approach, numeric action levels and numeric effluent limitations, post-construction standards, increased BMP requirements, Rain Event Action Plans, increased monitoring and reporting requirements, certification requirements for key project personnel, and new penalties for violations of permit conditions.

General Permit – Industrial Activities

The SWRCB has also issued a statewide General Permit (Water Quality Order No. 97-03-DWQ) for regulating stormwater discharges associated with industrial activities. This General Permit requires the implementation of management measures that will achieve the performance standard of best available technology (BAT) economically achievable and best conventional pollutant control technology (BCT). It also requires the development of an SWPPP and a monitoring plan and the filing of an annual report.

General Permit – Dewatering and Other Low-Threat Discharges

Certain actions during construction may also need to conform to a General Permit (Water Quality Order No. 5-00-175) that regulates dewatering and other low-threat discharges to surface waters, provided that they do not contain significant quantities of pollutants and are either (1) four months or less in duration, or (2) the average dry weather discharge does not exceed 0.25 mgd. Examples of activities that may require coverage under this General Permit include well development water, construction dewatering, pump/well testing, pipeline/tank pressure testing, pipeline/tank flushing or dewatering, condensate discharges, water supply system discharges, and other miscellaneous dewatering/low-threat discharges. However, the actions applicable to development of a given site may already be covered under the Construction General Permit, and therefore separate coverage under this General Permit is not always required.

LOCAL

East Bay Municipal Utilities District Urban Water Management Plan

An Urban Management Plan (UWMP) is required by the California Urban Water Management Planning Act (CUWMPA), which was sponsored by EBMUD in the early 1980s. Section 10610.4 of the CUWMPA specifies that "urban water suppliers shall be required to develop water management plans to actively pursue the efficient use of available supplies." The CUWMPA became part of the California Water Code with the passage of Assembly Bill 797 in 1983. Every urban water supplier providing more than 3,000 acre-feet of municipal water annually, or providing water to more than 3,000 customers, is required by the CUWMPA to prepare and adopt a UWMP. The CUWMPA has been amended by various assembly and senate bills which expanded the issues to be addressed in the UWMP. The state's policy, declared the CUWMPA, is to achieve conservation and efficient use of urban water supplies to protect both the people of the state and their water resources.

EBMUD adopted its first UWMP on November 26, 1985. Since 1985, the plan has been revised and updated every five years. EBMUD's Board of Directors adopted a revised UWMP in 1991, 1996, 2001, and 2005. The EBMUD UWMP is designed to satisfy the requirements of the Urban Water Management Planning Act and also to provide the public with a report on EBMUD's progress in implementing conservation and water recycling programs and securing supplemental water supply sources. The UWMP 2010 Update is under preparation and scheduled for submission to the Department of Water Resources by July 1, 2010.

Contra Costa Clean Water Program Municipal Regional Permit and Stormwater C.3 Guidebook

In October 2009, the San Francisco Bay RWQCB adopted a Municipal Regional Permit (MRP) governing discharges from municipal storm drains operated by 76 local government entities, including those in western and central Contra Costa County. Provision C.3 of the MRP applies to any development project which will create 10,000 square feet or more of impervious area. The C.3 requirements are separate from, and in addition to, requirements for erosion and sediment control and for pollution prevention measures during construction.

A Stormwater Control Plan that complies with the Contra Costa Clean Water Program *Stormwater C.3. Guidebook* is required for applications to subdivide land where the resulting project could create a total amount of impervious area in excess of the threshold. The guidebook regulations require that new development projects incorporate features that control stormwater runoff to reduce the quantity of pollutants introduced into the storm drain system

and waterways. These features are designed to slow the rate of stormwater flow. Requirements specify that project site designs must minimize the area of new roofs and paving and that, where feasible, pervious surfaces should be used instead of paving so that runoff can infiltrate to the underlying soil. The C.3 requirements also state that runoff from impervious areas must be captured and treated. The MRP specifies the sizes and types of facilities that may be used. In addition, project applicants must prepare plans and execute agreements to ensure the stormwater treatment and flow-control facilities are maintained in perpetuity (Contra Costa Clean Water Program, 2010).

City of Pinole Stormwater Management and Discharge Control Ordinance

Maintenance and annual inspection of stormwater treatment facilities are required by the City of Pinole Stormwater Management and Discharge Control Ordinance, found in Chapter 8.20 of the City's Municipal Code. The ordinance protects and enhances the water quality of Pinole's watercourses pursuant to, and consistent with, the Porter-Cologne Water Quality Control Act and the federal Clean Water Act. The regulations in the ordinance carry out the conditions in the City's National Pollutant Discharge Elimination System permit that require implementation of appropriate source control and site design measures and stormwater treatment measures for projects that create or replace 10,000 square feet or more of impervious surface. Regulations contained in the ordinance are intended to minimize non-stormwater discharges, minimize increases in non-point source pollution, control the discharge to the City's stormwater system from spills, dumping, or disposal of materials other than stormwater, and reduce stormwater runoff rates and volumes and non-point source pollution whenever possible.

City of Pinole Municipal Code

Chapter 15.48 of the City Municipal Code was adopted with the intent to prevent floodplain hazards. In order to accomplish its purposes, Chapter 15.48 includes methods and provisions for:

1) Restricting or prohibiting uses which are dangerous to health, safety, and property due to water or erosion hazards, or which result in damaging increases in erosion or flood heights or velocities;

2) Requiring that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;

3) Controlling the alteration of natural floodplains, stream channels, and natural protective barriers, which help accommodate or channel floodwaters;

4) Controlling filling, grading, dredging, and other development which may increase flood damage; and

5) Preventing or regulating the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards in other areas. (Ord. 511 § 2 (Exh. A) (part), 1988).

4.9.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

Based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines, the proposed project would result in a significant impact to hydrology or water quality if it would:

1) Violate any water quality standards or waste discharge requirements.

2) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted).

3) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site.

4) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site.

5) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

6) Otherwise substantially degrade water quality.

7) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map.

8) Place within a 100-year flood hazard area structure which would impede or redirect flood flows.

9) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.

10) Inundation by seiche, tsunami, or mudflow.

In addition, based on recent state legislation (Senate Bill 5), the proposed City of Pinole General Plan would result in a significant impact to hydrology if it would result in future development within areas that do not have a minimum 200-year flood protection. Note that issues relating to water supply (item b) are discussed further in Section 4.12, Public Services and Utilities.

METHODOLOGY

The hydrology and flood potential analysis is based on a review of published information, reports, and plans regarding regional hydrology, climate, geology, water quality, and regulations. Relevant documents include the Pinole Creek Watershed Sediment Source Assessment (SFEI, 2005), Contra Costa County Watershed Atlas (Contra Costa County, 2005), and the California Water Plan Update (DWR, 2009). Numerous other technical studies and reports were reviewed to aid in the analysis of the hydrology and water quality setting and impacts as a result of the City's proposed General Plan. These documents are included in the References subsection below. The analysis takes into account the type of land uses existing and proposed within the Planning Area under the proposed update to the City's General Plan. It should be noted that this section does not discuss water supplies and the ability of the City to

provide water to future development. The reader is referred to Section 4.12, Public Services and Utilities, of this Draft EIR for a discussion of water supply issues.

PROJECT IMPACTS AND MITIGATION MEASURES

Degrade Surface Water Quality (Standards of Significance 1, 3, 5, and 6)

Impact 4.9.1 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could result in the discharge of polluted runoff during construction and operation of future urban development potentially violating water quality standards or otherwise substantially degrading surface water quality. This impact is **potentially significant**.

General Plan Update

Construction Water Quality Impacts

Construction associated with subsequent development under the proposed General Plan Update would consist of grading and vegetation removal activities that could increase soil erosion rates on the areas proposed for development. Construction activities would result in the exposure of raw soil materials to the natural elements (wind, rain, etc.). In rainy periods, grading operations may impact the surface runoff by increasing the amount of silt and debris carried by runoff. Areas with uncontrolled concentrated flow would experience loss of material within the graded areas and could potentially impact downstream water quality.

Refueling and parking of construction equipment and other vehicles on-site during construction may result in spills of oil, grease, or related pollutants that may discharge into Planning Area drainages. Improper handling, storage, or disposal of fuels and materials or improper cleaning of machinery close to area waterways could cause water quality degradation. This is a **potentially significant** impact.

Operational Water Quality Impacts

Runoff from urban land uses typically contains oils, grease, fuel, antifreeze, and byproducts of combustion (such as lead, cadmium, nickel, and other metals), as well as nutrients from fertilizers and animal waste, sediment, pesticides, herbicides, and other pollutants. Also, sizable quantities of animal waste from domesticated pets (e.g., dogs, cats, and horses) contribute bacterial pollutants into surface and source waters. Precipitation during the early portion of the wet season displaces these pollutants into the stormwater runoff, resulting in high pollutant concentrations in the initial wet weather runoff. This initial runoff, containing peak pollutant levels, is referred to as the "first flush" of storm events. It is estimated that during the rainy season, the first flush of heavy metals and hydrocarbons would occur during the first inches of seasonal rainfall.

The amount and type of runoff generated by land uses in the city may be greater than that under existing conditions due to increases in impervious surfaces. There would likely be a corresponding increase in urban runoff pollutants and first flush roadway contaminants such as heavy metals, oil, grease, nutrients (i.e., nitrates and phosphates), pesticides, and herbicides from landscaped areas. These constituents may result in water quality impacts to on- and off-site drainage flows and to downstream area waterways, including Pinole Creek and San Pablo Bay. This is a **potentially significant** impact.

Furthermore, implementation of the proposed General Plan Update would result in population growth (see **Table 3.0-5**) which would result in increased generation of wastewater that must be treated and disposed. The City of Pinole Public Works Department and the West County Wastewater district provide wastewater services to the City through the use of the Pinole/Hercules Wastewater Treatment Plant located at the foot of Tennent Avenue in the City of Pinole. Both agencies dispose of all or a majority of their treated effluent in the deep water channels of the San Pablo Bay. The most common form of wastewater generated by subsequent infill-related projects anticipated under the proposed project is domestic sewage. Domestic sewage treatment is subject to San Francisco Bay Regional Water Quality Control Water Board wastewater regulations and standards. Future development projects under the proposed General Plan would not be expected to generate unique or unusual types or levels of wastewater. Proposed discharge of unique or unusual wastewater into the sewer system would require a permit from the City of Pinole. This permit would require detailed technical information and water quality data, and the City would not issue a discharge permit until it has confirmed that the treatment facilities could treat the proposed effluent. This impact is **less than significant**.

Three Corridors Specific Plan

Implementation of the proposed Three Corridors Specific Plan would consist of the revitalization of the San Pablo Avenue, Pinole Valley Road, and Appian Way corridors, which could include new development and/or redevelopment of various urban uses. The Three Corridors Specific Plan is intended to establish more housing choices and job opportunities in the city's commercial corridors. The Three Corridors Specific Plan also identifies opportunity sites for infill mixed-use development along the city's commercial corridors in close proximity to transit and other amenities. The Specific Plan areas contain approximately 300 acres of predominantly developed land. In order to accommodate the projected demand for development and invite further capital investment within the city, the Specific Plan would change land uses in order to replace single-use commercial zoning with various mixed-use zones, eliminate commercial floor area ratio (FAR) as a development constraint, increase opportunities for residential development, and increase residential density.

Therefore, implementation of the proposed Three Corridors Specific Plan would have the potential to increase development densities in portions of the Planning Area and would result in increased construction activities. However, as described above, stormwater drainage quality from construction sites and completed development sites would be protected through implementation of existing regulations. Implementation of the proposed Specific Plan would not be expected to result in any population growth beyond that projected as part of the proposed General Plan Update and therefore would not generate any additional wastewater. This impact is considered to be **less than significant**.

Zoning Code Update

The City plans to update its Zoning Code as part of the proposed General Plan Update project. These updates would involve the deletion, addition, and modification of certain zoning districts and development standards in order to make the Zoning Code consistent with the updated General Plan (see Section 3.0, Project Description, for more details). These updates would not result in any development activities beyond those analyzed for the proposed GPU. Therefore, the Zoning Code Update would have an impact similar to that for the General Plan Update as discussed above.

Proposed General Plan Policies and Actions that Address Surface Water Quality

The proposed General Plan Update incorporates the following policies and actions that provide mitigation to minimize the impacts to surface water quality.

Action HS.2.1.3 Establish land use controls for properties that abut Pinole Creek in order to minimize potential conflicts between flood, resource protection and recreational goals. This action could be accomplished by adopting a creek ordinance.

Action HS.5.3.5 Adopt a green building ordinance to reduce construction waste, improve water conservation and reduce reliance on nonrenewable resources. This ordinance should identify practices that can be employed in the design, construction and operation of projects that will protect air and water quality in Pinole.

Action HS.7.2.2 Minimize or eliminate direct connections between impervious surfaces and storm drains.

Policy HS.7.3 Reduce the transport of runoff and surface pollutants off site.

Action HS.7.3.1 Provide regular maintenance and monitoring of stormwater collection and treatment facilities to ensure that they are operating effectively.

Action HS.7.3.2 Regularly inspect commercial, industrial and public facilities to ensure proper connections to the sanitary system and avoid illicit discharge.

Policy HS.7.4 Preserve natural water bodies and drainage systems in a natural condition wherever possible.

Action HS.7.4.1 Limit disturbance of natural water bodies and drainage systems to only those activities related to public recreation and circulation or to activities designed to enhance environmental conditions.

Action HS.7.4.2 Participate in local and regional restoration projects to improve water quality in the watersheds.

Policy HS.7.5 Reduce pollutant loading in the wastewater system.

Action HS.7.5.1 Apply best management practices to sanitary sewer system discharges.

Action HS.7.5.2 Establish protocol for reducing the use of pesticides in City parks and other public spaces maintained by the City.

Policy OS.1.7 Transitional Zones. The City will condition or modify development approvals to ensure that natural transitions along the edges of different habitat types are preserved and enhanced because of their importance to wildlife. Maintain proper buffers between sensitive habitat and conflicting land uses. Habitat types of particular concern are those along the margins of riparian corridors, marshlands, and oak woodlands. Preserves and areas with special conservation status must have compatible surrounding land uses.

Action OS.1.7.1 Establish development standards that protect upland areas surrounding riparian habitat, and buffer areas adjacent to oak woodlands and other resources. These policies may include:

a. Creek setbacks;
b. Ridgeline separation; and
c. Tree protection measures.

Policy OS.1.8 Habitat Restoration. The City shall implement a re-vegetation plan which aims to identify and prioritize areas planned for habitat restoration. Areas planned for restoration may provide special-status species habitat, connectivity of wildlife corridors, transitional zones in between natural areas and incompatible land uses, or expansion of ecological functions such as flood management and water quality.

Action OS.1.8.2 Establish riparian and stream restoration programs that include erosion control measures, stream clean-up projects, and revegetation plans for denuded areas.

Policy OS.2.4 Riparian Areas and Creek Setbacks. Lands adjacent to riparian areas shall be protected as public or private permanent open space through dedication or easements. Riparian vegetation outside the setback should also be protected. Riparian areas within the City include but are not limited to: (1) Pinole Creek; (2) Catty Creek; (3) Duncan Canyon/Cole Creek; (4) Shady Draw; (5) Faria Creek; and (6) Roble Creek and shall be protected from further degradation and enhanced during review of adjacent proposed development.

Action OS.2.4.1 Continue implementing the Pinole Creek Watershed Vision Plan and pursue related riparian and stream restoration programs.

Action OS.2.4.2 Establish minimum separation between creeks and adjoining development.

Policy OS.2.7 Integrated Creek Management. The City will encourage and cooperate with Contra Costa County and other responsible agencies to plan and implement an integrated management plan for the long-term conservation and restoration of the riparian corridor along the Pinole Creek.

Action OS.3.6.1 Continue to employ mitigations to reduce potential impacts to wetland resources to a less than significant level.

Action OS.3.6.2 Establish standards to protect wetlands resources within the City of Pinole.

Policy OS.8.2 Low Impact Development. Integrate Low Impact Development (LID) practices in all new development to reduce, treat, infiltrate and manage runoff flows caused by storms, urban runoff and impervious surfaces.

Policy OS.8.5 Prevent Water Pollution. Take actions to prevent water pollution, consistent with federal and state water policies and standards.

Policy OS.8.8 Protect creeks and San Pablo Bay within the Planning Area by implementing stormwater pollution-prevention activities.

ACTION OS.8.8.1 Minimize public and private use of pesticides that may harm water quality in the Pinole Creek watershed and Planning Area through education and outreach efforts.

ACTION OS.8.8.2 Implement a comprehensive municipal stormwater pollution-prevention program in compliance with requirements of the California Regional Water Quality Control Board's stormwater National Pollutant Discharge Elimination System (NPDES) permit.

Action OS.8.8.3 Avoid excessive grading and disturbance of vegetation and soils, retain native vegetation and significant trees, and maintain natural drainage patterns by requiring proposed development to conform to natural land forms, where feasible.

Action OS.8.8.4 Continue to work cooperatively with other agencies and community groups to comply with water quality regulations, reduce pollutants in runoff, and protect and enhance water resources in the Pinole Creek watershed and the Planning Area.

Action OS.8.8.5 Reduce directly connected impervious area by limiting the overall coverage of paving and roofs, directing runoff from impervious areas to adjacent pervious areas, and selecting permeable pavements and surface treatments to enhance water quality.

Action OS.8.8.6 Require new development projects to incorporate facilities and measures to treat stormwater before discharge from the site. The facilities shall be included in required Stormwater Control Plans and sized to meet NPDES permit requirements. Projects shall protect water quality by incorporating Low Impact Development (LID) design to detain, treat and infiltrate runoff by minimizing impervious area; such as use of pervious pavements and green roofs; disperse runoff to landscaped areas; and/or route runoff to rain gardens, cisterns, swales, and other small-scale facilities distributed throughout the project area.

Action OS.8.8.7 Support and participate in regional efforts to protect water quality and enhance recreation opportunities by preserving and restoring riparian and wetland habitat within the Planning Area and the Pinole Creek watershed.

Action SE.9.1.4 Continue to comply with state and county C.3 requirements of limiting impervious surface area and reducing stormwater runoff and work to increase Low Impact Development throughout the City.

Action SE.9.1.5 Continue to plan and implement upgrades or other options to improve solids processing, comply with permit requirements and help prevent overflow and runoff into the Bay.

Action SE.9.1.7 Continue to require new development applicants to incorporate post-construction stormwater treatment systems and best management practices on the site.

Action SE.9.1.8 Require that stormwater treatment measures use Low Impact Development systems such as vegetation to treat pollutants in stormwater runoff (e.g., through rain gardens, bioretention areas and living roof systems).

In addition, Guideline 7.3.10.a, of the Three Corridors Specific Plan encourages the reduction of surface water and pollutant runoff by maximizing the use of pervious surfaces and vegetative ground cover. These guidelines also encourage the integration of natural topography into site design and the minimization of grading. . Guideline 8.2.1.k encourages parking lots to integrate landscaped swales, natural vegetation, and permeable paving to reduce surface water and pollutant runoff.

The State Water Resources Control Board is responsible for implementing elements of the Clean Water Act and has issued a statewide General Permit (Water Quality Order 99-08- DWQ) for construction activities within the state. The State General Construction Activity Storm Water Permit is implemented and enforced by regional water quality control boards and applies to construction activities that disturb 1 acre or more. This permit also requires the preparation and implementation of a stormwater pollution prevention plan that identifies best management practices (BMPs) to minimize pollutants from discharging from construction sites to the maximum extent practicable. BMPs are effective, practical, structural or nonstructural methods which prevent or reduce the movement of sediment, nutrients, pesticides, and other pollutants from the land to surface water or groundwater, or which otherwise protect water quality from potential adverse effects of development activities. The adoption and use of BMPs will provide the mechanism for reducing the volume of surface runoff originating from an area of development disturbance and running directly into surface water. Standard BMPs are available in the California Stormwater Quality Association handbooks (CSQA, 2003).

The Pinole Municipal Code requires that every application for a development project, including but not limited to a rezoning, tentative map, parcel map, conditional use permit, variance, site development permit, design review, or building permit, that is subject to the development runoff requirements in the City's National Pollutant Discharge Elimination System (NPDES) permit must be accompanied by a stormwater control plan that meets the criteria in the most recent version of the Contra Costa Clean Water Program (Section 8.20.050, Stormwater Control Plan). (The San Francisco Bay Regional Water Quality Control Water Board first issued a municipal stormwater NPDES permit to Contra Costa County and its 19 cities and towns, including the City of Pinole, in 1993.)

Section 8.20.090 states that all construction contractors performing work in the city shall conform to the requirements of the BMPs for construction activities, new development, and redevelopment required by the City and the Association of Bay Area Governments *Manual of Standards for Erosion and Sediment Control Measures*. As a minimum, such BMPs must include provision for filter materials placed to preclude an increase in debris and sediments entering the stormwater system over "non-project" conditions. The City Engineer may establish controls on the volume and rate of stormwater runoff from new developments and redevelopment as may be appropriate to minimize the discharge and transport of pollutants. Section 8.20.090 was enacted by the City for the purpose of regulating grading on all property within the city to avoid pollution of watercourses with nutrients, sediments, or other earthen materials generated or caused by surface runoff on or across the permit area. Additionally, the release of non-stormwater discharges to the City's stormwater system is prohibited (Section 8.20.060, Discharge of Non-Stormwater).

As part of the City's coverage under the General Permit for the NPDES Phase II Regulations, the City complies with the Contra Costa Clean Water Program *Stormwater C.3 Guidebook* in the

City Municipal Code in order to protect water quality. BMPs under this program include street sweeping, maintenance of storm drains, identification and elimination of illicit discharges to storm drains, business inspections, public outreach, construction site inspections, monitoring and studies of stream health, and control of runoff pollutants from new developments and redevelopments. Section 8.20.090 of the City Municipal Code requires that any person owning or operating premises that may contribute pollutants to the City's stormwater system undertake all practicable BMPs to reduce the potential for pollutants entering the system. Examples of such premises include, but are not limited to, parking lots, gasoline stations, industrial facilities, and other commercial enterprises.

Additionally, the Contra Costa Clean Water Program *Stormwater C.3 Guidebook* has created a Low Impact Development (LID) approach that ensures consistent and thorough implementation of the San Francisco Bay Regional Water Quality Control Water Board's requirements. Many stormwater controls, including LID, have proven to be practicable in most development projects. To achieve fair and effective implementation, criteria and guidance for those controls must be detailed and specific — while also offering the right amount of flexibility or exceptions for special cases. The NPDES permit includes various standards, including hydrologic criteria, which have been found to comprise the "maximum extent practicable." The *Stormwater C.3 Guidebook* is continuously improved and refined based on the experience of municipal planners and engineers, with input from land developers and development professionals.

Implementation of the proposed General Plan policies and actions and Specific Plan guidelines listed above, as well as continued compliance with the State General Construction Activity Storm Water Permit requirements (where applicable), the City's Municipal Code (Sections 8.20.040 through 8.20.210), and the Contra Costa Clean Water Program *Stormwater C.3 Guidebook* would significantly reduce surface water quality impacts associated with implementation of the proposed project. Specifically, this impact would be lessened through the use of effective construction-phase, source control, and treatment control BMPs and Low Impact Development systems that include site preparation, runoff control, sediment retention, and other similar features. The effectiveness of BMPs has been recognized in the California Stormwater Quality Association, Stormwater Best Management Practice Handbooks. The Low Impact Development approach ensures consistent and thorough implementation of the San Francisco Bay Regional Water Quality Control Water Board's requirements. However, this impact remains **potentially significant**.

Mitigation Measures

MM 4.9.1 General Plan Action HS.2.1.3 shall be revised as follows:

> Establish land use controls for properties that abut Pinole Creek in order to minimize potential conflicts between flood, resource protection and recreational goals. Adopt new development regulations that require applications for new development projects to adhere to pertinent local, state, and federal agency requirements. City Development regulation for properties that abut the Creek shall specify appropriate land uses and ensure that new projects will take into account issues including flow velocity, sediment load, and volume within Pinole Creek.

After implementation of mitigation measure **MM 4.9.1**, surface water quality impacts associated with implementation of the proposed project would be reduced to a **less than significant** level.

Degrade Groundwater Quality (Standards of Significance 1, and 6)

Impact 4.9.2 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could result in the degradation of groundwater quality resulting from construction and operation of future urban development. This is considered a **less than significant** impact.

General Plan Update

As discussed above in **Impact 4.9.1**, development of the Planning Area under the proposed General Plan Update could generate runoff containing oils, grease, fuel, antifreeze, byproducts of combustion (such as lead, cadmium, nickel, and other metals), household pollutants, nutrients (i.e., fertilizers), and other chemicals from landscaped areas. The sub-surface water gradient in the Planning Area is considered most vulnerable to the following activities associated with contaminants detected in the water supply: sewer collection systems, parks, RV parks, fertilizer and pesticide application, automobile body and repair shops, utility stations (maintenance areas), railroad yards (maintenance/fueling areas), chemical/petroleum processing/storage, machine shops, and fleet/truck/bus terminals. This impact is **potentially significant**.

Three Corridors Specific Plan

Implementation of the proposed Three Corridors Specific Plan would consist of the revitalization of the San Pablo Avenue, Pinole Valley Road, and Appian Way corridors, which could include new development and/or redevelopment of various urban uses. The Three Corridors Specific Plan is intended to establish more housing choices and job opportunities in the city's commercial corridors. The Three Corridors Specific Plan also identifies opportunity sites for infill mixed-use development along the city's commercial corridors in close proximity to transit and other amenities. The Specific Plan areas contain approximately 300 acres of predominantly developed land. In order to accommodate the projected demand for development and invite further capital investment within the city, the Specific Plan would change land uses in order to replace single-use commercial zoning with various mixed-use zones, eliminate commercial floor area ratio (FAR) as a development constraint, increase opportunities for residential development, and increase residential density.

Implementation of the proposed Three Corridors Specific Plan would result in increased intensity of development within portions of the Planning Area, potentially resulting in increased urban runoff containing various pollutants that could degrade groundwater quality. As such, this impact is **potentially significant**.

Zoning Code Update

The City plans to update its Zoning Code as part of the proposed General Plan Update project. These updates would involve the deletion, addition, and modification of certain zoning districts and development standards in order to make the Zoning Code consistent with the updated General Plan (see Section 3.0, Project Description, for more details). These updates would result in any development activities beyond those analyzed for the proposed GPU. Therefore, the Zoning Code Update would have an impact similar to that for the General Plan Update as discussed above.

Proposed General Plan Policies and Actions that Address Groundwater Quality

The proposed General Plan Update incorporates the following policies and actions that provide mitigation to minimize the impacts to groundwater quality.

Policy OS.8.4 Groundwater Quality. Collaborate with local and regional water resource managers to identify and monitor areas where hazardous waste and other pollutants may negatively impact groundwater quality.

Action OS.8.4.1 Groundwater Quality Protection. Require appropriately designated filters adjacent to all manmade storm drainage channels.

Policy OS.8.5 Prevent Water Pollution. Take actions to prevent water pollution, consistent with federal and state water policies and standards.

Action OS.8.8.1 Minimize public and private use of pesticides that may harm water quality in the Pinole Creek watershed and Planning Area through education and outreach efforts.

Action OS.8.8.2 Implement a comprehensive municipal stormwater pollution-prevention program in compliance with requirements of the California Regional Water Quality Control Board's stormwater National Pollutant Discharge Elimination System (NPDES) permit.

Action OS.8.8.6 Require new development projects to incorporate facilities and measures to treat stormwater before discharge from the site. The facilities shall be included in required Stormwater Control Plans and sized to meet NPDES permit requirements. Projects shall protect water quality by incorporating Low Impact Development (LID) design to detain, treat and infiltrate runoff by minimizing impervious area; such as use of pervious pavements and green roofs; dispersing runoff to landscaped areas; and/or routing runoff to rain gardens, cisterns, swales, and other small-scale facilities distributed throughout the project area.

Action OS.8.8.7 Support and participate in regional efforts to protect water quality and enhance recreation opportunities by preserving and restoring riparian and wetland habitat within the Planning Area and the Pinole Creek watershed.

Action SE.9.1.8 Require that stormwater treatment measures use Low Impact Development systems such as vegetation to treat pollutants in stormwater runoff (e.g., through rain gardens, bioretention areas and living roof systems).

In addition, Guideline 7.3.10.a, of the Three Corridors Specific Plan encourages the reduction of surface water and pollutant runoff by maximizing the use of pervious surfaces and vegetative ground cover. These guidelines also encourage the integration of natural topography into site design and the minimization of grading. . Guideline 8.2.1.k encourages parking lots to integrate landscaped swales, natural vegetation, and permeable paving to reduce surface water and pollutant runoff.

As part of Phase II of the NPDES, the State Water Resources Control Board has adopted a General Permit for the Discharge of Storm Water from Small MS4s to provide permit coverage for smaller municipalities, which the City complies with through implementation of the Contra Costa

Clean Water Program *Stormwater C.3 Guidebook* described under Impact 4.9.1 above, which provides water quality protections for surface water and groundwater.

In addition, Pinole Municipal Code Section 8.20.090 states that for each new development and redevelopment project subject to the development runoff requirements, every applicant will submit a stormwater control plan and implement conditions of approval that reduce stormwater pollutant discharges through the construction, operation, and maintenance of treatment measures and other appropriate source control and site design measures (e.g., stormwater detention/infiltration basins, storm drains). Similarly, increases in runoff volume and flows must be managed in accordance with the development runoff requirements. The California Stormwater Quality Association has prepared technical studies regarding water quality control feature impacts on groundwater in the Stormwater Best Management Practices Handbooks. These studies have identified that water quality control features such as infiltration basins (when inspected and monitored properly) have been successful in controlling water quality and avoiding groundwater quality impacts (metals and organic compounds associated with stormwater are typically lost within the first few feet of the soil of the basins).

Implementation of the SWRCB's statewide General Permits for construction and dewatering (Water Quality Orders 99-08-DWQ and R5-2008-0081) would minimize degradation of storm drainage leaving construction sites. In addition, implementation of the Contra Costa Clean Water Program, as referenced in the City Municipal Code, would protect stormwater quality from pollutants associated with normal operation of urban development once developed. Furthermore, proposed Action OS.8.5.1 requires appropriately designated filters adjacent to all man-made storm drainage channels. Treated effluent from the City's wastewater service providers is disposed in San Pablo Bay and would have no effect on the underlying groundwater. Therefore, this impact would be mitigated to a **less than significant** level.

Mitigation Measures

None required.

Deplete Groundwater Supplies or Interfere with Groundwater Recharge (Standard of Significance 2)

Impact 4.9.3 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would not require the use of any groundwater supplies. There would be **no impact**.

General Plan Update

The City of Pinole is provided municipal water service by the East Bay Municipal Utilities District (EBMUD). EBMUD obtains water from the Mokelumne River watershed and from local area watersheds. Most of the water in the Mokelumne River watershed is from snowmelt from the Sierra Nevada mountain range. Water acquired form local area watersheds is primarily from runoff and precipitation that collects in several reservoirs maintained by EBMUD. No water is obtained from groundwater resources. Additionally, the Planning Area and surrounding region do not have significant underlying groundwater resources and are not located within a recognized groundwater subbasin (DWR, 2003). Therefore, implementation of the proposed project would have **no impact** on groundwater supplies nor would it interfere with the recharge of a groundwater aquifer.

Three Corridors Specific Plan

Implementation of the proposed Three Corridors Specific Plan would consist of the revitalization of the San Pablo Avenue, Pinole Valley Road, and Appian Way corridors, which could include new development and/or redevelopment of various urban uses. The Three Corridors Specific Plan is intended to establish more housing choices and job opportunities in the city's commercial corridors. The Three Corridors Specific Plan also identifies opportunity sites for infill mixed-use development along the city's commercial corridors in close proximity to transit and other amenities. The Specific Plan areas contain approximately 300 acres of predominantly developed land. In order to accommodate the projected demand for development and invite further capital investment within the city, the Specific Plan would change land uses in order to replace single-use commercial zoning with various mixed-use zones, eliminate commercial floor area ratio (FAR) as a development constraint, increase opportunities for residential development, and increase residential density.

As described above, the City of Pinole is provided municipal water service by EBMUD, and EBMUD obtains water from the Mokelumne River watershed and from local area watersheds. No water is obtained from groundwater resources. As such, the proposed Specific Plan would have **no impact**.

Zoning Code Update

The City plans to update its Zoning Code as part of the proposed General Plan Update project. These updates would involve the deletion, addition, and modification of certain zoning districts and development standards in order to make the Zoning Code consistent with the updated General Plan (see Section 3.0, Project Description, for more details). These updates would not result in any development activities beyond those analyzed for the proposed GPU. Therefore, the Zoning Code Update would have an impact similar to that for the General Plan Update as discussed above.

Proposed General Plan Policies and Actions that Address Depletion of Groundwater Supplies or Interference with Groundwater Recharge

As previously mentioned, the City of Pinole water supply is not obtained from groundwater resources. However, the proposed General Plan Update incorporates the following policies and actions that would assist in minimizing any potential impacts to groundwater recharge.

Action HS.7.2.1 Ensure that impervious surfaces created in new development and redevelopment is designed to optimize infiltration.

Policy OS.1.7 Transitional Zones. The City will condition or modify development approvals to ensure that natural transitions along the edges of different habitat types are preserved and enhanced because of their importance to wildlife. Maintain proper buffers between sensitive habitat and conflicting land uses. Habitat types of particular concern are those along the margins of riparian corridors, marshlands, and oak woodlands. Preserves and areas with special conservation status must have compatible surrounding land uses.

Action OS.1.7.1 Establish development standards that protect upland areas surrounding riparian habitat, and buffer areas adjacent to oak woodlands and other resources. These policies may include:

a. Creek setbacks;
b. Ridgeline separation; and
c. Tree protection measures.

Policy OS.1.8 Habitat Restoration. The City shall implement a re-vegetation plan which aims to identify and prioritize areas planned for habitat restoration. Areas planned for restoration may provide special-status species habitat, connectivity of wildlife corridors, transitional zones in between natural areas and incompatible land uses, or expansion of ecological functions such as flood management and water quality.

Action OS.1.8.2 Establish riparian and stream restoration programs that include erosion control measures, stream clean-up projects, and revegetation plans for denuded areas.

Policy OS.2.4 Riparian Areas and Creek Setbacks. Lands adjacent to riparian areas shall be protected as public or private permanent open space through dedication or easements. Riparian vegetation outside the setback should also be protected. Riparian areas within the City include but are not limited to (1) Pinole Creek; (2) Catty Creek; (3) Duncan Canyon/Cole Creek; (4) Shady Draw; (5) Faria Creek; and (6) Roble Creek and shall be protected from further degradation and enhanced during review of adjacent proposed development.

Action OS.2.4.1 Continue implementing the Pinole Creek Watershed Vision Plan and pursue related riparian and stream restoration programs.

Action OS.2.4.2 Establish minimum separation between creeks and adjoining development.

Policy OS.2.7 Integrated Creek Management. The City will encourage and cooperate with Contra Costa County and other responsible agencies to plan and implement an integrated management plan for the long-term conservation and restoration of the riparian corridor along the Pinole Creek.

Action OS.3.6.1 Continue to employ mitigations to reduce potential impacts to wetland resources to a less than significant level.

Action OS.3.6.2 Establish standards to protect wetlands resources within the City of Pinole.

Policy OS.8.2 Low Impact Development. Integrate Low Impact Development (LID) practices in all new development to reduce, treat, infiltrate and manage runoff flows caused by storms, urban runoff and impervious surfaces.

Policy OS.8.3 Groundwater Recharge. Encourage natural groundwater recharge and identify groundwater recharge opportunities to combine groundwater recharge with habitat protection and recreational land uses, as part of other conservation planning efforts such as open space and park planning and creek restoration, where appropriate.

Action OS.8.8.5 Reduce directly connected impervious area by limiting the overall coverage of paving and roofs, directing runoff from impervious areas to adjacent

pervious areas, and selecting permeable pavements and surface treatments to enhance water quality.

Action OS.8.8.6 Require new development projects to incorporate facilities and measures to treat stormwater before discharge from the site. The facilities shall be included in required Stormwater Control Plans and sized to meet NPDES permit requirements. Projects shall protect water quality by incorporating Low Impact Development (LID) design to detain, treat and infiltrate runoff by minimizing impervious area; such as use of pervious pavements and green roofs; disperse runoff to landscaped areas; and/or route runoff to rain gardens, cisterns, swales, and other small-scale facilities distributed throughout the project area.

Action SE.9.1.4 Continue to comply with state and county C.3 requirements of limiting impervious surface area and reducing stormwater runoff and work to increase Low Impact Development throughout the City.

Action SE.9.1.8 Require that stormwater treatment measures use Low Impact Development systems such as vegetation to treat pollutants in stormwater runoff (e.g., through rain gardens, bioretention areas and living roof systems).

In addition, guidelines in Chapter 7.0, *Private Realm Standards and Design Guidelines*, and Chapter 8.0, *Public Realm Standards and Design Guidelines*, of the Three Corridors Specific Plan encourage the use of native, drought-tolerant species in landscaping designs as well as the limiting of turf, the use of custom irrigation systems that conserve water, and the use of recycled water to reduce water consumption. The reader is also referred to Chapter 9.0, *Infrastructure and Public Facilities*, of the Specific Plan, which confirms that new development must "pay for itself." Therefore, if new development proposed within the Specific Plan Area causes an increased demand on the system, the developer would be responsible for paying for the necessary system improvements (new distribution pipelines, water supply or storage) in order to meet the increased demand and/or higher flow requirements..

As previously mentioned, EBMUD has identified increased water storage in groundwater aquifers as a potential future alternative water supply to meet demands in dry periods. This project, referred to as the Bayside Groundwater Project, involves groundwater injection/extraction operations in the San Leandro/San Lorenzo area, several miles south of the Planning Area (EBMUD, 2005). Phase 1 of this project will store an annual average of one million gallons a day (mgd) (1,120 acre-feet) of water in a deep aquifer beneath San Lorenzo (EBMUD, 2010). Water stored in wet years would supply customers in dry years at a delivery rate that does not exceed 1 mgd on a yearly average. The environmental impact report prepared for the Bayside Groundwater Project was approved by the EBMUD Board of Directors in November 2005 and at the time of this analysis the project had nearly reached completion. After the successful completion of Phase 1, EBMUD will consider a larger Phase 2 Bayside Groundwater Project that would store 2 to 10 mgd, providing even greater drought protection. A new EIR would be prepared prior to EBMUD proceeding with Phase 2.

The Planning Area and surrounding region do not have significant underlying groundwater resources and are not located within a recognized groundwater subbasin (DWR, 2003). Implementation of the proposed project would have **no impact** on groundwater supplies nor would it interfere with the recharge of a groundwater aquifer.

Mitigation Measures

None required.

Increase Storm Runoff and Drainage Impacts (Standards of Significance 4 and 9)

Impact 4.9.4 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would increase impervious surfaces and alter drainage conditions and rates in the Planning Area, which could result in increased runoff and potential flooding impacts. This impact is considered to be **less than significant**.

General Plan Update

When land is in a natural or undeveloped condition, soils, mulch, vegetation, and plant roots slow the movement of stormwater and increase the ability of rainwater to be absorbed, or infiltrate, thus reducing the amount of total stormwater runoff from a site. The infiltration and runoff process is altered when a site is developed with urban uses. Urban development often includes grading activities and results in the addition of impervious surfaces, including roads, parking lots, driveways, and rooftops. As a result of development, more precipitation runs off of a site as stormwater rather than infiltrating the soil as groundwater, ultimately increasing the rate or amount of stormwater, which may result in flooding.

Section 8.20.050, Stormwater Control Plan, of the City Municipal Code states that every application for a development project of 1 acre or more in size shall be accompanied by a stormwater control plan that meets the criteria in the most recent version of the Contra Costa Clean Water Program *Stormwater C.3 Guidebook*. Guidebook stormwater regulations require that new development projects incorporate features that control stormwater runoff to reduce the quantity of pollutants introduced into the storm drain system and waterways. These features are designed to slow the rate of stormwater flow. Subsequent projects under the proposed General Plan Update creating and/or replacing at least 1 acre (43,560 square feet) of impervious surface must design stormwater management facilities to provide flow control functions in order to maintain pre-project runoff volumes and durations. In addition to treating stormwater runoff, these projects control the volume and rate at which runoff is released. This impact is **less than significant.**

Three Corridors Specific Plan

Implementation of the proposed Three Corridors Specific Plan would consist of the revitalization of the San Pablo Avenue, Pinole Valley Road, and Appian Way corridors, which could include new development and/or redevelopment of various urban uses. The Three Corridors Specific Plan is intended to establish more housing choices and job opportunities in the city's commercial corridors. The Three Corridors Specific Plan also identifies opportunity sites for infill mixed-use development along the city's commercial corridors in close proximity to transit and other amenities. The Specific Plan areas contain approximately 300 acres of predominantly developed land. In order to accommodate the projected demand for development and invite further capital investment within the city, the Specific Plan would change land uses in order to replace single-use commercial zoning with various mixed-use zones, eliminate commercial floor area ratio (FAR) as a development constraint, increase opportunities for residential development, and increase residential density.

As such, implementation of the proposed Three Corridors Specific Plan would result in increased density and the addition of impervious surfaces in portions of the Planning Area. However, as described above, stormwater drainage flows would be regulated through implementation of existing regulations. As such, this impact is considered to be **less than significant**.

Zoning Code Update

The City plans to update its Zoning Code as part of the proposed General Plan Update project. These updates would involve the deletion, addition, and modification of certain zoning districts and development standards in order to make the Zoning Code consistent with the updated General Plan (see Section 3.0, Project Description, for more details). These updates would not result in any development activities beyond those analyzed for the proposed GPU. Therefore, the Zoning Code Update would have an impact similar to that for the General Plan Update as discussed above.

Proposed General Plan Policies and Actions that Address Stormwater Runoff and Drainage Impacts

The proposed General Plan Update incorporates the following policies and actions that provide mitigation to minimize storm drainage-related impacts.

Policy CS.7.1 The City will ensure that the storm drain system has adequate capacity to minimize street flooding and, where feasible, shall expand the capacity of the system to control storm flows.

Policy CS.7.2 The City will require new developments to minimize the amount of off-site drainage by retaining stormwater for on-site percolation, provide adequate drainage facilities for remaining off-site flows, maintain natural drainage channels, and avoid alteration of off-site drainage courses.

Policy CS.7.3 The City will work with the East Bay Municipal Utility District to create a flood water diversion area to reduce the potential for downstream flooding.

Action CS.7.3.1 The City will continue to work together with the East Bay Municipal Utility District and Contra Costa Flood Control District and other regional partners to develop detention basins in the upper reaches of the Pinole Creek watershed to benefit biological resources and reduce flooding hazards.

Policy CS.7.4 The City will continue implementing the Pinole Creek Vision Plan and Pinole Creek Greenway Master Plan to optimize resource protection and recreation opportunities while reducing the potential for flooding.

Action HS.2.1.3 Establish land use controls for properties that abut Pinole Creek in order to minimize potential conflicts between flood, resource protection and recreational goals. This action could be accomplished by adopting a creek ordinance.

Policy HS.2.2 Work with the Contra Costa County Flood Control District and other property owners in the Pinole Creek watershed, particularly the East Bay Municipal Utility District (EBMUD), to establish a diversion basin that could reduce stormwater flows during severe storm conditions.

Action HS.2.2.1 Establish a land use designation for land to be set aside for detention basin purposes and seek out opportunities to establish detention basins to better protect the community from flooding hazards.

Policy HS.2.3 Continue implementing a Clean Water Program to reduce surface water discharge through project design (e.g., reduce water runoff by minimizing impervious surfaces, use green areas for drainage) and to monitor compliance with the National Pollution Discharge Elimination Systems (NPDES) permit program and the Clean Water Act.

Action HS.2.5.1 Require project applicants to investigate and report on project impacts on stormwater runoff and the wastewater treatment plant and ensure that project-specific impacts are mitigated.

Action HS.2.5.2 Seek funding to upgrade facilities to reduce inflow and infiltration and treat runoff.

Action HS.7.2.1 Ensure that impervious surfaces created in new development and redevelopment is designed to optimize infiltration.

Action OS.8.8.3 Avoid excessive grading and disturbance of vegetation and soils, retain native vegetation and significant trees, and maintain natural drainage patterns by requiring proposed development to conform to natural land forms, where feasible.

Action OS.8.8.5 Reduce directly connected impervious area by limiting the overall coverage of paving and roofs, directing runoff from impervious areas to adjacent pervious areas, and selecting permeable pavements and surface treatments to enhance water quality.

Action OS.8.8.6 Require new development projects to incorporate facilities and measures to treat stormwater before discharge from the site. The facilities shall be included in required Stormwater Control Plans and sized to meet NPDES permit requirements. Projects shall protect water quality by incorporating Low Impact Development (LID) design to detain, treat and infiltrate runoff by minimizing impervious area; such as use of pervious pavements and green roofs; disperse runoff to landscaped areas; and/or route runoff to rain gardens, cisterns, swales, and other small-scale facilities distributed throughout the project area.

Action SE.9.1.4 Continue to comply with state and county C.3 requirements of limiting impervious surface area and reducing stormwater runoff and work to increase Low Impact Development throughout the City.

In addition, Guideline 7.3.10.a, of the Three Corridors Specific Plan encourages the reduction of surface water runoff by maximizing the use of pervious surfaces and vegetative ground cover. Guideline 8.2.1.k encourages parking lots to integrate landscaped swales, natural vegetation, and permeable paving to reduce surface water runoff.

Implementation of the proposed General Plan update policies and actions items and Specific Plan guidelines listed above, and mitigation measure **MM 4.9.1**, as well as continued adherence

to the objectives of Section 8.20.050 of the Pinole Municipal Code, would reduce this impact to **less than significant**.

Mitigation Measures

None required.

Stormwater Drainage System Impacts (Standards of Significance 4)

Impact 4.9.5 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) and its associated project components could create or contribute stormwater runoff water which would exceed the capacity of the City's stormwater drainage system. This impact is considered to be **less than significant**.

General Plan Update

Implementation of the proposed General Plan Update Land Use Map and policies would allow for land uses that would increase impervious surfaces and increase stormwater runoff rates in the Planning Area. Increased stormwater runoff would need to be conveyed in Pinole's stormwater drainage system, which is maintained by the City. The existing storm drain collection system extends throughout the city as shown in **Figure 4.9-3**. New or expanded stormwater drainage infrastructure could be required in order to adequately accommodate increased runoff resulting from future land uses developed under the General Plan Update. Possible upgrades include the construction of more storm drains, construction of detention basins, creation of overland release pads, additional drainage pipelines, and upsizing of drainage pipes.

The City's 2009–2014 Capital Improvements Program (CIP) describes planned citywide public improvement projects for Fiscal Years 2009–2014, including storm drains. The 2009–2014 CIP plans for the creation of a Storm Drain Master Plan, as well as necessary storm drain improvements. Furthermore, future development or redevelopment projects proposed under the General Plan Update would involve an analysis of impacts to the storm drainage system due to higher-intensity land uses. If upgrades to the existing drainage system are necessary, such improvements would be required to be in compliance with the City of Pinole Drainage Improvement Standards.

The construction of new stormwater drainage infrastructure or the expansion of existing stormwater drainage infrastructure could result in physical effects to the environment. The provision of such facilities within the Planning Area has been programmatically considered in the technical analysis provided in this DEIR associated with urbanization of the Planning Area. Future stormwater drainage facilities would be subject to project-level CEQA review at such time as they are proposed.

T:_CS\Work\Pinole, City of\FIGURES Graphic Development - General Plan Update - 26-0185

STORM DRAIN COLLECTION SYSTEM

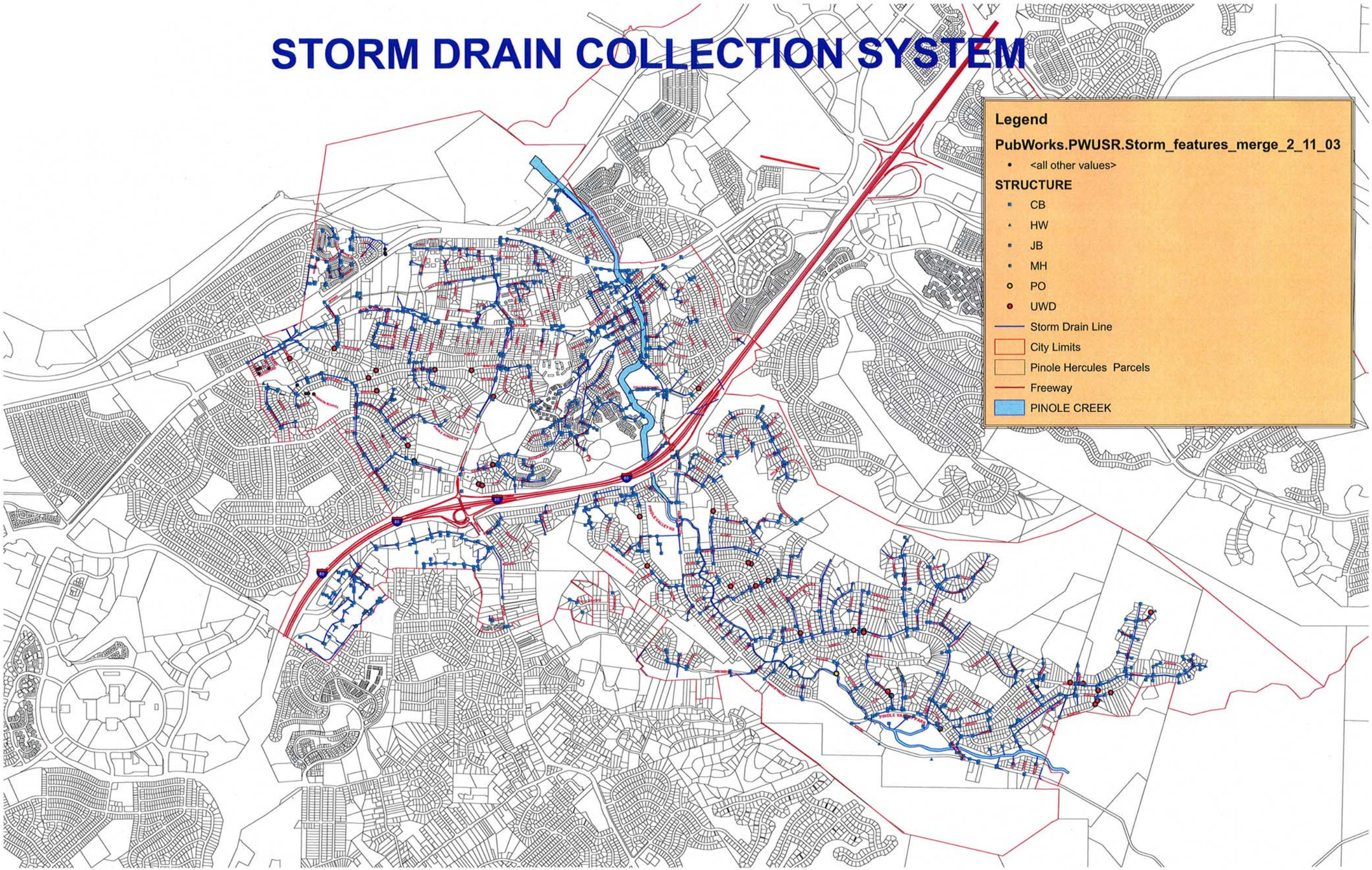

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Figure 4.9-3
City of Pinole - Storm Drain Collection System

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Three Corridors Specific Plan

Implementation of the proposed Three Corridors Specific Plan would consist of the revitalization of the San Pablo Avenue, Pinole Valley Road, and Appian Way corridors, which could include new development and/or redevelopment of various urban uses. The Three Corridors Specific Plan is intended to establish more housing choices and job opportunities in the city's commercial corridors. The Three Corridors Specific Plan also identifies opportunity sites for infill mixed-use development along the city's commercial corridors in close proximity to transit and other amenities. The Specific Plan areas contain approximately 300 acres of predominantly developed land. In order to accommodate the projected demand for development and invite further capital investment within the city, the Specific Plan would change land uses in order to replace single-use commercial zoning with various mixed-use zones, eliminate commercial floor area ratio (FAR) as a development constraint, increase opportunities for residential development, and increase residential density.

As the Three Corridors Specific Plan implements the proposed General Plan, redevelopment and infrastructure activities in the corridors would not result in any stormwater drainage system impacts beyond those analyzed for the proposed General Plan Update. Therefore, this impact is **less than significant**.

Zoning Code Update

The City plans to update its Zoning Code as part of the proposed General Plan Update project. These updates would involve the deletion, addition, and modification of certain zoning districts and development standards in order to make the Zoning Code consistent with the updated General Plan (see Section 3.0, Project Description, for more details). These updates would not result in any development activities beyond those analyzed for the proposed GPU. Therefore, the Zoning Code Update would have an impact similar to that for the General Plan Update as discussed above.

Proposed General Plan Policies and Actions that Address Stormwater Drainage System Impacts

The proposed General Plan incorporates the following policies and actions that provide mitigation to minimize impacts associated with the need for additional stormwater drainage system infrastructure.

Policy CS.7.1 The City will ensure that the storm drain system has adequate capacity to minimize street flooding and, where feasible, shall expand the capacity of the system to control storm flows.

Policy CS.7.2 The City will require new developments to minimize the amount of off-site drainage by retaining stormwater for on-site percolation, provide adequate drainage facilities for remaining off-site flows, maintain natural drainage channels, and avoid alteration of off-site drainage courses.

Action SE.9.1.4 Continue to comply with state and county C.3 requirements of limiting impervious surface area and reducing stormwater runoff and work to increase Low Impact Development throughout the City.

Action SE.9.1.7 Continue to require new development applicants to incorporate post-construction stormwater treatment systems and best management practices on the site.

Action SE.9.1.8 Require that stormwater treatment measures use Low Impact Development systems such as vegetation to treat pollutants in stormwater runoff (e.g., through rain gardens, bioretention areas and living roof systems)

In addition, Chapter 9.0, *Infrastructure and Public Facilities*, of the Specific Plan further addresses storm drainage in the Specific Plan area, including planned capitol improvements that may further reduce this impact. The Specific Plan notes that any changes in land use or redevelopment will require an evaluation of the existing drainage system to check for adequacy. If upgrades to the existing drainage structures are necessary, they would have to be in compliance with City of Pinole Drainage Improvement Standards.

The proposed General Plan Update Policy CS.7.1 would ensure that the storm drain system has adequate capacity to minimize street flooding and that the City would expand the capacity of the system to control storm flows. The provision of such facilities within the Planning Area has been programmatically considered in the technical analysis provided in this DEIR, and future stormwater drainage facilities would be subject to project-level CEQA review at such time as they are proposed. Therefore, impacts would be considered **less than significant**.

Mitigation Measures

None required.

Flooding Hazards (Standards of Significance 7, 8, 9 and 10)

Impact 4.9.6 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could result in the development of urban uses within areas subject to flooding, dam failure inundation, and/or sea level rise. This impact is considered to be **potentially significant**.

General Plan Update

The Planning Area contains both natural waterways and man-made features (e.g., channels, storm drain inlets, siphons, overchutes, v-ditches, detention basins) that convey drainage. Drainage primarily flows in an east to west direction into the Pinole Creek watershed and eventually into San Pablo Bay.

Flooding

Flood hazards arise from natural rainstorms, failure of water storage facilities, and secondary effects of landslides. As previously mentioned, a large portion of the Planning Area is designated by FEMA as Zone X. Zone X is defined as areas outside the 1 percent annual chance floodplain, or 100-year floodplain, and is considered to be at moderate to low risk of flooding. However, the entire Pinole Creek corridor and the majority of the San Pablo Bay shoreline are designated by FEMA as being within the 100-year floodplain. In addition, portions of the Pinole Creek corridor are located within the 500-year floodplain (see **Figure 4.9-2**). There is potential for Pinole Creek to flood. However, the risk of flooding in Pinole is considered minimal (City of Pinole, 2009).

Areas that are susceptible to localized flooding within the city include the Pinole/Hercules Water Pollution Control Plant (WPCP) and the freeway underpass at Interstate 80 and Pinole Valley Road. The WPCP is impacted by flooding of the creek when tidal surge and heavy rain runoff occurs (City of Pinole, 2009). The ability for the WPCP to vent/drain is hampered by these

conditions. Flooding is also caused along Pinole Creek when the creek bed is littered with debris. During heavy rains the debris is gathered into natural dams, providing the opportunity for debris plugs adversely affecting the creek's normal flow. The backup created by debris flows then causes the water to flow over and around the infrastructure designed to accommodate the normal runoff of water. During heavy rains when the storm drains are clogged with debris, there is also the potential for the freeway underpass at Interstate 80 and Pinole Valley Road to flood (City of Pinole, 2009). Flooding within Pinole occurs infrequently and when it does occur, it is gradual and generally not life-threatening from flooding directly.

Chapter 15.48, Floodplain Hazard Reduction, of the City Municipal Code recognizes that there are flood hazard areas in Pinole which are subject to periodic flooding. Chapter 15.48 promotes the public health, safety, and general welfare and seeks to minimize public and private losses due to flood conditions by restricting or prohibiting uses which are dangerous to health, safety, and property due to water or erosion hazards or which result in damaging increases in erosion or flood heights or velocities. Furthermore, Chapter 15.48 requires that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction and regulates the alteration of natural floodplains, stream channels, and natural protective barriers which help accommodate or channel floodwaters. Chapter 15.48 regulates filling, grading, dredging, and other development which may increase flood damage and prevents or regulates the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards in other areas.

The Pinole Creek Watershed Vision Plan includes a proposed lower flood control channel restoration project that aims to improve creek habitat while providing flood protection. With funding from the Coastal Conservancy, the Urban Creeks Council, Pinole Redevelopment Agency, Contra Costa Flood Control District, and Friends of Pinole Creek Watershed partnered to develop two plans. One plan is a broad-based vision for the entire watershed; the other is a restoration concept for the Pinole Creek flood control channel (from Interstate 80 to San Pablo Bay). The Vision Plan was developed through a consensus-based community process and included the participation of a diverse set of stakeholders throughout the watershed. The flood control channel restoration design will be submitted to the U.S. Army Corps of Engineers for potential implementation under the Section 1135 program, which allows the USACE to revisit and restore prior projects that have had detrimental resource impacts.

Flood-related emergency situations are reported to the Office of Emergency Services (OES) Mutual Aid Region Office in Martinez. The City of Pinole Fire Department's Emergency Operations Plan addresses flooding in the city. The plan was updated and adopted in May 2006. This impact is **less than significant**.

Dam Failure Inundation

Dam safety is regulated by the State Department of Water Resources, Division of Safety and Dams. All large reservoirs in Contra Costa County have been investigated and many have been strengthened (Contra Costa County, 2005).

The Public Works Department and County Flood Control maintain an inundation map of Pinole that includes the city and Contra Costa County. In addition, the Fire Department maintains checklists for specific addresses that have had recurring issues in past floods. The Emergency Operations Plan referenced above also explores the possible impacts to the City of Pinole from dam and storage tank failure. For instance, failure of Maloney Reservoir, Argyle #2 Reservoir, and Stott Water Storage Tank could result in flooding in Pinole and the vicinity, so the East Bay Municipal Utility District (EBMUD) recently made improvements to these three sites.

The City's existing Zoning Code includes a special floodplain combining district (Section 17.20.190). For instance, crop and tree farming and truck gardening and buildings and structures may be permitted without requirement for a use permit in this combining district. Continued compliance with these existing regulations reduces this impact to **less than significant**.

Sea Level Rise

Implementation of the proposed General Plan Update could expose additional people and/or structures to hazards associated with sea level rise. The hazards associated with sea level rise include inundation, increased flooding, and loss of natural wetland habitat. Additionally, reports indicate that if San Francisco Bay rises by 11.8 inches (30 cm), the 100-year storm-surge-induced flood event would be shifted to occur once every 10 years (BCDC, 2007). Bay waters have risen at the rate of 7 inches (17.78 cm) since the last century, and sporadic storms of increased strength due to climate change have created flooding and saltwater intrusion issues in the Bay Area. According to the Environmental Protection Agency as well as the National Oceanographic and Atmospheric Administration, sea level rise in the Bay Area is expected to exceed 1 meter, or more than 3 feet, by the end of this century (City of Pinole, 2009).

Pinole is situated about 31 meters, or 101 feet, above sea level. Effects felt by Pinole from a 1-meter sea level rise are likely to be minimal and largely contained to the coast of Pinole along San Pablo Bay. However, areas that are greatly threatened from a 1-meter sea level rise include the Richmond Parkway and parts of Richmond and San Pablo, as well as the West County Landfill and potentially the Pinole/Hercules Water Pollution Control Plant (see **Figure 4.9-4**). **Figure 4.9-4** illustrates an impact scenario in which sea level rises 1 meter by the year 2100. These threatened areas are interconnected to the City of Pinole and would have repercussive effects on the city if current forecasts of sea level rise hold true. This impact is **potentially significant**.

Three Corridors Specific Plan

Implementation of the proposed Three Corridors Specific Plan would consist of the revitalization of the San Pablo Avenue, Pinole Valley Road, and Appian Way corridors, which could include new development and/or redevelopment of various urban uses. The Three Corridors Specific Plan is intended to establish more housing choices and job opportunities in the city's commercial corridors. The Three Corridors Specific Plan also identifies opportunity sites for infill mixed-use development along the city's commercial corridors in close proximity to transit and other amenities. The Specific Plan areas contain approximately 300 acres of predominantly developed land. In order to accommodate the projected demand for development and invite further capital investment within the city, the Specific Plan would change land uses in order to replace single-use commercial zoning with various mixed-use zones, eliminate commercial floor area ratio (FAR) as a development constraint, increase opportunities for residential development, and increase residential density.

Implementation of the proposed Three Corridors Specific Plan would result in an increased number of residents, employees, and visitors within the Specific Plan area, potentially exposing a greater number of people to existing flood hazards including dam failure inundation. As described above, existing regulations minimize this impact to a less than significant level. However, risks associated with potential sea level rise as a result of climate change would remain a **potentially significant** impact.

T:_CS\Work\Pinole, City of\GP_SP_ZO_EIR\Figures

DISCLAIMER: Inundation data does not account for existing shoreline protection or wave activity. These maps are for informational purposes only. Users, by their use, agree to hold harmless and blameless the State of California and its representatives and its agents for any liability associated with its use in any form. The maps and data shall not be used to assess actual coastal hazards, insurance requirements, or property values or be used in lieu of Flood Insurance Rate Maps issued by the Federal Emergency Management Agency (FEMA).

Source: Knowles, 2008; Siegel and Bachand, 2002; NAIP 2005

Not to Scale

N

Figure 4.9-4

Shoreline Areas Vulnerable to Sea Level Rise – Year 2100

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Zoning Code Update

The City plans to update its Zoning Code as part of the proposed General Plan Update project. These updates would involve the deletion, addition, and modification of certain zoning districts and development standards in order to make the Zoning Code consistent with the updated General Plan (see Section 3.0, Project Description, for more details). These updates would not result in any development activities beyond those analyzed for the proposed GPU. Therefore, the Zoning Code Update would have an impact similar to that for the General Plan Update as discussed above.

Proposed General Plan Policies and Actions that Address Flooding Hazards

The proposed General Plan Update incorporates the following policies and actions that provide mitigation to minimize storm drainage-related impacts.

Action LU.5.3.1 Establish a creek protection ordinance to govern land use along Pinole Creek that takes into account resource and flood protection issues. Standards may be different for existing and new development. For the portion of the creek located north of Interstate 80, the protection zone should extend 50 feet outward from the centerline of the creek. For upstream parcels, the City should establish standards that respect existing development patterns, particularly where the creek is located on private property. Within this zone, riparian resource protection, public access and recreational activity should be the primary use.

Action LU.5.3.2 In areas where existing development abuts the creek, recreational use and public access adjacent to the resource are appropriate uses and activities. Where undeveloped properties abut the creek, siting and design of facilities should preserve and protect the natural resources, but public access and recreational activity are acceptable.

Policy LU.6.1 Retain the designation for the land immediately adjacent to the bay as San Pablo Bay Conservation Area, and expand the San Pablo Bay Conservation Area to include the Pinole/Hercules Water Pollution Control Plant and Bayfront Park. Primary use of the San Pablo Bay Conservation Area shall be for water-dependent uses (including water pollution control), recreation, public access, open space and resource protection. The City should formulate a plan for this area to meet the needs of connecting the Bay Trail, providing backbone facilities for the Bay Water Trail, expanding the Pinole-Hercules Water Pollution Control Plant, restoring Pinole Creek, and providing Pinole residents with waterfront uses. All proposals shall incorporate public open space and provide public access to open space areas.

Action LU.6.1.1 Establish a waterfront planning strategy to coordinate between regulatory agencies, property owners and other stakeholders to maximize recreation, public access and flood protection while ensuring continued water pollution control and creating opportunities for water-dependent uses.

Policy CS.7.1 The City will ensure that the storm drain system has adequate capacity to minimize street flooding and, where feasible, shall expand the capacity of the system to control storm flows.

Policy CS.7.2 The City will require new developments to minimize the amount of off-site drainage by retaining stormwater for on-site percolation, provide adequate drainage facilities for remaining off-site flows, maintain natural drainage channels, and avoid alteration of off-site drainage courses.

Policy CS.7.3 The City will work with the East Bay Municipal Utility District to create a flood water diversion area to reduce the potential for downstream flooding.

Action CS.7.3.1 The City will continue to work together with the East Bay Municipal Utility District and Contra Costa Flood Control District and other regional partners to develop detention basins in the upper reaches of the Pinole Creek watershed to benefit biological resources and reduce flooding hazards.

Policy CS.7.4 The City will continue implementing the Pinole Creek Vision Plan and Pinole Creek Greenway Master Plan to optimize resource protection and recreation opportunities while reducing the potential for flooding.

Action CS.7.4.1 The City will continue to work with the Contra Costa Flood Control District and other regional partners to establish a long-term funding source for Pinole Creek flood control maintenance and habitat restoration efforts.

Action HS.2.1.3 Establish land use controls for properties that abut Pinole Creek in order to minimize potential conflicts between flood, resource protection and recreational goals. This action could be accomplished by adopting a creek ordinance.

Policy HS.2.2 Work with the Contra Costa County Flood Control District and other property owners in the Pinole Creek watershed, particularly the East Bay Municipal Utility District (EBMUD), to establish a diversion basin that could reduce stormwater flows during severe storm conditions.

Action HS.2.2.1 Establish a land use designation for land to be set aside for detention basin purposes and seek out opportunities to establish detention basins to better protect the community from flooding hazards.

Policy HS.2.4 Continue to monitor studies that identify anticipated changes in sea level and create appropriate standards and improvements to minimize flood risks.

Action HS.2.4.1 Create a long-range plan to govern the San Pablo Bay waterfront and any other areas that may be impacted by changes in sea level.

Policy HS.4.1 Continue to provide essential emergency public services during natural catastrophes.

Action HS.4.1.1 Maintain and implement the Emergency Operations Plan (EOP), including periodic training exercises.

Action HS.4.1.2 Continue working with Contra Costa County and other concerned agencies to adopt a regional Emergency Response Plan (ERP).

Action HS.4.1.3 The City Fire Department staff shall review newly proposed or modified roadway designs (e.g., median modifications and speed humps) to ensure

that they do not significantly impair movement of emergency vehicles and equipment.

Action HS.4.1.4 Locate and design emergency buildings and vital utilities, communication systems and other public facilities so that they remain operational during and after an emergency or disaster.

Action HS.4.1.5 Establish an emergency warning/notification system in Pinole to notify the public during a natural or man-made disaster. Provide a public communication system to help advise the public about how best to respond during the recovery phase of a disaster and notify the community when safety has been restored.

Policy HS.4.2 Undertake disaster preparedness planning in cooperation with other public agencies and appropriate public interest organizations.

Action HS.4.2.1 Publicize disaster plans and promote resident awareness and caution regarding hazards, including soil instability, earthquakes, flooding and fire. Maintain detailed hazard maps for use in development review.

Action HS.4.2.2 Develop and adopt a pre-disaster ordinance for post-disaster recovery and reconstruction that includes provisions for debris clearance, damage assessment, demolitions, re-occupancy and building moratorium criteria, fee waivers and deferrals, and expedited permitting procedures for repair and reconstruction.

Action HS.4.2.3 Coordinate with local, regional, state and federal agencies regarding a potential rise in sea level.

Policy HS.4.3 Incorporate technological enhancements in new and substantially remodeled structures and facilities to support and improve emergency services.

Action HS.4.3.1 Develop a fiber optic network plan that can provide visual access for emergency services providers and assist with crime prevention and the monitoring of critical public facilities (e.g., storm drain and flood protection facilities).

Action HS.7.2.1 Ensure that impervious surfaces created in new development and redevelopment is designed to optimize infiltration.

Action OS.2.4.2 Establish minimum separation between creeks and adjoining development.

Policy OS.1.8 Habitat Restoration. The City shall implement a re-vegetation plan which aims to identify and prioritize areas planned for habitat restoration. Areas planned for restoration may provide special-status species habitat, connectivity of wildlife corridors, transitional zones between natural areas and incompatible land uses, or expansion of ecological functions such as flood management and water quality.

Policy OS.8.2 Integrate Low Impact Development (LID) practices in all new development to reduce, treat, infiltrate and manage runoff flows caused by storms, urban runoff and impervious surfaces.

In addition, Chapter 7.0, *Private Realm Standards and Design Guidelines*, of the Three Corridors Specific Plan encourages minimizing grading and maximizing impervious surfaces and the use of swales to reduce runoff by utilizing onsite infiltration. As discussed under Impact 4.9.5 above, Chapter 9.0, *Infrastructure and Public Facilities*, of the Specific Plan further addresses storm drainage in the Specific Plan area, including planned capitol improvements that may further reduce this impact.

Mitigation Measures

The following measures shall be incorporated into the proposed City of Pinole General Plan Update as policy and action items under Goal HS.2 in the Health and Safety Element.

MM 4.9.6a The City of Pinole shall work with the Bay Conservation and Development Commission (BCDC) to implement strategies to adapt to Bay-related impacts of climate change. The City shall work with BCDC to develop a vulnerability analyses for its shoreline and to address shoreline management issues that cross jurisdictional boundaries.

MM 4.9.6b The City will continue to implement the Municipal Code flood protection standards for development within a FEMA-designated Special Flood Hazard Area and will coordinate with FEMA and other agencies in the evaluation and mitigation of future flooding hazards that may occur as a result of sea level rise.

MM 4.9.6c The City shall pursue funding for adequate protection from sea level rise and continued subsidence and construction in areas threatened by sea level rise and/or settlement.

Implementation of the above mitigation measures regulations incorporated in the Zoning Code Update, along with the General Plan policy provisions and their associated actions, would help to reduce impacts from flooding and sea level rise in Pinole. Policy provisions for flooding and sea level rise would require new development proposals in areas subject to flooding to provide a minimum flood protection equal to a 100-year storm event and establish and maintain an effective emergency response program that anticipates the potential for disasters. Thus, implementation of the proposed General Plan Update policy provisions, and continued implementation of Municipal Code standards for flood protection, would reduce this impact to **less than significant**.

4.9.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

As previously described, the GPU Planning Area is located in western Contra Costa County. Typically the cumulative hydrology and water quality analysis relates to potential issues associated with storm drainage and flooding, stormwater quality, groundwater quality (as impacted by stormwater), and exposure of structures to flood hazards. Storm drainage is an issue that is confined primarily to development in a specific area or within a specific community. Thus the cumulative setting consists of the Pinole Creek watershed and San Pablo Bay.

Development in the Pinole Creek watershed and San Pablo Bay, including the proposed and approved projects discussed in Section 4.0 of this DEIR, would change the intensity of land uses in the region. In particular, the cumulative development scenario would increase development in the western portion of Contra Costa County.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Water Quality Impacts

Impact 4.9.7 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update), in combination with other development activities within the watershed, would contribute to a cumulative degradation of water quality from construction activities and increased urban runoff. This is considered a **potentially cumulatively considerable** impact.

As described under Impacts 4.9.1 and 4.9.2, subsequent infill and redevelopment proposed under the proposed project could contribute to water quality degradation from construction and operation. Cumulative development in the surrounding communities of Hercules, El Sobrante, Bayview-Montalvin, and Tara Hills could result in cumulative water quality impacts, due to their location adjacent to San Francisco Bay and Pinole Creek watershed.

All construction activities, new development, and redevelopment in the City of Pinole would be required to comply with the City's Stormwater Management and Discharge Control Ordinance (Chapter 8.20), as well as employ BMPs required by the City and the Association of Bay Area Governments *Manual of Standards for Erosion and Sediment Control Measures*, in order to prevent erosion and control of loose soil and sediment. BMPs may include placement of filter materials to prevent debris and sediments from entering the stormwater system over "non-project" conditions. Likewise, the City Engineer may impose controls on the volume and rate of stormwater runoff from new developments and redevelopment to minimize the discharge and transport of pollutants. During construction of projects in the city, the dischargers, through individual NPDES permits, must eliminate non-stormwater discharges to stormwater systems, develop and implement a stormwater pollution prevention plan, and perform monitoring of discharges to stormwater systems.

Potential impacts to water quality from construction and operation activities are addressed by the existing requirements of the City's Stormwater Management and Discharge Control Ordinance and individual NPDES permits. The policy provisions identified below would utilize BMPs, adopt a set of BMPs consistent with stormwater recommendations from the State Water Resources Control Board, and work with Contra Costa County to ensure implementation of all applicable National Pollutant Discharge Elimination System requirements. This impact is **less than cumulatively considerable**.

Proposed General Plan Policies and Actions that Address Cumulative Water Quality Impacts

The proposed General Plan update contains several goals, policies, and action items that would assist in reducing potential impacts to water quality. Policies and action items that contain specific, enforceable requirements and/or restrictions and corresponding performance standards that assist in reducing (though not eliminating) this impact are identified in the discussions for Impacts 4.9.1 and 4.9.2.

In addition, Guideline 7.3.10.a, of the Three Corridors Specific Plan encourages the reduction of surface water and pollutant runoff by maximizing the use of pervious surfaces and vegetative ground cover. These guidelines also encourage the integration of natural topography into site design and the minimization of grading. . Guideline 8.2.1.k encourages parking lots to integrate landscaped swales, natural vegetation, and permeable paving to reduce surface water and pollutant runoff.

Mitigation Measures

Implementation of policy provisions under Impacts 4.9.1 and 4.9.2 and mitigation measure MM 4.9.1, as well as the regulations incorporated in the Zoning Code Update, and compliance with the City's Stormwater Management and Discharge Control Ordinance, would reduce the City's contribution to cumulative water quality impact to a **less than cumulatively considerable** level. This impact is mitigated through the use of effective BMPs that include site preparation, runoff control, sediment retention, and other similar features. The effectiveness of BMPs has been recognized in the California Stormwater Quality Association, California Stormwater Best Management Practice Handbooks.

Cumulative Flooding Impacts

Impact 4.9.8 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could increase impervious surfaces and alter drainage conditions and rates in the Planning Area, which could contribute to cumulative flood conditions in the Pinole Creek watershed and San Pablo Bay. This impact is considered **cumulatively considerable**.

The implementation of the General Plan Update would result in infill/redevelopment in areas of the city that are located within the 100-year floodplain. Additionally, the infill/redevelopment associated with the proposed General Plan Update in combination with future development in adjacent cities within the Pinole Creek watershed could expose future residences and structures to flood hazards. As noted above, new development and redevelopment will be required to meet the City of Pinole Municipal Code standards, which mandate that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction. In addition, the Pinole Creek Watershed Vision Plan includes a proposed lower flood control channel restoration project that aims to improve creek habitat while providing flood protection. With funding from the Coastal Conservancy, the Vision Plan was developed through a consensus-based community process and included the participation of a diverse set of stakeholders throughout the watershed. The flood control channel restoration design will be submitted to the U.S. Army Corps of Engineers for potential implementation under the Section 1135 program, which allows the USACE to revisit and restore prior projects that have had detrimental resource impacts. This impact is **cumulatively considerable**.

Proposed General Plan Policies and Actions that Address Cumulative Flooding Impacts

The proposed General Plan Update contains several goals, policies, and action items that would assist in reducing potential impacts to flooding. Policies and action items that contain specific, enforceable requirements and/or restrictions and corresponding performance standards that assist in reducing (though not eliminating) this impact are identified in the discussions for Impacts 4.9.5 and 4.9.6.

In addition, Chapter 7.0, *Private Realm Standards and Design Guidelines*, of the Three Corridors Specific Plan encourages minimizing grading and maximizing impervious surfaces and the use of swales to reduce runoff by utilizing onsite infiltration. Chapter 9.0, *Infrastructure and Public Facilities*, of the Specific Plan further addresses storm drainage in the Specific Plan area, including planned capitol improvements that may further reduce cumulative flooding impacts.

Mitigation Measures

Implementation of above policy provisions and their associated actions, as well as mitigation measures from Impact 4.9.5, would help to reduce impacts from flooding and sea level rise, and drainage impacts in the City. Policy provisions for flooding and sea level rise would require new development proposals in areas subject to flooding to provide a minimum flood protection equal to a 100-year storm event and establish and maintain an effective emergency response program that anticipates the potential for disasters. Thus, implementation of the above proposed General Plan Update policy provisions, mitigation measures MM 4.9.6a through MM 4.9.6c, and continued implementation of Municipal Code standards for flood protection would reduce this impact to **less than cumulatively considerable**.

REFERENCES

California Department of Water Resources (DWR). 2003. *Groundwater Basins in California, Version 3.0*. http://www.dpla2.water.ca.gov/publications/groundwater/bulletin118/maps/correct_statewide_basin_map_V3_subbas.pdf (accessed March 27, 2009).

California Department of Water Resources (DWR). 2004. *California's Groundwater Bulletin 118: Santa Clara Valley Groundwater Basin, East Bay Plain Subbasin*.

California Department of Water Resources (DWR). 2009. *California Water Plan Update 2009, Working Draft, Volume 3 Regional Reports, Chapter 3 San Francisco Bay Hydrologic Region*. http://www.waterplan.water.ca.gov/cwpu2009/index.cfm (accessed February 2010).

California State Water Resources Control Board (SWRCB). 2009. http://www.waterboards.ca.gov/ (accessed March 5, 2009).

California State Water Resources Control Board (SWRCB). 2010. http://www.waterboards.ca.gov/ (accessed May 27, 2010).

California Stormwater Quality Association (CSQA). 2003. *Stormwater Best Management Practice Handbook Municipal.* http://www.cabmphandbooks.com/Municipal.asp (accessed February 2010).

Contra Costa County. 2003. *Contra Costa Watershed Atlas*.

Contra Costa County. 2005. *Contra Costa County General Plan 2005–2020*. http://contra.napanet.net/depart/cd/current/advance/GeneralPlan/General%20Plan.pdf

Contra Costa County. 2008. *Contra Costa Clean Water Program, 4th Edition.* http://www.co.contra-costa.ca.us/index.aspx?NID=355 (accessed February 9, 2010).

Contra Costa Clean Water Program. 2010. http://www.cccleanwater.org/index.html (accessed February 20, 2010).

Dudek. November 2009. *Final Contra Costa LAFCO: West County Sub-Regional Municipal Services Review*. Auburn, California.

East Bay Municipal Utility District (EBMUD). 2005. *Urban Water Management Plan 2005*.

East Bay Municipal Utility District (EBMUD). 2010. *Bayside Groundwater Project.* http://ebmud.com/about-ebmud/news/project-updates/bayside-groundwater-project (accessed February 9, 2010).

Pinole, City of. 2009. *City of Pinole General Plan Background Report.* http://www.ci.pinole.ca.us/planning/genplan07/documents.html#GeneralPlanBackgroundDocuments

Pinole, City of. 2010. *Pinole, California Municipal Code*. http://www.amlegal.com/pinole_ca/

San Francisco Bay Conservation and Development Commission (BCDC). 2006. *Climate Change, Sea Level Maps, San Pablo Bay/Carquinez Strait*. http://www.bcdc.ca.gov/planning/climate_change/climate_change.shtml (accessed February 23, 2010).

San Francisco Bay Conservation and Development Commission (BCDC). 2007. *Climate Change Action Plan.*

San Francisco Bay Regional Water Quality Control Board (SFBRWQCB). 2006. *2006 Clean Water Act Section 303(d) List of Water Quality Limited Segments*.

San Francisco Bay Regional Water Quality Control Board (SFBRWQCB). 2007. *San Francisco Bay Basin (Region 2) Water Quality Control Plan*.

San Francisco Estuary Institute (SFEI). 2005. *Pinole Creek Watershed Sediment Source Assessment*.

University of California Berkeley Library. 2010. *Contra Costa County Watershed Atlas.* http://www.lib.berkeley.edu/eblogs/eart.php/2009/03/18/contra-costa-watershed-atlas (accessed February 4, 2010).

Urban Creeks Council. 2004. *Pinole Creek Watershed Vision Plan: A Local Community-Based Effort*.

U.S. Department of Agriculture, Natural Resource Conservation Service (NRCS). 2010. *Web Soil Survey*. http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx (accessed May 7, 2010).

4.10 Cultural and Paleontological Resources

This section considers and evaluates the potential impacts of the proposed project on cultural and paleontological resources within the General Plan Update (GPU) Planning Area. Cultural resources include historic buildings and structures, historic districts, historic sites, prehistoric and historic archaeological sites, and other prehistoric and historic objects and artifacts as a result of implementation of the proposed General Plan Update and its associated project components. Paleontological resources include vertebrate, invertebrate, or plant fossils. This Draft Environmental Impact Report (DEIR) utilizes technical information and analyses from previous studies which are supported by the State California Environmental Quality Act (CEQA) Guidelines (see Sections 15148 [Citation] and 15150 [Incorporation by Reference]).

CONCEPTS AND TERMINOLOGY FOR EVALUATION OF CULTURAL RESOURCES

The following definitions are common terms used to discuss the regulatory requirements and treatment of cultural resources:

- *Cultural resources* is the term used to describe several different types of properties: prehistoric and historical archaeological sites; architectural properties such as buildings, bridges, and infrastructure; and resources of importance to Native Americans.

- *Historic properties* is a term defined by the National Historic Preservation Act (NHPA) as any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion on, the National Register of Historic Places (NRHP), including artifacts, records, and material remains related to such a property.

- *Historical resource* is a California Environmental Quality Act (CEQA) term that includes buildings, sites, structures, objects, or districts, each of which may have historical, prehistoric, architectural, archaeological, cultural, or scientific importance, and is eligible for listing or is listed in the California Register of Historical Resources (CRHR).

- *Paleontological resource* is defined are including fossilized remains of vertebrate and invertebrate organisms, fossil tracks and trackways, and plant fossils. A unique paleontological site would include a known area of fossil bearing rock strata.

4.10.1 EXISTING SETTING

ETHNOGRAPHY

At the time of Euroamerican contact (ca. 1769), Native Americans identified as Costanoans occupied the area from San Francisco Bay to southern Monterey Bay and the lower Salinas River. The name Costanoan, however, is a linguistic term that designates a language family consisting of eight separate and distinct languages (Levy, 1978). Costanoan speakers were organized in approximately 50 tribelets (Levy, 1978). Speakers of Karkin, one of the eight Costanoan languages, formed a tribelet and primarily occupied the Carquinez Strait area. Unfortunately, Costanoan culture was dramatically affected by missionization, and information (e.g., mission records and travelers logs) regarding its pre-contact organization is incomplete and inconsistent.

Costanoans lived in an area extending from San Francisco Bay to the Salinas Valley. This large area was subdivided among several individual tribelets occupying specific territories. Each tribelet, such as the Karkin, consisted of approximately 200 individuals who were grouped into clans and moieties. A headman controlled the clans and moieties (Harrington, 1933, 1942; Levy, 1978). The position of headman was usually passed from father to son, with succession being

subject to approval by the community. If no suitable male heir was available, a woman could also assume the role of headman. Tribelet political organization also included a council of elders, official speakers, and shamans (Levy, 1978).

Costanoan tribelets experienced both friendly and hostile relations with each other and with neighboring cultural groups. Interaction between Costanoans and other groups involved marriage and trade. Intermarriage usually occurred between adjacent tribelets, and was rare between tribelets at greater distances. Trade was a regular activity among the tribelets, with resources such as shell, piñon, and obsidian moving between coastal and inland groups.

Costanoans usually moved between several semi-permanent camps and villages to take full advantage of seasonally available resources. Indeed, a wide variety of ecological zones, such as valleys, sloughs, and coastal areas, were exploited by Costanoans to obtain subsistence resources. These resources included various seeds, nuts (e.g., acorn, buckeye, laurel, and hazelnuts), berries, grasses, corms, roots, insects, birds (e.g., geese, mallard, and coot), fish (e.g., steelhead, salmon, and sturgeon), shellfish (e.g., abalone, mussel and clam), and both marine and terrestrial mammals (e.g., sea otter, sea lion, harbor seal, deer, elk, grizzly bear, rabbits, antelope, raccoon, and squirrels) (Levy, 1978). Dwellings at Costanoan camps and villages were dome-shaped, with pole frameworks and thatch for roof and walls. Other structures typically found in a Costanoan village included acorn granaries, sweathouses, menstrual houses, and dance and/or assembly houses, generally located in the center of a village (Broadbent, 1972).

Costanoan technology highlights exploitation of both marine and terrestrial resources. Tule balsas were used for transportation, fishing, and hunting (Levy, 1978). Hunting weaponry and facilities included sinew-backed and self-bows, wooden arrow shafts, projectile points and other flaked stone tools made from locally available chert or obsidian obtained through trade, and nets (Levy, 1978). Costanoan utilitarian tools and facilities included baskets, primarily twined, for food and water collection, food storage, and food preparation; portable stone mortars and bedrock mortars; pestles; metates; soaproot brushes; stone bowls; and bone awls (Levy, 1978). Clothing, robes, and blankets were made of various animal skins, and steatite, serpentine, bone, and abalone were used for personal ornaments. In addition, *olivella* and other shell were cut and ground into beads. Some Costanoans also decorated themselves with pigment and tattoos (Levy, 1978).

The City of Pinole is within the boundaries of Karkin territory, but it is also near other Native American groups that inhabited the area. The Bay Miwok are located immediately to the east and Coast Miwok are located north of San Pablo Bay. Miwok are linguistic relatives of Costanoans. In addition, Patwin inhabit the area north of the Carquinez Strait. Patwin also speak a language in the same family as Costanoan. These groups also share many of the same cultural traits with Costanoans.

The arrival of the Spanish in the San Francisco Bay area in 1775 initiated a rapid decline of native populations in the area. The disruption of Native American culture was due in part to factors such as the introduction of diseases, a declining birth rate, and missionization. The decline of both Native American populations and culture was exacerbated by the discovery of gold in California in 1848 and the subsequent influx of large numbers of Euroamericans into the project area and California in general. Costanoan populations, which historically were small, experienced dramatic reductions in the latter half of the 19th century through the early 20th century. Costanoan languages were probably extinct by 1935 (Levy, 1978). Remaining Costanoan descendants united in 1971 as a corporate entity identified as the Ohlone Indian Tribe.

HISTORY

Juan Rodríguez Cabrillo sailed along the entire length of the California coast in 1542 and provided the first known description of the California coastline, including the area around the mouth of San Francisco Bay (Beck and Haase, 1974). Subsequently, from 1565 to 1584 a few Spanish galleons traveling from the Philippines to New Spain reached the California coast, probably in the area of Cape Mendocino, and then headed south along the coast of California (Beck and Haase, 1974). Sir Francis Drake, the English sea captain, also sailed along the California coast in 1579 looking for Spanish ships to attack. He stopped at Drakes Bay just north of San Francisco Bay to repair his ships and replenish his supplies of food and water (Beck and Haase, 1974). The Spanish became concerned over the appearance of an English ship along the California coast and became concerned that the English might attempt to establish a base in the area. Consequently, in 1595 a Spanish galleon commanded by Sebastian Rodríguez Cermenho sailing from the Philippines to New Spain was ordered to explore the California coast (Beck and Haase, 1974). Cermenho reached California near Eureka and sailed south to Bahia de San Francisco or Drakes Bay. He stopped at Drakes Bay to take on supplies and explore the area, but his ship was driven ashore and its cargo lost. This tragedy nearly brought an end to Spanish exploration of the California coast. Dutch encroachment into the area, however, revived Spanish exploration of the California coast to locate a safe harbor for their galleons traveling from the Philippines, and in 1602 Sebastian Vizcaíno was chosen to command a mapping voyage along the California coast (Beck and Haase, 1974). Vizcaíno sailed from Acapulco to Pointe Reyes and provided accurate maps of the area that remained in use for years.

The Spanish did not begin to explore and occupy Alta (Upper) California until the 1760s. From 1769 to 1776, a number of Spanish expeditions passed through the San Francisco Bay region, including those led by Portola, Fages, Fages and Crespí, Anza, Rivera, and Moraga (Beck and Haase, 1974; Levy, 1978; Hoover et al., 2002). The goal of many of these expeditions was not only exploration, but also the establishment of missions. The precise routes of these early explorers are not known, but the Fages-Crespí expedition in 1772 appears to be the earliest overland exploration of Contra Costa County. This expedition originated at the Monterey presidio and proceeded north, traveling through what are now Milpitas, Oakland, Berkeley, Martinez, and Pinole. The expedition explored east San Francisco Bay and the south shoreline of the Carquinez Strait, and viewed the eastern end of Suisun Bay and the Central Valley, which lay beyond it.

In 1775, Juan Manuel de Ayala became the first European to sail into and explore San Francisco Bay, including Suisun Bay. His expedition charted the bay and identified Native American settlements along both the north and south shores of the Carquinez Strait. The following year, 1776, Juan Bautista de Anza and Fray Pedro Font led an expedition from Monterey to the San Francisco Bay area to select a site for a mission and presidio. The Anza-Font Expedition followed a route similar to that of the earlier Fages-Crespí expedition and reached the East Bay Hills in March of 1776 (Milliken, 1995). On their return journey, the Anza-Font party traveled along the south shore of the Carquinez Strait and Suisun Bay before heading across country to Monterey (Beck and Haase, 1974). Other early explorations in the Carquinez Strait area include Father Fray Jose Viader's first expedition in 1810 and Father Fray Ramon Abella in 1811 (Cook, 1957; Bennyhoff, 1977).

Between 1769 and 1823, the Spanish established 21 missions along the California coast between San Diego and Sonoma. The first task of the missions, such as Mission San Francisco de Asis (1776), Mission Santa Clara (1777), Mission San José (1797), and San Francisco Solano (1823), was to Christianize the Native Americans, but they also became a major economic force in the development of Spanish California. Mission San José had the greatest effect on the Costanoan

speakers of Karkin (Gudde, 1969; Levy, 1978; Hart, 1987). The Spanish mission system forced many Native Americans to convert to Catholicism and work for the various missions. Many Native Americans, however, were not willing converts, and there are numerous accounts of them fleeing missions. In addition, Native American culture began to decline due to disease and relocation to missions such as Mission San José. In contrast to the missions, only three presidios were established, including one at San Francisco, because of the difficulty of recruiting soldiers for these remote outposts. Regardless, the presidios served as a token line of defense for the missions (Hart, 1987).

The Mexican period (ca. 1821–1848) in California is an outgrowth of the Mexican Revolution, and its accompanying social and political views affected the mission system. The missions were secularized in 1833 and their lands divided among the *Californios* as land grants called *ranchos*. The ranchos facilitated the growth of a semi-aristocratic group that controlled larger ranchos. Owners of ranchos used local populations, including Native Americans, essentially as forced labor to accomplish work on their large tracts of land. Consequently, Costanoans, and other Native American groups across California, were forced into a marginalized existence as *peons* or *vaqueros* on the large ranchos. *Ranchos* in the project area include Rancho San Pablo and Rancho El Pinole (Beck and Haase, 1974).

The end of the Mexican-American War and the signing of the Treaty of Guadalupe Hidalgo in 1848 marked the beginning of the American period (ca. 1848–Present) in California history. The onset of this period, however, did nothing to change the economic condition of the Native American populations working on the ranchos. The rancho system generally remained intact until 1862–1864, when a drought forced many landowners to sell off or subdivide their holdings. Regardless of a change in economic focus, the plight of Native American populations remained, at best, relatively unchanged (e.g., the U.S. Senate rejected treaties between the government and Native Americans in 1851 and 1852, and military reserves were established to maintain various groups) (Heizer, 1974).

City of Pinole

The history of the city dates back to the early 1700s when Don Pedro Fages led an exploration through Contra Costa. With a small band of soldiers and an Indian guide, Fages left Monterey and traveled northward until he reached the area known today as the City of Pinole. According to some accounts, the soldiers ran out of provisions on their march and found a village of Native Americans who gave them food. This food consisted of a form of meal, made from acorns, seeds, and wild grain, which they called *pinole* (derived from the Aztec word *pinolli* meaning ground and toasted grain or seeds). Thus, the soldiers named their camp "El Pinole," and the city received its name (City of Pinole, 2010).

In 1823, Don Ignacio Martinez, commandant of the Presidio of San Francisco, received a land grant known as El Pinole from the Mexican government comprising over 17,000 acres. The following year, in 1824, Don Ignacio Martinez built his first adobe hacienda in Pinole Valley about 3 miles from San Pablo Bay on what is now Pinole Valley Park. By the 1850s, Bernardo Fernandez started a trading facility at the bay and built the Fernandez Mansion, which still stands today at the end of Tennent Avenue. From these early beginnings, the small but thriving community of Pinole grew into the current city. Many of these early structures still stand and serve as time capsules of the city's colorful past.

One of the earliest Anglo-American settlers in Contra Costa County was Dr. Samuel J. Tennent, who married Rafaela, the daughter of Ignacio Martinez. In 1851, the Tennents built their home

with lumber that had been imported from Maine. Tennent, through his wife Rafaela, owned much of the acreage in the area.

California Powder Works moved into the waterfront at Hercules following the arrival of the Southern Pacific Railroad in 1878. The company built both the plant and its houses and became the largest producer of dynamite in the world by the turn of the century. During World War I, the plant manufactured more TNT than any other plant in the country. The town of Pinole became the service center for the plant, and the success of the plant had a direct relationship with the development of the city. Twenty of the homes built by the company for worker housing have been rehabilitated and relocated to a historic district receiving area adjacent to the Pinole city limits.

Edward M. Downer came to the city in late 1889 and went to work a year later as a dispatcher and station agent at the Southern Pacific train depot. During the last decade of the 19th century and the early part of the 20th century, Downer was one of the most influential and prominent business figures in Pinole and the surrounding areas including Rodeo, Crockett, Port Costa, Richmond, El Cerrito, and Albany. His success was due in part to the chain of banking houses that he and his family established in these cities, as well as his civic efforts and achievements.

Upon incorporation in 1903, the city was bustling with waterfront activity at the wharf, including a post office, newspaper (*The Pinole Weekly Times*), school, several hotels, saloons, stores and two churches. By 1915 the city boasted the Pinole Opera House, the Pinole Theatre, the Bank of Pinole, and numerous other commercial businesses including a bakery and butcher shop. Several of these buildings, such as the Bank of Pinole building, are still standing today and are a testimony to the rich history of Old Town Pinole.

The history and architectural character of the city was very much influenced by the commercial activity that took place there, including the Gold Rush, agricultural shipping (about 1854 to 1885), railroad shipping, California Powder Works Company (1879 to the 1970s), the growth in automobile travel, World War II to the 1940s, and the construction of Interstate 80. Despite rapid growth since the 1950s, the city's downtown has retained a great deal of historic and architectural character. A large number of historic residences, primarily Queen Anne and Italianate cottages, remain in good condition, and many of the old commercial buildings still remain.

The first Bank of Pinole was organized in 1905 by E. M. Downer, Sr. and located in the George Fraser building on San Pablo Avenue between Tennent and Fernandez avenues. A new limestone neoclassical structure was built across the street in 1915 and remained in use as a bank until the 1960s, when it was sold to the Pinole-Hercules Youth Memorial. In 1975 the building was purchased by the City of Pinole for $1, with the stipulation that it continue to be used as a youth facility. The building was again sold in 1992 to the Pinole Redevelopment Agency after it was deemed structurally unsafe due to damage from the 1989 Loma Prieta earthquake. The $250,000 received by the City for the transaction was placed in a fund earmarked specifically for youth purposes. In 1995 the Redevelopment Agency funded the retrofit and renovation of the Old Bank building, which reopened for commercial use in 1996.

A large number of historic residences, all of which were built for individuals who worked in the city or at the Hercules powder plant, remain in good condition throughout the old town area of Pinole. Due to the stability of the powder plant until the 1970s, the city's residential neighborhoods were not exposed to major changes created by land development or speculation. These homes, which can be categorized as Queen Anne Cottages (1880–1905),

Hip Roof Cottages (1870–1910), and Bungalows (1915–1930), are simple in character and gain their importance by their neighborhood groupings.

The majority of the historic buildings in the GPU Planning Area are located throughout the Old Town Pinole area along San Pablo Avenue, encompassing the intersection at Tennent Avenue and Pinole Valley Road. A number of historic buildings have also been identified along side streets such as Quinan Street and Tennent Avenue, although fourteen historic buildings have been distinguished from the others. These buildings include residences and businesses of some of the more influential early leaders of the community, as well as some of the best examples of their style in the city. A mural also depicts some of the earlier buildings in the city, as well as examples of Native American lodgings and Mexican land grant ranches.

KNOWN CULTURAL RESOURCES IN THE PINOLE GENERAL PLAN UPDATE PLANNING AREA

Over 40 archaeological and historical investigations, covering approximately 60 percent of the Pinole GPU Planning Area, have been conducted (Northwest Information Center, 2007). **Table 4.10-1** presents a list of known historic properties and archaeological sites within the Planning Area.

TABLE 4.10-1
LIST OF HISTORIC PROPERTIES AND ARCHAEOLOGICAL SITES WITHIN THE GPU PLANNING AREA

OHP/ Site Number	Description	Eligibility	Location
136787	H, 1948	Ineligible for NR	2319 Granada Court
066607	Historic	Ineligible for NR	759 John Street
066608	Historic	Ineligible for NR	769 John Street
150364	1960 – Historic	Ineligible for NR	335 Leroy Avenue
071193 065032	1922 – Historic	Ineligible for NR	2533 Samuel Street
06609	Historic	Ineligible for NR	2699 Samuel Steet
102032	1915 – Historic Bank of Pinole	Listed on NR & CR	2361 San Pablo Avenue
010558	1905 – Historic Home of Edward Downer, Sr.	Eligible for NR & CR	2711 San Pablo Avenue
010556	1894 – Historic Fernandez House	Listed on NR and CR	100 Tennent Avenue
010559	Pinole Waterfront	Eligible for LR	Tennent Avenue
CA-CCo-22	Prehistoric Site	Not yet determined	Confidential
CA-CCo-260	Prehistoric Site	Not yet determined	Confidential
CA-CCo-261	Prehistoric Site	Not yet determined	Confidential
CA-CCo-262	Prehistoric Site	Not yet determined	Confidential
CA-CCo-263	Prehistoric Site	Not yet determined	Confidential
CA-CCo-355	Prehistoric Site	Not yet determined	Confidential
CA-CCo-356	Prehistoric Site	Not yet determined	Confidential
CA-CCo-367	Prehistoric Site	Not yet determined	Confidential
CA-CCo-413	Prehistoric Site	Not yet determined	Confidential

OHP/ Site Number	Description	Eligibility	Location
CA-CCo-421	Prehistoric Site	Not yet determined	Confidential
CA-CCo-439	Prehistoric Site	Not yet determined	Confidential

Source: Northwest Information Center Report Detail Records, 2007; Office of Historic Preservation, 2006.
Notes: NR = National Register; CR = California Register; LR = Local Register

PALEONTOLOGICAL RESOURCES

Paleontology is defined as a science dealing with the life of past geological periods as known from fossil remains. Paleontological resources include fossil remains, as well as fossil localities and formations, which have produced fossil material in other nearby areas. This resource can be an important educational resource for the reasons mentioned before and is non-renewable once destroyed. CEQA offers protection for these sensitive resources and requires that they be addressed during the DEIR process.

A search of the University of California Museum of Paleontology (UCMP) collections database did not identify any evidence of significant paleontological resources within the Pinole GPU Planning Area.

4.10.2 REGULATORY FRAMEWORK

FEDERAL

National Register of Historic Places

The National Register of Historic Places (NRHP) is the nation's master inventory of known historic resources. The NRHP is administered by the National Park Service and includes listings of buildings, structures, sites, objects, and districts that possess historic, architectural, engineering, archaeological, or cultural significance at the national, state, or local level.

Structures, sites, buildings, districts, and objects over 50 years of age can be listed in the NRHP as significant historic resources. However, properties under 50 years of age that are of exceptional importance or are contributors to a district can also be included in the NRHP. The criteria for listing in the NRHP include resources that:

1) Are associated with events that have made a significant contribution to the broad patterns of history;

2) Are associated with the lives of persons significant in our past;

3) Embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

4) Have yielded or may likely yield information important in prehistory or history.

STATE

California Register of Historical Resources

The State Historical Resources Commission has designed the California Register of Historic Resources (CRHR) for use by state and local agencies, private groups and citizens to identify, evaluate, register, and protect California's historical resources. The CRHR is the authoritative guide to the state's significant historical and archeological resources. This program encourages public recognition and protection of resources of architectural, historical, archeological, and cultural significance, identifies historical resources for state and local planning purposes, determines eligibility for state historic preservation grant funding, and affords certain protections under the California Environmental Quality Act. Criteria for designation to the CRHR are described below.

California Environmental Quality Act

Under CEQA, public agencies must consider the effects of their actions on both "historical resources" and "unique archaeological resources." Pursuant to Public Resources Code Section 21084.1, a "project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment." Section 21083.2 requires agencies to determine whether proposed projects would have effects on unique archaeological resources.

"Historical resource" is a term with a defined statutory meaning (Public Resources Code Section 21084.1 and State CEQA Guidelines, Section 15064.5[a], [b]). The term embraces any resource listed in or determined to be eligible for listing in the California Register of Historical Resources (CRHR). The CRHR includes resources listed in or formally determined eligible for listing in the NRHP, as well as some California State Landmarks and Points of Historical Interest.

Properties of local significance that have been designated under a local preservation ordinance (local landmarks or landmark districts) or that have been identified in a local historical resources inventory may be eligible for listing in the CRHR and are presumed to be historical resources for purposes of CEQA unless a preponderance of evidence indicates otherwise (Public Resources Code Section 5024.1 and California Code of Regulations, Title 14, Section 4850). Unless a resource listed in a survey has been demolished, lost substantial integrity, or there is a preponderance of evidence indicating that it is otherwise not eligible for listing, a lead agency should consider the resource to be potentially eligible for the CRHR.

In addition to assessing whether historical resources potentially impacted by a proposed project are listed or have been identified in a survey process (Public Resources Code Section 5024.1[g]), lead agencies have a responsibility to evaluate them against the CRHR criteria prior to making a finding as to a proposed project's impacts to historical resources (Public Resources Code Section 21084.1 and State CEQA Guidelines, Section 15064.5 [a][3]). Following CEQA Guidelines Section 21084.5(a) and (b), a historical resource is defined as any object, building, structure, site, area, place, record, or manuscript that:

1) Is historically or archeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political or cultural annals of California; and

2) Meets any of the following criteria:

a. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

b. Is associated with the lives of persons important in our past;

c. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

d. Has yielded, or may be likely to yield, information important in prehistory or history.

Archaeological resources may also qualify as historical resources, and Public Resources Code Section 5024 requires consultation with the Office of Historic Preservation when a project may impact historical resources located on state-owned land.

For historic structures, State CEQA Guidelines Section 15064.5, subdivision (b)(3), indicates that a project that follows the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings, or the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings (1995) shall mitigate impacts to a level of less than significant. Potential eligibility also rests upon the integrity of the resource. Integrity is defined as the retention of the resource's physical identity that existed during its period of significance. Integrity is determined through considering the setting, design, workmanship, materials, location, feeling, and association of the resource.

As noted above, CEQA also requires lead agencies to consider whether projects will impact unique archaeological resources. Public Resources Code Section 21083.2, subdivision (g), states that " 'unique archaeological resource' means an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.

- Has a special and particular quality such as being the oldest of its type or the best available example of its type.

- Is directly associated with a scientifically recognized important prehistoric or historic event or person."

Treatment options under Section 21083.2 include activities that preserve such resources in place in an undisturbed state. Other acceptable methods of mitigation under Section 21083.2 include excavation and curation or study in place without excavation and curation (if the study finds that the artifacts would not meet one or more of the criteria for defining a unique archaeological resource).

Advice on procedures to identify cultural resources, evaluate their importance, and estimate potential effects is given in several agency publications such as the series produced by the Governor's Office of Planning and Research (OPR). The technical advice series produced by OPR strongly recommends that Native American concerns and the concerns of other interested persons and corporate entities, including but not limited to, museums, historical commissions, associations, and societies, be solicited as part of the process of cultural resources inventory. In

addition, California law protects Native American burials, skeletal remains, and associated grave goods regardless of their antiquity and provides for the sensitive treatment and disposition of those remains.

Section 7050.5(b) of the California Health and Safety code specifies protocol when human remains are discovered. The code states:

> In the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the human remains are discovered has determined, in accordance with Chapter 10 (commencing with Section 27460) of Part 3 of Division 2 of Title 3 of the Government Code, that the remains are not subject to the provisions of Section 27492 of the Government Code or any other related provisions of law concerning investigation of the circumstances, manner and cause of death, and the recommendations concerning treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized representative, in the manner provided in Section 5097.98 of the Public Resources Code.

State CEQA Guidelines Section 15064.5, subdivision (e), requires that excavation activities be stopped whenever human remains are uncovered and that the county coroner be called in to assess the remains. If the county coroner determines that the remains are those of Native Americans, the Native American Heritage Commission must be contacted within 24 hours. At that time, the lead agency must consult with the appropriate Native Americans, if any, as timely identified by the Native American Heritage Commission. Section 15064.5 directs the lead agency (or applicant), under certain circumstances, to develop an agreement with the Native Americans for the treatment and disposition of the remains.

In addition to the mitigation provisions pertaining to accidental discovery of human remains, the State CEQA Guidelines also require that a lead agency make provisions for the accidental discovery of historical or archaeological resources, generally. Pursuant to Section 15064.5, subdivision (f), these provisions should include "an immediate evaluation of the find by a qualified archaeologist. If the find is determined to be an historical or unique archaeological resource, contingency funding and a time allotment sufficient to allow for implementation of avoidance measures or appropriate mitigation should be available. Work could continue on other parts of the building site while historical or unique archaeological resource mitigation takes place."

Senate Bill (SB) 18 (Gov. Code, Sections 65352.3 and 65352.4) requires that, prior to the adoption or amendment of a general plan proposed on or after March 1, 2005, a city or county must consult with Native American tribes with respect to the possible preservation of, or the mitigation of impacts to, specified Native American places, features, and objects located within that jurisdiction. The City of Pinole initiated the consultation process as required under these provisions of the Government Code on December 19, 2006.

Paleontological resources are classified as non-renewable scientific resources and are protected by state statute (Public Resources Code Chapter 1.7, Section 5097.5, Archeological, Paleontological, and Historical Sites, and Appendix G of the CEQA guidelines). No state or local agencies have specific jurisdiction over paleontological resources. No state or local agency

requires a paleontological collecting permit to allow for the recovery of fossil remains discovered as a result of construction-related earth moving on state or private land in a project site.

4.10.3 IMPACTS AND MITIGATION MEASURES

SIGNIFICANCE CRITERIA

Following Public Resources Code Sections 21083.2 and 21084.1, and Section 15064.5 and Appendix G of the State CEQA Guidelines, cultural resource impacts are considered to be significant if implementation of the project considered would result in any of the following:

1) Cause a substantial adverse change in the significance of an archaeological resource or an historical resource as defined in Public Resources Code Section 21083.2 and CEQA Guidelines Section 15064.5, respectively.

2) Directly or indirectly destroy a unique paleontological resource or site or unique geological feature.

3) Disturb any human remains, including those interred outside of formal cemeteries.

State CEQA Guidelines Section 15064.5 defines "substantial adverse change" as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource is materially impaired.

METHODOLOGY

Over 40 archaeological and historical investigations, covering approximately 60 percent of the GPU Planning Area, have been conducted. Current investigations included a records search completed by the Northwest Information Center, Sonoma State University, Rohnert Park on January 18, 2007; a sacred lands search conducted by the Native American Heritage Commission (NAHC) on December 21, 2006; and consultation (including SB 18) with the Native American community. The sacred lands search did not identify any sensitive Native American cultural resources either within or near the proposed Planning Area. All Native American groups identified by the NAHC were contacted by letter regarding the proposed project. All relevant documentation on the SB 18 consultation and the sacred lands search is provided in **Appendix F**. Archaeological and historical investigations for the Planning Area are adequate to identify typical prehistoric and historic resources that would likely be present in the area.

A search of the University of California Museum of Paleontology collections database for proposed project did not identify any paleontological resources within the area.

PROJECT IMPACTS AND MITIGATION MEASURES

Prehistoric Resources, Historic Resources, and Human Remains (Standards of Significance 1, and 3)

Impact 4.10.1 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could result in the potential disturbance of cultural resources (i.e., prehistoric sites, historic sites, and isolated artifacts and features) and human remains. This would be a **potentially significant** impact.

General Plan Update

The central portion of lands within the existing city limits is largely built out with retail and commercial businesses and residential uses. The proposed GPU allows for the intensification of retail, office, and residential uses in the downtown core area, as well as new residential and commercial development in other areas within the existing city limits. The city has been subject to archaeological and historic investigations, and there are a number of known cultural resources within the city limits; however, the entire area has not been subject to investigation and undiscovered cultural resources could exist. Therefore, implementation of the proposed General Plan Land Use Map could result in a substantial adverse impact on known cultural resources and could also adversely impact undiscovered cultural resources or human remains. This is a **potentially significant** impact.

Three Corridors Specific Plan

Implementation of the proposed Three Corridors Specific Plan would consist of the revitalization of the San Pablo Avenue, Pinole Valley Road, and Appian Way corridors, which could include new development and/or redevelopment of various urban uses. The Specific Plan areas contain approximately 300 acres of predominantly developed land. In order to accommodate the projected demand for development and invite further capital investment within the city, the Specific Plan would change land uses in order to replace single-use commercial zoning with various mixed-use zones, eliminate commercial floor area ratio (FAR) as a development constraint, increase opportunities for residential development, and increase residential density. As the Specific Plan area is nearly built out and future development would likely occur in previously disturbed areas, it is unlikely that cultural resources or human remains would be present in the Specific Plan area. However, as the entire area has not been subject to cultural and historical resource investigation, the potential exists for impacts to previously undiscovered cultural resources or previously unidentified historical resources. In addition, redevelopment activities have the potential to impact historic properties located along San Pablo Avenue, in the Old Town area of Pinole. This is a **potentially significant** impact.

Zoning Code Update

Adoption of the updated General Plan would require amendments to the Zoning Code for consistency with the General Plan land use designations and various GPU policies. These updates would involve the deletion, addition, and modification of certain zoning districts and development standards in order to make the Zoning Code consistent with the updated General Plan (see Section 3.0, Project Description, for more details). These updates would not result in any development activities beyond those analyzed for the proposed GPU. Therefore, the Zoning Code Update would have an impact similar to that for the General Plan Update as discussed above.

Proposed General Plan Policies and Action Items that Address Prehistoric Resources, Historic Resources, and Human Remains

The proposed GPU incorporates the following policies and actions that provide mitigation to minimize the impacts to known prehistoric resources, historic resources, and human remains.

Policy CC.1.4 The historic and urban character of Old Town Pinole shall be revitalized through the density and intensity of new construction, as well as through the use of building materials, architecture and other design elements that reflect the city's past.

Policy CC.4.2 Establish and promote programs that identify, maintain and protect buildings, sites or other features of the landscape possessing historic or cultural significance.

Action CC.4.2.1 Pursue recognition of eligible historic properties by the National Register of Historic Places and California Register of Historical Resources, and consider a variety of ways to identify and document historic buildings and properties throughout the city.

Action CC.4.2.2 Maintain an up-to-date inventory of existing historic resources, including artifacts, structures, sites, areas and natural phenomena. Map the location of historic districts and historic and natural resources.

Action CC.4.2.3 Establish a program to identify historical structures, places and events in recognition of their status. This program may include the use of signs, monuments, public art and interpretive exhibits.

Policy CC.4.3 The City shall take all possible precautions to ensure that no action by the City results in the loss of the irreplaceable archaeological record present in Pinole's planning jurisdiction and shall work with the County toward that end.

Action CC.4.3.1 Establish review procedures for development projects that recognize the history of the area in conjunction with state and federal laws.

Action CC.4.3.2 Establish a Historic Preservation Ordinance to provide for the appropriate development and maintenance of historic resources and their environment.

Policy LU.3.4 Identify and protect sites and structures of architectural, historical, archaeological and cultural significance, including significant biological resources. Require new development in historic areas to complement the character of nearby historic structures. (See also the Community Character Element.)

Action LU.3.4.1 Formulate design guidelines that include standards to protect and enhance the historic character and historic buildings of Old Town Pinole.

Additionally, Land Use Policy 10 and design guidelines specified in the Three Corridors Specific Plans as well as regulations incorporated in the Zoning Code Update further address protection of cultural and historic resources in the City. The following mitigation measure is additionally being proposed to further address protection of historic and cultural resources within the city.

Mitigation Measures

MM 4.10.1a The City shall include the following as an action in the Community Character Element of the General Plan Update. Cultural resources studies (i.e., archaeological and historical investigations) shall be required for all applicable discretionary projects, in accordance with CEQA regulations, for areas not previously surveyed and/or that are sensitive for cultural resources. The studies should identify cultural resources (i.e., prehistoric sites, historic sites, and historic buildings/structures) in the project area, determine their eligibility for inclusion in the California Register of Historical Resources, and provide feasible and appropriate measures for the protection of any historical

resources or unique archaeological resources to maximum extent feasible. Cultural resources studies should be completed by a professional archaeologist or architectural historian that meets the Secretary of the Interior's Professional Qualifications Standards in archaeology.

MM 4.10.1b The City shall include the following as an action in the Community Character Element of the General Plan Update. Should any cultural resources such as structural features, unusual amounts of bone or shell, artifacts, or architectural remains be encountered during development activities, work shall be suspended within 50 feet of the discovery and the City of Pinole Community Development Department shall be immediately notified. At that time, the City will coordinate any necessary investigation of the discovery with an appropriate specialist (e.g., archaeologist or architectural historian). The project proponent shall be required to implement any mitigation necessary for the protection of cultural resources.

The City of Pinole and the project applicant shall consider mitigation recommendations presented by a qualified archaeologist or other appropriate technical specialist for any unanticipated discoveries. The City and the project applicant shall consult and agree upon implementation of a measure or measures that the City and project applicant deem feasible and appropriate. Such measures may include avoidance, preservation in place, excavation, documentation, curation, data recovery, or other appropriate measures.

MM 4.10.1c The City shall include the following as an action in the Community Character Element of the General Plan Update. If human remains are discovered, all work must halt within 50 feet of the find, the City of Pinole Community Development Department shall be notified, and the County Coroner must be notified according to Section 5097.98 of the California Public Resources Code and Section 7050.5 of California's Health and Safety Code. If the remains are determined to be Native American, the coroner will notify the Native American Heritage Commission and the procedures outlined in CEQA Section 15064.5(d) and (e) shall be followed.

Implementation of the above policy provisions and mitigation measures would ensure protection and preservation of significant cultural resources by identifying resources and avoiding or mitigating the impact. Thus, this impact would be **less than significant**.

Undiscovered Paleontological Resources (Standard of Significance 2)

Impact 4.10.2 Adoption of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could result in the potential damage or destruction of undiscovered paleontological resources. This is considered a **potentially significant** impact.

General Plan Update

A search of the University of California, Berkeley Museum of Paleontology collections database and pedestrian surface survey across the GPU Planning Area did not identify any paleontological resources within project boundaries. Regardless, there is a possibility of unanticipated and accidental paleontological discoveries during ground-disturbing project-

related activities. Unanticipated and accidental paleontological discoveries during project implementation have the potential to affect significant paleontological resources. Therefore, this impact is considered **potentially significant**.

Three Corridor Specific Plan

The Three Corridors Specific Plan area contains approximately 300 acres of predominantly developed land. In order to accommodate the projected demand for development and invite further capital investment within the city, the Specific Plan would change land uses in order to replace single-use commercial zoning with various mixed-use zones, eliminate commercial floor area ratio (FAR) as a development constraint, increase opportunities for residential development, and increase residential density. As previously discussed, the Specific Plan area is nearly built out and future development would likely occur in previously disturbed areas. Therefore, it is unlikely that construction activities would unearth paleontological resources. However, as the entire area has not been subject to cultural resource investigation, the potential exists for impacts to previously undiscovered paleontological resources. As the Specific Plan areas have the potential to contain undiscovered paleontological resources, impacts resulting from the implementation of the Three Corridors Specific Plan could be **potentially significant**.

Zoning Code Update

Adoption of the updated General Plan would require amendments to the Zoning Code for consistency with the General Plan land use designations and various GPU policies. These updates would involve the deletion, addition, and modification of certain zoning districts and development standards in order to make the Zoning Code consistent with the updated General Plan (see Section 3.0, Project Description, for more details). These updates would not result in any development activities beyond those analyzed for the proposed GPU. Therefore, the Zoning Code Update would have an impact similar to that for the General Plan Update as discussed above.

Proposed General Plan Policies and Actions that Provide Address Undiscovered Paleontological Resources

The proposed GPU incorporates the following policy that provides mitigation to minimize the impacts to undiscovered prehistoric resources.

Policy CC.4.3 The City shall take all possible precautions to ensure that no action by the City results in the loss of the irreplaceable archaeological record present in Pinole's planning jurisdiction and shall work with the County toward that end.

The following mitigation measure is proposed to further address protection of paleontology resources within the city.

Mitigation Measures

MM 4.10.2 The City shall include the following as an action in the Community Character Element of the General Plan Update. Should any potentially unique paleontological resources (fossils) be encountered during development activities, work shall be suspended within 50 feet of the discovery and the City of Pinole Planning Department shall be immediately notified. At that time, the City will coordinate any necessary investigation of the discovery with a qualified paleontologist. The project proponent shall be required to

implement any mitigation necessary for the protection of paleontological resources.

The City and the project applicant shall consider the mitigation recommendations of the qualified paleontologist for any unanticipated discoveries. The City and the project applicant shall consult and agree upon implementation of a measure or measures that the City and project applicant deem feasible and appropriate. Such measures may include avoidance, preservation in place, excavation, documentation, curation, data recovery, or other appropriate measures.

Implementation of mitigation measure **MM 4.10.2** would reduce impacts on paleontological resources to a **less than significant** level.

4.10.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The cumulative setting associated with the proposed GPU, Three Corridors Specific Plan, and Zoning Code Update includes proposed, planned, reasonably foreseeable, and approved projects and development in the GPU Planning Area as proposed land uses would not contribute to potential conflicts with cultural and paleontological resources outside of the Planning Area. As previously discussed, archaeological and historical investigations have covered approximately 60 percent of the Pinole GPU Planning Area and have identified 21 known historic properties and archaeological sites within the Planning Area (see **Table 4.10-1**).

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative impacts to Prehistoric Resources, Historic Resources, and Human Remains

Impact 4.10.3 Adoption of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update,) along with foreseeable development in the region, could result in the disturbance of cultural resources (i.e., prehistoric sites, historic sites, and isolated artifacts and features) and human remains. This contribution is considered **cumulatively considerable**.

Archaeological and historical investigations have identified cultural resources in the Planning Area. However, archaeological and historical investigations have not been conducted within all areas encompassed by the GPU Planning Area. Based on the results of previous archaeological and historical investigations within the Planning Area, it is possible that development in these areas could discover previously unidentified cultural resources and human remains. Consequently, development within the GPU Planning Area under the proposed project could impact known and undiscovered cultural resources and human remains and could contribute to the cumulative loss of cultural resources. The contribution of development under the GPU could be considerable, when combined with other past, present, and foreseeable development. Therefore impacts from the destruction or damage to known and undiscovered historic and prehistoric resources and human remains are considered to be **cumulatively considerable**.

Proposed General Plan Policies and Action Items that Address Cumulative Impacts to Prehistoric Resources, Historic Resources, and Human Remains

The proposed GPU contains several goals, policies, and action items that would assist in reducing the potential impact to prehistoric resources, historic resources, and human remains. The following list contains those policies and action items that contain specific, enforceable requirements and/or restrictions and corresponding performance standards that assist in reducing (though not eliminating) this impact. Since these policies and action items have been described in detail in prior impact discussions for this section, the following is limited to only listing the policy and action item numbers.

Community Character Element

Policy CC.1.4; Policy CC.4.2; Action CC 4.2.1; Action CC.4.2.2; Action CC.4.2.3; CC.4.3; CC.4.3.1; CC.4.3.2

Land Use and Economic Development Element

Policy LU.3.4; Action LU.3.4.1

Additionally, Land Use Policy 10 and design guidelines specified in the Three Corridors Specific Plans as well as regulations incorporated in the Zoning Code Update further address cumulative impacts to cultural and historic resources in the City.

Mitigation Measures

Implementation of mitigation measures **MM 4.10.1a**, **4.10.1b, 4.10.1c,** and **4.10.2** and the above policies would reduce this impact to **less than cumulatively considerable**.

Cumulative Impacts to Paleontological Resources

Impact 4.10.4 Adoption of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update), along with any foreseeable development in the region, could result in the potential disturbance of paleontological resources (i.e., fossils and fossil formations). This contribution is considered **cumulatively considerable.**

A search of the University of California, Berkeley Museum of Paleontology collections database for the GPU Planning Area did not identify any known paleontological resources within project boundaries. Future development allowed under the proposed project could expand development and thus result in impacts to undiscovered paleontological resources in all areas encompassed by the GPU Planning Area. Therefore impacts from the destruction or damage to known and undiscovered paleontological resources are considered to be **cumulatively considerable**.

Proposed General Plan Policies and Action Items that Address Cumulative Impacts to Paleontological Resources

The proposed GPU contains several goals, policies, and action items that would assist in reducing this potential impact to prehistoric resources, historic resources and human remains. The following list contains those policies and action items that contain specific, enforceable requirements and/or restrictions and corresponding performance standards that assist in

reducing (though not eliminating) this impact. Since these policies and action items have been described in detail in prior impact discussions for this section, the following is limited to only listing the policy and action item numbers.

Community Character Element

Policy CC.4.3

Mitigation Measures

Implementation of mitigation measure **MM 4.10.2** and the above policy would reduce impacts on undiscovered paleontological resources to **less than cumulatively considerable**.

REFERENCES

Ananian, Benjamin F. H. 1981. *Draft Environmental Impact Report for Pinole Redevelopment Area Boundary Expansion and Annexation (Archaeology)*. Report on file at the Northwest Information Center, Sonoma State University, Rohnert Park, California.

Archaeological Resources Technology. 2001. *Archaeological Site Record for P-07-000866, in 'Site Recording and Analysis for Sprint PCS 'Pt. Pinole' Site (Ref#SF54XC006E).'* Report on file at the Northwest Information Center, Sonoma State University, Rohnert Park, California.

Banet, Angela M. 1989. *Cultural Resources Assessment, Parker Avenue Frontage Improvements (HUD 890317 W), Rodeo, Contra Costa County, California*. Report on file at the Northwest Information Center, Sonoma State University, Rohnert Park, California.

Banks, Peter M. 1979. *A Cultural Resources Study for the Project A-2 Transmission System Pipelines, Contra Costa County, California*. Report on file at the Northwest Information Center, Sonoma State University, Rohnert Park, California.

Banks, Peter M. 1982. *An Archaeological Investigation of Parcels 561-110-006, -038, and -039, in the Community of North Richmond, Contra Costa County, California*. Report on file at the Northwest Information Center, Sonoma State University, Rohnert Park, California.

Banks, Peter M. 1985. *A Cultural Resources Overview for the Pinole Historical Survey, Contra Costa County, California*. Report on file at the Northwest Information Center, Sonoma State University, Rohnert Park, California.

Banks, Peter, and D. A. Fredrickson. 1977. *Cultural Resource Survey of the Wildcat and San Pablo Creeks Water Resources Project, Contra Costa County, California*. Report on file at the Northwest Information Center, Sonoma State University, Rohnert Park, California.

Banks, Peter M., and Robert I. Orlins. 1979. *Final Report of the Testing of Cultural Resources Within the Wildcat and San Pablo Creeks Flood Control and Water Resources Project, Contra Costa County, California*. Report on file at the Northwest Information Center, Sonoma State University, Rohnert Park, California.

Beck, Warren, and Ynez D. Haase. 1974. *Historical Atlas of California*. University of Oklahoma Press, Norman, Oklahoma.

Bennyhoff, J. A. 1977. *Ethnogeography of the Plains Miwok*. University of California, Center for Archaeological Research at Davis, Publications, 5. Davis, California.

Bourdeau, Larry. 1993. *Results of Archaeological Field Evaluation: A Small Surface Deposit of Historic Roadside Debris in the Vicinity of Site CA-CCO-474/H, San Pablo Avenue*. Report on file at the Northwest Information Center, Sonoma State University, Rohnert Park, California.

Braue, Fred. 1959. *Big Roundup*. www.geocities.com, originally from an unnamed Concord, California newspaper.

Broadbent, S. M. 1972. *The Rumsen of Monterey: An Ethnography from Historical Sources. Contributions of the University of California Archaeological Research Facility 14:45-94*. Berkeley, California.

Busby, Colin I. 1987. *Pinole Site Archaeological Assessment*. Report on file at the Northwest Information Center, Sonoma State University, Rohnert Park, California.

Busby, Colin I. 2000. *Cultural Resources Assessment, Parkway Commerce Center (APN #408-06-16), Collins Avenue in the Vicinity of Stanton Avenue Between the Santa Fe Railroad and Union Pacific Railroad Tracks, City of Richmond, Contra Costa County*. Report on file at the Northwest Information Center, Sonoma State University, Rohnert Park, California.

California Archaeological Consultants. 1985. *A Cultural Resource Investigation and Historic Property Survey Report for the North Richmond Bypass Project*. Report on file at the Northwest Information Center, Sonoma State University, Rohnert Park, California.

Chavez, David. 1980a. *Archaeological Impact Evaluation for the Tank Farm Hill General Plan Amendment*. Report on file at the Northwest Information Center, Sonoma State University, Rohnert Park, California.

Chavez, David. 1980b. *Archaeological Resources Evaluation of Frethy Land & Investment Company Property Subdivision, Richmond, California*. Report on file at the Northwest Information Center, Sonoma State University, Rohnert Park, California.

Chavez, David. 1988. *Chevron Wastewater Reclamation Project*. Report on file at the Northwest Information Center, Sonoma State University, Rohnert Park, California.

Chavez, David. 1989. *Rancho San Pablo Mixed Use Development, Parcel B*. Report on file at the Northwest Information Center, Sonoma State University, Rohnert Park, California.

Chavez, David. 1992. *Cultural Resources Investigations fro the Contra Costa Water District Emergency Storage Reservoir Program EIR, Contra Costa County, California*. Report on File at the Northwest Information Center, Sonoma State University, Rohnert Park, California.

Conklin, Steve, and Deborah McLean. 1997. *Cultural Resources Assessment, Proposed Change to Wickland LLC, Richmond Marine –Link Pipeline Alignment*. Report on file at the Northwest Information Center, Sonoma State University, Rohnert Park, California.

Cook, S. F. 1957. *The Aboriginal Population of Alameda and Contra Costa Counties, California*. *University of California Anthropological Records 16(4):131-156*. Berkeley, California.

Elling, C. Michael. 1980. *An Archaeological Survey of a Proposed Storm Drainage Repair on Morgan Territory Road, Contra Costa County, California*. Report on file at the Northwest Information Center, Sonoma State University, Rohnert Park, California.

Haney, Jefferson. 1991. *An Archaeological Study of the 10-Acre Port Development and Construction Property at 217 West Gertrude Avenue in North Richmond, Contra Costa County*. Report on file at the Northwest Information Center, Sonoma State University, Rohnert Park, California.

Harmon, Robert. 2000. *Cultural Resources Assessment, Former Breuner Property, Proposed Bay View Business Park and Access Alignments, City of Richmond, Contra Costa County, California*. Report on file at the Northwest Information Center, Sonoma State University, Rohnert Park, California.

Harrington, J. P. 1933. Report of Fieldwork on Indians of Monterey and San Benito Counties. *Smithsonian Institution, Bureau of American Ethnology Annual Report for 1931-1932: 2-3.* Washington, D.C.

Harrington, J. P. 1942. Culture Element Distribution, XIX: Central California Coast. *University of California Anthropological Records* 7(1):1-146. Berkeley, California.

Hart, John M. 1987. *Revolutionary Mexico: The Coming and Process of the Mexican Revolution*. University of California Press, Berkeley, California.

Heizer, R., ed. (1974) *The Destruction of California Indians: A Collection of Documents from the Period 1847–1865.* Santa Barbara: University of California Press.

Hendry, G. W., and J. N. Bowman. 1940. *The Spanish and Mexican Adobes and Other Buildings in the Nine San Francisco Bay Counties, 1776-1850. Vol. IX*. Unpublished manuscript. California State Library, Sacramento, California.

Holman, Miley P. 1978. *Archaeological Reconnaissance of the Proposed Development of Hercules Neighborhood 6, in Hercules, California*. Report on file at the Northwest Information Center, Sonoma State University, Rohnert Park, California.

Holman, Miley P. 1983. *Wildcat Gardens Archaeological Reconnaissance*. Report on file at the Northwest Information Center, Sonoma State University, Rohnert Park, California.

Holman, Miley P. 1984a. *Martinez/I-680 Development Area Archaeological Reconnaissance*. Report on file at the Northwest Information Center, Sonoma State University, Rohnert Park, California.

Holman, Miley P. 1984b. *Archaeological Reconnaissance of Proposed Hercules School Site*. Report on file at the Northwest Information Center, Sonoma State University, Rohnert Park, California.

Holman, Miley P. 1989a. *Archaeological Field Inspection of the 545 Parker Avenue Property, Rodeo, Contra Costa County, California*. Report on file at the Northwest Information Center, Sonoma State University, Rohnert Park, California.

Holman, Miley P. 1989b. *Results of Archaeological Investigations at the Tara Hills Planned Development, Pinole, Contra Costa County, California*. Report on file at the Northwest Information Center, Sonoma State University, Rohnert Park, California.

Holman & Associates. 1993. *Report on Potential Cultural Resources at the Gelsar Project Area in Hercules, Contra Costa County, California*. Report on file at the Northwest Information Center, Sonoma State University, Rohnert Park, California.

Hoover, M., H. Rensch, E. Rensch, and W. Abeloe. 2002. *Historic Spots in California. Fifth Edition,* revised by Douglas E. Kyle. Stanford University Press. Stanford, California.

Hupman, Jan M., and David Chavez. 1993. *Archaeological Resources Investigations for the Chevron Reformulated Fuels Project EIR, Richmond, California*. Report on file at the Northwest Information Center, Sonoma State University, Rohnert Park, California.

Jordan, Leigh. 1992. *Final Draft: Preliminary Assessment of the Midden Area, Prehistoric Archaeological Component of CA-CCO-474/H, Hercules, Contra Costa County*. Report on file at the Northwest Information Center, Sonoma State University, Rohnert Park, California.

Lehmann, Susan, and Beth Padon. 1993. *Historical/Architectural Report for Richmond Parkway Project*. Report on file at the Northwest Information Center, Sonoma State University, Rohnert Park, California.

Levy, Richard. 1978. *Handbook of North American Indians, Volume 8, California*. Smithsonian Institution, Washington D.C.

Maniery, Gary James, and Mary L. Maniery. 1983. *Intensive Archaeological Survey of the Proposed Pacific Refining Company Modernization Project, Contra Costa County, California*. Report on file at the Northwest Information Center, Sonoma State University, Rohnert Park, California.

Martin, Leigh, and W. Self. 2002. *Cultural Resources Assessment Report SFPP, C.P., Proposed Concord to Sacramento Pipeline Project*. Report on File at the Northwest Information Center, Sonoma State University, Rohnert Park, California.

McIvers, Kenneth J. 1992. *An Archaeological Survey of the Richmond to Concord Pipeline Project, L.S. 80*. Report on file at the Northwest Information Center, Sonoma State University, Rohnert Park, California.

McKern, W. C. 1939. *The Midwestern Taxonomic Method as an Aid to Archaeological Cultural Study. American Antiquity, Vol. 4, No. 4*.

Melero, Rosie. 1979. *An Archaeological Study of the Stanley Horizontal Boring, Inc. Property, Located West of the Town of San Pablo in Contra Costa County, California (File 2063-79)*. Report on file at the Northwest Information Center, Sonoma State University, Rohnert Park, California.

Milliken, Randall. 1995. *A Time of Little Choice: The Disintegration of Tribal Culture in the San Francisco Bay Area, 1769–1810*. Coyote Press, Berkeley, California.

Nelson, Wendy J., Maureen Carpenter, and Julia G. Costello. 2000. *Cultural Resources Survey for the Level (3) Communications Long Haul Fiber Optics Project, Segment WS01: Sacramento to Oakland*. Report on file at the Northwest Information Center, Sonoma State University, Rohnert Park, California.

Northwest Information Center. January 18, 2007. Report Detail Records.

Office of Historic Preservation. 2006. *Directory of Properties in the Historic Property Data File Contra Costa County*.

Pastron, Allen G. 1995. *Archival Literature Search and On-Site Archaeological Surface Reconnaissance of an Approximately 5 Acre Parcel, Located Off San Pablo Avenue, near Dublin and Murphy Drives, near the City Limits of Pinole in an Unincorporated Portion of Contra Costa County*. Report on file at the Northwest Information Center, Sonoma State University, Rohnert Park, California.

Pinole, City of. 2010. *History of Pinole*. http://www.ci.pinole.ca.us/ about/history_summary.html (accessed April 15, 2010).

Rudo, Mark, and Nadine Mandel. 1979. *A Cultural Resources Survey of Pinole Creek, Contra Costa County, California*. Report on file at the Northwest Information Center, Sonoma State University, Rohnert Park, California.

Self, William. 2000a. *Archaeological Survey and Assessment of 760 Alvarez, Pinole, CA*. Report on file at the Northwest Information Center, Sonoma State University, Rohnert Park, California.

Self, William. 2000b. *Archaeological Survey and Assessment of a 2/3-Acre Parcel (APN 357-140-034, -035)*. Located at 535 Parker Avenue, Rodeo, Contra Costa County, California. Report on file at the Northwest Information Center, Sonoma State University, Rohnert Park, California.

Self, William. 2003. *Archaeological Survey and Assessment of Color Spot Nurseries, North Richmond, California*. Report on file at the Northwest Information Center, Sonoma State University, Rohnert Park, California.

Smith, Michael, and Suzanne Baker. 1992. *Archaeological Reconnaissance of the Proposed Highway 4 Reclaimed Water Pipeline and Pump Station, Contra Costa County, California*. Report on file at the Northwest Information Center, Sonoma State University, Rohnert Park, California.

Sriro, Adam. 1998a. *A Cultural Resources Study for the Proposed Rodeo Senior Apartment Complex, Rodeo, Contra Costa County, California*. Report on file at the Northwest Information Center, Sonoma State University, Rohnert Park, California.

Sriro, Adam. 1998b. *An Evaluation of a Historical Archaeological Site in the Rodeo Senior Apartment Complex Project Area Rodeo, Contra Costa County, California*. Report on file at the Northwest Information Center, Sonoma State University, Rohnert Park, California.

Stillinger, Robert A. 1978. *An Archaeological Survey of the Proposed North Richmond Bypass, Contra Costa County, California*. Report on file at the Northwest Information Center, Sonoma State University, Rohnert Park, California.

Stoddard, Steven E. 1977. *An Archaeological Reconnaissance of the Proposed Pipeline Routes Between the Pinole and Rodeo Wastewater Treatment Plants, Contra Costa County, California*. Report on file at the Northwest Information Center, Sonoma State University, Rohnert Park, California.

Waechter, Sharon A. et al. 1992. *Report on the 1992 Test Excavations at CA-CCO-474/H near Hercules, Contra Costa County, California*. Report on file at the Northwest Information Center, Sonoma State University, Rohnert Park, California.

Zavala, Gina, and Katherine Flynn. 2004. *A Cultural Resources Evaluation of the Proposed Pinole Apartment Project within the Properties at 1599 and 1599 ½ San Pablo Avenue at Appian Way, Pinole, Contra Costa County*. Report on file at the Northwest Information Center, Sonoma State University, Rohnert Park, California.

4.11 Visual Resources

This section of the Draft Environmental Impact Report (DEIR) describes the existing visual resources and characteristics of the General Plan Update (GPU) Planning Area. In addition, this section identifies environmental impacts associated with visual resources/light and glare resulting from the proposed General Plan Update and its associated project components, and appropriate mitigation measures are identified to reduce, lessen, or eliminate impacts.

4.11.1 EXISTING SETTING

The city's visual character is defined for the most part by its physical development, which is influenced by the city's topographical diversity and the series of local roads that extend throughout the city. Aesthetically speaking, the city's physical development is diverse. For example, residential development in some areas is suburban and rural in its feel, with landscaped hillsides and low-density residential neighborhoods, while other areas are characterized by modern homes and a distinctly more urbanized feel. The city also varies in its scale and types of commercial development, with the large, modern appearance of the major shopping districts, as well as the commercial district with a historic feel in the Old Town in the center of the city, where the shops, restaurants, and retail uses front onto the street, thereby providing a street façade. Pinole has a general pattern of small-scale development within older city areas on more level areas, with newer city development in the hill areas. Large-scale commercial development is found along the major corridors and near Interstate 80 (I-80) and was constructed in the 1960s through today.

The natural setting of the city includes the San Pablo Bay shoreline, open spaces, and Pinole Creek and other watersheds, as well as hillside topography. In many respects, the natural setting of Pinole is also one of visual contrasts, with varied geography that includes marshlands along San Pablo Bay, Pinole Creek running through the city, and valleys separated by small ridgelines within the city boundaries.

SIGNIFICANT VISUAL FEATURES

The following includes a discussion of the significant visual features in the GPU Planning Area. The location of natural visual features within the GPU Planning Area, including creeks, ridgelines, knolls, and groves, are shown in **Figure 4.11-1**.

Historic Visual Resources

Historic visual resources are important features of a community's history that provide a link between the landscape of the past and the urbanized landscape of the present. Examples of historic visual resources include buildings, structures, landmarks, and monuments. The majority of the historic buildings in the GPU Planning Area are located throughout the Old Town Pinole area located along San Pablo Avenue, encompassing the intersection at Tennent Avenue and Pinole Valley Road. Old Town Pinole, along San Pablo Avenue, contains a variety of architectural styles that mirror the community's historical development and development pattern. Commercial buildings with historic designs that characterize Old Town Pinole are located on San Pablo Avenue between Tennent Avenue and Pinole Valley Road. Built in the early 20th century, the commercial buildings include two-story masonry structures, false front-type wood frame structures, and stucco or plaster structures. Newer buildings (1960–1990) are more modern masonry, wood-sided or stucco structures and do not add to the character and quality demonstrated by the older buildings. The Bank of Pinole building along San Pablo Avenue depicts a neoclassical architectural style. The limestone building façade consists of two grand ionic columns, a grand portico, and an arched glass entrance.

Residential buildings in Old Town represent a diverse mix of architectural styles, spanning several decades. The main historical residential design themes can be characterized as follows:

- Queen Anne Cottages (1880–1905): Queen Anne Cottage homes along San Pablo Avenue illustrate a unique evolution of the style from a rural farmhouse with earlier Italianate Cottage features (tall narrow windows and hip roof) to the Queen Anne Cottages of the 1890s. Scaled-down classical columns characterize later versions of these homes as porch supports.
- Hip Roof Cottages (1870–1910): The Italianate Hip Roof Cottages have subtle stylistic details (tall narrow windows and a small flat area at the roof peak) that establish the age of these buildings. Porch design and detail features varied according to what was available for decoration at the local lumberyard when the cottages were built.
- Bungalows (1915–1930): The Bungalow or Craftsman Bungalow was the predominant housing style between 1915 and 1930. These narrow rectangular houses have low pitched gable or hipped roofs and small front porches enclosed by screens.

Other residential styles in Old Town include Classical Revivals, Farmhouse/Ranch Style homes, Prairie Style Bungalows, and Second Empire French.

In addition, though comparatively new, the buildings constructed during the post-World War II (WWII) era contribute to the visual character of Pinole. Though many of the buildings that were constructed in the 1950s, '60s, and '70s have been largely dismissed as architecturally insignificant, when considered as a whole they best define the character and context of Pinole outside of the Old Town area. When examined more closely, these developments also provide good examples of post-war tract development. As these subdivisions age, their significance within the historic context of Pinole will only increase, particularly in "The Valley." The Oak Ridge development located at the end of Henry Drive and the Silver Creek development provide good examples of hillside quality 1970s architecture.

The reader is referred to Section 4.10, Cultural and Paleontological Resources, for further details on the historic and cultural background of the city.

Creeks and San Pablo Bay Shoreline

Some of the most significant natural features are the creeks and waterbodies located in the GPU Planning Area, such as Pinole Creek, San Pablo Bay, and other associated riparian and wetland areas. Natural features, including Catty Creek, Duncan Canyon/Cole Creek, Shady Draw, Faria Creek and Roble Creek, provide scenic views throughout the Planning Area.

Pinole Creek is one of the GPU Planning Area's valuable visual resources. Pinole Creek flows east to west through the city's northern boundaries and is channelized from I-80 to San Pablo Bay to prevent flooding. The creek provides a variety of habitats within the city including brackish marsh and ruderal and riparian forest. Existing bicycle and pedestrian trails along the creek provide recreational opportunities.

San Pablo Bay and its associated shoreline comprise the entire western boundary of the GPU Planning Area. San Pablo Bay is the northern extension of San Francisco Bay and acts as a tributary for the Sacramento and San Joaquin rivers, via Suisun Bay and the Carquinez Strait on its east end. The Pinole shoreline is developed with a wastewater treatment plant, Union Pacific Railroad's "Cal-P" main line (with more than 30 Amtrak trains a day), and Burlington Northern Santa Fe's (BNSF) line. The shoreline also has a wide variety of different habitats including salt marshes, mudflats, and associated upland and freshwater marshes, all of which function as a significant visual resource for the GPU Planning Area.

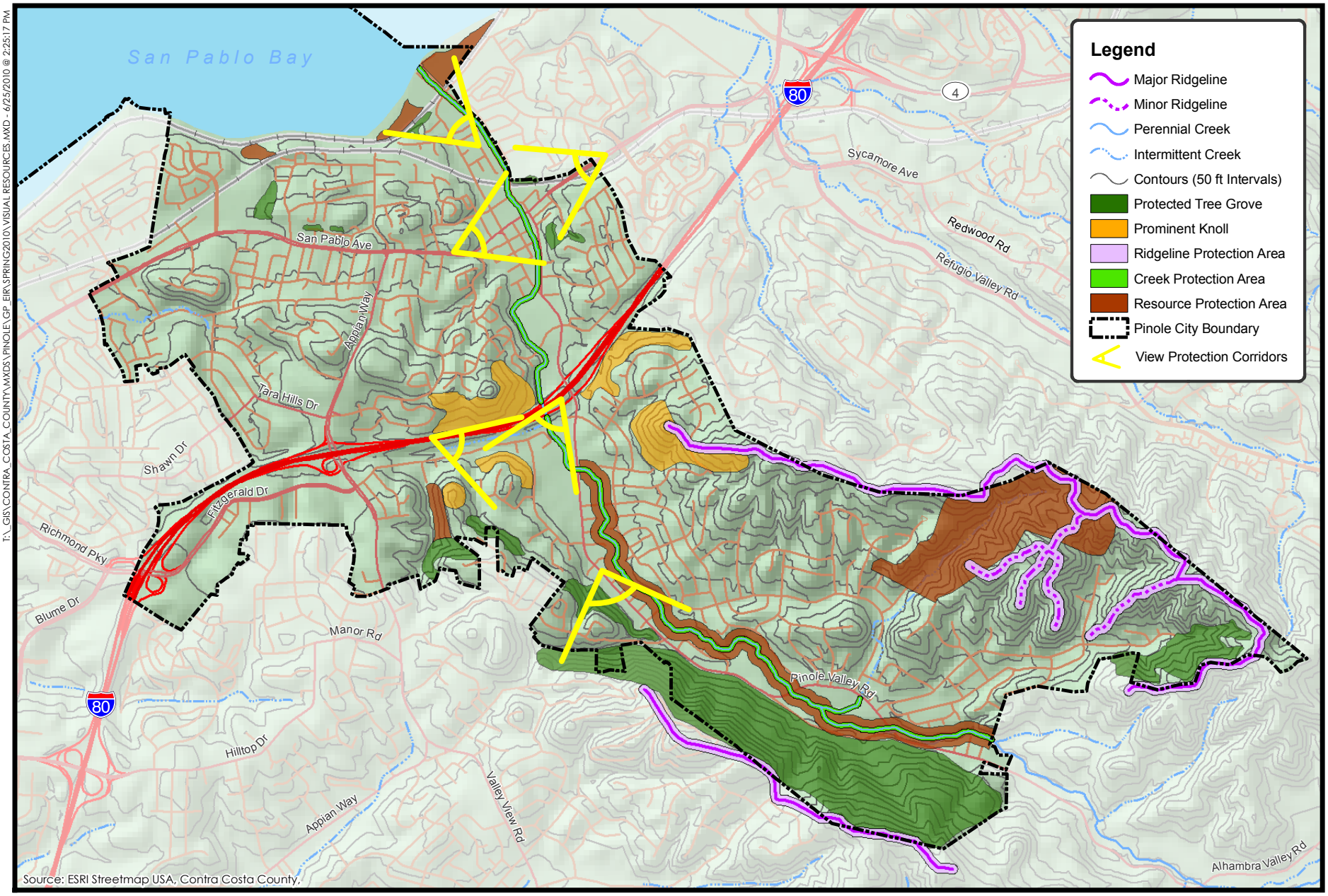

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Figure 4.11-1
Pinole Visual Resources

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Ridgelines

In addition to a fairly steep shoreline, the GPU Planning Area contains distinct valleys that are separated by small ridgelines. Beginning in the late 1950s, residential and commercial development began to expand into the uplands. Currently, the city's ridgelines provide expansive views of the surrounding areas in the city and the bay. Major ridgelines in the GPU Planning Area are located in the northeastern and southeastern portions of the GPU Planning Area as shown in **Figure 4.11-1**.

Open Space

Some portions of the GPU Planning Area are not urbanized and consist of a variety of different open public space areas. These open space areas are primarily located along the northeastern boundary and are generally characterized by large stands of California oak woodlands and annual grasses. Open space areas provide panoramic views of the Coast Ranges, distant views of San Pablo Bay, and the various different habitats that are located within the GPU Planning Area. In total, the unimproved open public space areas cover approximately 19.5 acres in the city limits.

Tree Resources

The majority of tree species within the GPU Planning Area comprise California oak woodland habitat which includes coast live oak, California bay, and California buckeye. Additionally, riparian forest areas are associated with Pinole Creek in the eastern half of town, which includes tree species of California buckeye, California bay, willow, coast live oak, valley oak, and California sycamore. Non-native species in the GPU Planning Area include occasional Monterey pines bordering the oak woodlands and eucalyptus scattered throughout the city. The GPU Planning Area also includes numerous other native and non-native tree species, which are generally used for ornamentation, shade production, resistance to particular pests, or proven adaptation to the urban environment.

LIGHT POLLUTION AND GLARE

A nighttime sky in which stars are readily visible is often considered a valuable scenic/visual resource. In urban areas, views of the nighttime sky can be diminished by light pollution. Light pollution refers to all forms of unwanted light caused by the use of artificial light. Specific categories of light pollution include light trespass, glare, clutter, over-illumination, and skyglow. Excessive light can be visually disruptive to humans and nocturnal animal species and is also indicative of a high level of energy consumption. Land uses which are considered sensitive to this unwanted light include residences, hospitals, and care homes.

Light sources in residential areas of Pinole include exterior residential security lights and streetlights commonly found along most residential streets. Other light sources include commercial centers with security lighting, parking lot lighting, and lighting from inside buildings. Industrial areas also have security lighting and lighting from parking lots. Public buildings, such as schools, have security lighting and lighting for outdoor facilities, such as the football stadium at Pinole Valley High School. Some recreational facilities, such as baseball/softball fields, also may have nighttime lighting.

Daytime sources of glare include reflections off of light-colored surfaces, windows, and metal details on cars traveling on nearby roadways. The amount of glare depends on the intensity and

direction of sunlight, which is more acute at sunrise and sunset because the angle of the sun is lower during these times.

4.11.2 REGULATORY FRAMEWORK

STATE

Energy Efficiency Standards for Residential and Nonresidential Buildings

California's Energy Efficiency Standards for Residential and Nonresidential Buildings were established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods (CEC, 2010). These standards include requirements for outdoor lighting for residential and nonresidential development that are intended to improve the quality of outdoor lighting and help to reduce the impacts of light pollution, light trespass, and glare. The standards regulate lighting characteristics such as maximum power and brightness, shielding, and sensor controls to turn lighting on and off.

State Scenic Highways

The Scenic Highway Program was created by the California Legislature in 1963 to protect and enhance the natural scenic beauty of certain California highways and adjacent corridors through special conservation treatment. A highway may be designated scenic depending upon how much of the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes upon the traveler's enjoyment of the view. The State Scenic Highway System includes a list of highways that are either eligible for designation as scenic highways or have been officially designated (Caltrans, 2010).

There are no officially designated state scenic highways or highways that are eligible for such designation by the California Department of Transportation Scenic Highways Program within the GPU Planning Area (Caltrans, 2010).

LOCAL

City of Pinole Zoning Code

Pinole's Zoning Code establishes districts throughout the community with allowed use and development standards. These development standards create the framework for the physical form of the community (e.g., building setbacks, heights). Some sections of the Zoning Code pertain to the evaluation of visual character, including Chapter 17.33, Chapter 17.35, and Chapter 17.64. Chapter 17.33 imposes restrictions on wireless telecommunication facilities, Chapter 17.35 addresses building design and signage, and Chapter 17.64 contains tree protections and provisions regarding tree removal. Trees are protected if they have a single perennial stem (for three or more seasons) of 12 inches or larger in circumference measured 4.5 feet above the natural grade and are any of the following species: coast live oak, madrone, buckeye, black walnut, redwood, big-leafed maple, redbud, California bay, or toyon. Any other tree with a single perennial stem greater than 56 inches or larger in circumference measured 4.5 feet above the natural grade is also protected.

City of Pinole Residential Design Criteria and Guidelines

The Residential Design Criteria and Guidelines implement the City's General Plan land use policies relevant to urban design, pedestrian circulation, neighborhood and community identity, and residential, mixed-use, and commercial project design. The Design Criteria and Guidelines supplement the Zoning Code development and seek to ensure that projects are well designed, integrated compatibly into the neighborhood context, and contribute to an enhanced community aesthetic. The guidelines promote new construction that is compatible with existing and evolving neighborhoods' site development patterns, mass and scale, and streetscape appearance.

City of Pinole Old Town Design Guidelines

The Old Town Design Guidelines, adopted in July 1996, enhance the positive qualities of Pinole's commercial downtown and protect the livability of its residential neighborhoods. The Old Town Design Guidelines Overlay District extends north from Interstate 80 along Pinole Valley Road and Tennent Avenue to San Pablo Bay and west from the Hercules/Pinole border along San Pablo Avenue to Second Avenue. The guidelines address issues of compatibility, project function, and aesthetics. The Old Town Design Guidelines also endeavor to encourage the provision of efficient vehicular movement and pedestrian circulation.

4.11.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

The following significance thresholds are based on Appendix G, from the California Environmental Quality Act (CEQA) Guidelines. A project is considered to have a significant visual effect on the environment if it will:

1) Have a substantial adverse effect on a scenic vista.

2) Substantially damage scenic resources within a state scenic highway, including, but not limited to, trees, rock outcroppings, and historic buildings.

3) Substantially degrade the existing visual character of quality or the site and its surroundings.

4) Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

As discussed above, there are no officially designated state scenic highways or any highways eligible for such designation within the GPU Planning Area. Therefore, implementation of the proposed General Plan Update and its associated project components would not have the potential to affect scenic resources within a state scenic highway and this issue is not discussed further in this DEIR.

METHODOLOGY

The following visual resources analysis is based on field observations, aerial photography, and review of the topographic conditions from GIS maps for the GPU Planning Area. It should be noted that any analysis of impacts to visual character is subjective since the qualities that create an aesthetically pleasing setting will vary from person to person. For the purposes of this analysis,

the results of the observations and field reviews were used to establish community character and then to determine the consistency of visual changes resulting from the proposed project. The analysis also considers whether the alteration of visual character anticipated from the proposed project would constitute a significant adverse effect to existing views and scenic resources.

PROJECT IMPACTS AND MITIGATION MEASURES

Adverse Effects to Scenic Vistas (Standards of Significance 1 and 2)

Impact 4.11.1 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would encourage new development and redevelopment activities that could potentially degrade existing scenic vistas. This impact is considered **less than significant**.

Although there are no officially designated scenic vistas within the GPU Planning Area, there are scenic views of the bay and the surrounding city that can be seen from multiple vantage points along the city's ridgelines.

General Plan Update

The proposed General Plan Update policy document and Land Use Map primarily accommodate growth by modifying existing uses and encouraging infill development. Concentrating development on Pinole's existing commercial corridors will protect ridgelines and preserve community open space buffers, the San Pablo Bay shoreline, creeks, and waterways. Furthermore, areas in the city characterized by steep slopes, which have visual significance in the community and sensitive environmental resources, have been designated by the proposed General Plan as Open Space or Rural. Proposed land use policies create the opportunity to reduce the development potential at these sites to no more than 1 housing unit per 5 acres (0.2 dwelling units per acre) and provide greater design control over future development by requiring development to be clustered on the most accessible, geologically stable, and least visible portions of a site to maximize community separators and protect the viewshed. The proposed General Plan Update also includes policies requiring hillside development and development within the ridgeline resource areas to be sited and designed to preserve visual resources. Impacts to scenic vistas are considered **less than significant**.

Three Corridors Specific Plan

There are no ridgelines or other scenic vistas with the Specific Plan area. In addition, the Specific Plan contains building height requirements for each corridor. Generally, buildings within the Specific Plan are limited to four stories, with the exception of six stories being allowed in the Appian Way corridor. Buildings of this height would not be expected to adversely affect scenic vistas located on the city's ridgelines. Furthermore, new development and expansion or redevelopment of land uses within the Specific Plan area would be subject to height restrictions contained in the City's Zoning Code, which are intended in part to protect long-range views. Therefore, implementation of the proposed Three Corridors Specific Plan would result in **less than significant** impacts to scenic corridors.

Zoning Code Update

Adoption of the updated General Plan would require amendments to the Zoning Code for consistency with the General Plan land use designations and various General Plan policies.

These updates would involve the deletion, addition, and modification of certain zoning districts and development standards in order to make the Zoning Code consistent with the updated General Plan (see Section 3.0, Project Description, for more details). These updates would not result in any development activities beyond those analyzed for the proposed GPU. Therefore, the Zoning Code Update would have an impact similar to that for the General Plan Update as discussed above.

Proposed General Plan Policies and Action Items that Address Scenic Vistas

The proposed General Plan incorporates the following policies and actions that further minimize impacts associated with scenic vistas.

Action LU.4.2.1 Large undeveloped properties with the Rural land use designation should have a zoning designation allowing no more than 1 unit per 5 acres in order to protect important visual, community and environmental resources.

Policy LU.4.3 Cluster development at higher densities to protect natural resources and address site development constraint issues, including archaeological sites, access, traffic, emergency services, water and sewer availability, creek and tree protection, steep slopes, potential geologic hazards, grading impacts, view protection and protection of open space resources.

Action LU.4.3.1 Adopt guidelines to ensure that hillside development is sited and designed to avoid site constraints and natural resources, protect trees and preserve visual resources.

Policy LU.5.1 Designate any undeveloped ridgelines and hillsides as Low Density Residential, Rural, or Open Space. The following are specific policies:

a. Address site development constraints, including potential slope stability problems, protection of open space resources and ridgelines, the need for access easements, water availability above the 400-foot elevation, and accessibility.

b. Cluster development on portions of property to protect existing natural resources and view corridors as well as to minimize the environmental impacts of any new development.

c. Locate and design structures and other improvements so as to minimize cut and fill areas that will impact public views, safety and surrounding uses, and avoid locating building profiles (silhouettes) above the ridgeline when viewed from public streets and designated public access areas.

d. Consider existing access areas and easements for permanent public access to the ridge trail during future development.

e. Consider these properties for acquisition as open space.

Action LU.5.1.1 Development within the ridgeline resource areas (Figure 5.9) should be sited and designed to preserve visual resources and neighborhood/community separators.

Policy LU.5.2 Proposed development shall adhere to the following policies:

a. Address site development constraints and resources, including archaeological sites, access, riparian protection, tree protection, steep slopes, ridgelines, wetlands, potential geologic hazards, and protection of views and open space resources.

b. Consider clustering all development in areas that are most geologically stable and accessible.

c. Protect resources on the site, including the riparian corridors, visible knolls and heavily wooded areas.

d. Protect drainage channels, the steepest slopes and wildlife corridors (since they provide habitat and trail links), and locate development to minimize crossing drainage areas.

e. Evaluate the visual impacts of development.

In addition, guideline 7.5.2.a in Section 7.0, *Private Realm Design Guidelines*, of the Three Corridors Specific Plan promotes site planning that preserves natural amenities such as views.

Implementation of the proposed General Plan policies and actions listed above would reduce impacts to scenic vistas by requiring hillside development and development within the ridgeline resource areas to be sited and designed to preserve visual resources. In addition, Pinole's Zoning Code and the proposed Three Corridors Specific Plan contain building height restrictions intended to protect long-range views. Therefore, implementation of the proposed General Plan Update and its associated project components would result in **less than significant** impacts to scenic vistas.

Mitigation Measures

None required.

Alteration of Visual Character (Standard of Significance 3)

Impact 4.11.2 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could result in the alteration of visual character. This is considered a **less than significant** impact.

General Plan Update

Implementation of the proposed project encourages infill development and provides for redevelopment and limited new development along the city's primary transportation corridors. The proposed project maintains the scenic resources of the ridgelines and hillside areas by designating these areas as Open Space or Rural and requiring the clustering of development. Design guidelines supported by the proposed project require new development to be consistent with surrounding uses to help retain the rural character and small-town ambiance of portions of Pinole. As listed below, the General Plan Update also includes policies and actions that seek to balance resource protection, public service needs, public access, and recreation within the San Pablo Bay Conservation Area and to protect and enhance Pinole Creek.

In addition, all future development and redevelopment under the General Plan Update will be required to be consistent with the City's Zoning Code, which establishes districts throughout the community with allowed use and development standards. Development standards within the Zoning Code create a framework for the physical form of the community (e.g., building setbacks, heights). The code also contains protections for trees and establishes restrictions on tree removal. The Zoning Code will help to ensure that future development and redevelopment is consistent with policies in the General Plan that protect the visual character of the city. This impact is considered to be **less than significant**.

Three Corridors Specific Plan

The Specific Plan includes requirements for site planning and design, parking lot design and screening, building design and architectural character, building massing and articulation, lighting, screening utilitarian aspects of buildings, landscape and hardscape, and signage for private development, as well as requirements for public facilities including gateways and corridor identity, parking lot design, and streetscape treatments such as medians, street trees, lighting, street furnishings, crosswalks, public art, and public right-of-way landscaping. The Three Corridors Specific Plan will retain Pinole's visual character while revitalizing the area to provide additional housing and commercial opportunities in the city. Therefore, impacts would be **less than significant.**

Zoning Code Update

Adoption of the updated General Plan would require amendments to the Zoning Code for consistency with the General Plan land use designations and various General Plan policies. These updates would involve the deletion, addition, and modification of certain zoning districts and development standards in order to make the Zoning Code consistent with the updated General Plan (see Section 3.0, Project Description, for more details). These updates would not result in any development activities beyond those analyzed for the proposed GPU. Therefore, the Zoning Code Update would have an impact similar to that for the General Plan Update as discussed above.

Proposed General Plan Policies and Action Items that Address Alteration of Visual Character

The proposed General Plan incorporates the following policies and actions that further minimize impacts associated with alteration of visual character.

Policy CC.1.1 All new development and redevelopment shall adhere to the basic principles of high-quality urban design and architecture including, but not limited to, human-scaled design, pedestrian orientation, and interconnectivity of street layout, siting buildings to highlight important intersections, entryways, focal points and landmarks.

Action CC.1.1.1 Enforce Pinole's Residential Design Criteria and Guidelines to ensure that quality design is required as a condition of approval. Ensure new development is compatible with the scale and character of the neighborhoods and the architectural styles in Pinole's community. Continue to use Design Review Guidelines to review residential and mixed-use projects for consistency with Pinole's design goals.

Action CC.1.1.2 Adopt and enforce the design guidelines to guide improvements, renovations and future development in the San Pablo Avenue, Pinole Valley Road and

Appian Way Three Corridors Specific Plan areas to be consistent with the vision and urban design principles developed for the areas in the Specific Plan document.

Action CC.1.1.3 Establish and enforce Commercial and Industrial Design Criteria and Guidelines to ensure that quality design is required as a condition of approval. Ensure new development is compatible with the scale and character of the neighborhoods and the architectural styles in Pinole, and embrace concepts of transit- and pedestrian-oriented development and sustainability.

Action CC.1.1.4 To preserve opportunities for comprehensive planning, design and coordinated development of larger commercial and industrial properties, the City discourages subdivision of large commercial and industrial properties until a long-range master plan is approved for the long-term use of the property.

Policy CC.1.2 Require all new development to incorporate high-quality site design, architecture and planning to enhance the overall quality of the built environment in Pinole and create a visually interesting and aesthetically pleasing town environment.

Action CC.1.2.1 The City should establish an enhanced, expedited design review process at staff level for new development projects (both public and private), regardless of project size within the primary circulation corridors. As part of the design review process, require development projects to use quality materials that are long-lasting to ensure a sense of permanence for each project. New development projects should be approved only if they meet detailed design guidelines approved by the City Council.

Action CC.1.2.2 Regulate signs through a planned sign program. Require master sign plans for all new commercial centers. Establish, implement and enforce sign design guidelines for all types of development.

Policy CC.1.3 To enhance a sense of arrival and create a strong appealing image that promotes community identity, the City shall develop community entry features at key gateways or city entries along Interstate 80. Entryways shall incorporate landscaping, trees, structural architectural elements, signage and public art.

Action CC.1.3.1 Review improvement plans for inclusion of design elements. Make sure street lamps, signs, etc. are consistent with the theme of the neighborhood and the design guidelines in order to visually integrate the community.

Action CC.1.3.2 Establish a gateway program to create a sense of entry at key locations (such as at the intersection of San Pablo Avenue and Tennent Avenue in Old Town Pinole and at Appian Way near I-80) throughout the city and promote wayfinding throughout the community. Use creative designs that respond to the character and history of the city to establish a sense of place, including gateway signage, streetscape design, site landscaping and other features. Incorporate community landmarks and focal points (including public art and other design features such as fountains and monuments) into community and neighborhood parks, linear pathway intersections and commercial areas in

the existing downtown core and neighborhoods. Users should feel a sense of arrival and be welcomed to the city.

Policy CC.1.4 The historic and urban character of Old Town Pinole shall be revitalized through the density and intensity of new construction, as well as through the use of building materials, architecture and other design elements that reflect the city's past.

Action CC.1.4.1 Adopt the Three Corridors Specific Plan or other design controls for Old Town Pinole that require the use of building materials, architectural features and other design elements for new construction and building renovations that reflect the historic buildings in Old Town Pinole.

Action CC.1.4.2 Create incentives for mixed-use development projects that reflect the city's past, with commercial, retail and restaurant uses on the ground floor and residential and office uses on upper levels in Old Town Pinole. Encourage minimal building setbacks and parking on streets and in the rear of buildings. Continue the encouragement of shared parking for mixed-use buildings as described in the Zoning Ordinance.

Policy CC.1.5 Encourage project compatibility, interdependence and support with neighboring uses, especially between commercial and mixed-use centers and the surrounding residential neighborhoods. Uses should relate to one another with pedestrian connections, transit options, shared parking, landscaping, public spaces, and the orientation and design of buildings.

Action CC.1.5.1 Through the design review process, ensure that development in Pinole is oriented toward the maintenance and upkeep of the city's unique character.

Action CC.1.5.2 Continue to support the code enforcement program to ensure private properties are maintained in accordance with community standards.

Action CC.1.5.3 Utilize the Zoning Code provisions to identify appropriate solutions to create compatibility between existing neighborhoods and new developments.

Policy CC.2.1 Provide visual and physical connections between the natural environment and the built environment through careful site design, building placement, architectural features that allow views of Pinole's unique environment such as ridgelines or the San Pablo Bay shoreline, public access to open space such as via the Bay Trail, and the use of native vegetation in the urban environment such as for landscape buffers for sidewalk areas and street trees.

Action CC.2.1.1 Create a connected network of open spaces in Pinole that are accessible to the community for outdoor recreation and other use and enjoyment as a key aspect of local community character.

Action CC.2.1.3 Enhance existing priority development areas, commercial corridors, trails and significantly sized public spaces that preserve and take advantage of vistas. Many of Pinole's existing open space areas are on or near existing ridgelines with scenic views. Ensure that trails connecting these spaces enhance scenic opportunities.

Action CC.2.1.5 Review improvement plans and construction drawings for consistency with Policy CC.2.1 related to the use of native vegetation and design features that highlight natural features and views.

Policy CC.2.2 Preserve natural resources within the built environment, including trees, marshes, creeks and hillsides.

Action CC.2.2.1 Require public and private improvement plans to be reviewed by a qualified biologist/arborist if a project site contains biological resources or trees.

Action CC.2.2.2 Require mitigation for removal of important trees that function as habitat for protected raptors and protected tree species in Pinole.

Action CC.2.2.3 Consider a tree planting and preservation program that will encourage sensitive site planning, the retention of existing trees, the planting of new trees (especially native species) and the replacement of trees that are removed.

Action CC.2.2.4 Consider offering density bonuses and other incentives to developers that preserve native resources within new development projects.

Action CC.2.2.5 Continue implementation of the Pinole Creek Vision Plan, Pinole Creek Greenway Master Plan and Pinole Creek Restoration Plan.

Action CC.2.2.6 Establish required setbacks for development located in or near sensitive areas such as wetlands, Pinole Creek or along Pinole's many ridgelines.

Policy CC.4.2 Establish and promote programs that identify, maintain and protect buildings, sites or other features of the landscape possessing historic or cultural significance.

Policy CC.5.1 Celebrate the city's cultural diversity through public art, cultural centers and community events for the benefit and enjoyment of all residents.

Action CC.5.1.2 Ensure that design guidelines provide adequate flexibility to accommodate development projects that include design features and cultural identity to celebrate the different cultures that make up Pinole.

Policy CC.5.3 Encourage the provision of art in public places as a way to increase the quality of life in Pinole.

Action CC.5.3.1 Consider utilizing the Community Services Commission or establishing another organization that is responsible for establishing a public art program, directing the use of public funds for art in public places, encouraging the use of art in private development projects, and administering other cultural and artistic programs for the city as deemed appropriate by the City Council.

Action CC.5.3.2 Promote the incorporation of monuments, plaques, signs or artwork identifying Pinole's diverse history into development projects, at existing community facilities such as the Senior Center, and on pedestrian and bicycle trails.

Policy OS.3.3 Cluster Development. Encourage cluster development and other creative site planning techniques to preserve open space, trails and visual, habitat, recreation and archaeological resources.

Policy OS.3.6 Minimize Environmental Impacts. Encourage development patterns which minimize impacts on the City's biological, visual, and cultural resources, and integrate development with open space areas.

Policy OS.3.14 Open Space Preservation and Management. Maintain and effectively manage an integrated pattern of open space areas for preservation of natural resources, visual resources, and for recreational use. The City may consider passing a habitat protection ordinance that would identify and protect areas of biological value, including streams, creeks and wetlands as well as include setbacks from creeks, guidelines for avoidance of filing of creeks or wetlands and destruction of riparian vegetation, standards for compensation of habitat loss (as established by a qualified biologist), and requirements for mitigation, monitoring and habitat enhancement plans.

Policy OS.6.1 Protect Existing Visual Resources. Protect the City of Pinole's character by protecting key visual resource areas.

Action OS.6.1.1 Make use of land dedications and scenic easements to preserve visual resources.Action OS.6.1.2 Establish guidelines or standards to preserve ridgelines as community separators and to preserve Pinole's open hillsides as a visual resource.

Policy OS.6.2 View Protection. Preserve prominent views of scenic resources and the bay, and consider visual access and view corridors when reviewing development proposals through requirement of scenic easements, where feasible, and ridgeline preservation policies.

Policy OS.6.2.1 Require assessment of critical public views and ridgelines as part of the project review process to assure that projects protect natural resources through proper site planning, building design and landscaping.

Policy OS.6.4 Major and Minor Ridgelines. Preserve major and minor ridgelines. Where possible, properties shall provide for a ridgeline setback of 400 feet horizontally from major ridgelines, 100 feet from minor ridgelines and a vertical setback of 100 feet from both.

Policy OS.6.5 Ridgeline Protection. Natural contours and vegetation on ridgelines shall be maintained. Locate and design structures and other public and private improvements so as to minimize cut and fill areas that will impact public views, safety and surrounding uses, and avoid building profiles (silhouettes) being located above the ridgeline when viewed from public streets and designated public access areas.

Policy LU.1.3 Establish and implement a continuing program of civic beautification, gateway or entryway enhancement, tree planting, maintenance of homes and streets, and other measures which will promote an aesthetically desirable environment and attractive neighborhood areas.

Action LU.1.3.1 Continue to identify civic beautification projects and programs to implement the General Plan and include them in the Capital Improvement Program.

Action LU.1.3.2 Implement the existing Residential Design Criteria and Guidelines for residential development, and create design guidelines for Old Town Pinole and hillside development.

Policy LU.1.4 Preserve the quality of the environment through code enforcement and property maintenance programs.

Action LU.1.4.1 Maintain the existing code enforcement program.

Action LU.1.4.2 Maintain existing graffiti control and removal programs.

Policy LU.1.5 Identify opportunities to achieve desired land uses and physical improvements in and around Old Town Pinole.

Action LU.1.5.1 Ensure that Specific Plans are coordinated to preserve and enhance the character and function of the area that includes Old Town Pinole.

Policy LU.1.6 Establish required setback areas around sensitive resources or reduce development intensity on constrained sites to prevent development impacts.

Action LU.1.6.1 Currently the Zoning Code identifies ridgelines as:

- Ridgeline, major: A long narrow chain of hills identified in the open space element . . .
- Ridgeline, minor: A short narrow chain of hills which connects to a "major ridgeline" identified in the open space element . . .

Update the Zoning Code to require setbacks from sensitive resources such as ridgelines, riparian areas and identified geologic hazard areas. Such setbacks could include standards similar to the following:

- Ridgelines: 300 feet vertical and 100 feet horizontal from the ridgeline
- Riparian: 50 feet from the tree canopy or from the centerline of the creek bed if no canopy exists

Policy LU.3.1 Old Town Pinole should continue to be an important historic resource to the City of Pinole.

Action LU.3.1.1 Develop and adopt design guidelines to preserve, complement and enhance the historic resources in Old Town Pinole.

Policy LU.3.2 Ensure high-quality site planning, architecture and landscape design for all new residential development, renovation or remodeling.

Action LU.3.2.1 Continue to implement the adopted Residential Design Criteria and Guidelines.

Policy LU.3.3 Require design review of commercial and industrial projects to ensure compatibility with adjacent or nearby land uses, including intensity, access, internal circulation, visual characteristics, noise, odors, fire hazards, vibrations, smoke, discharge of wastes and nighttime lighting.

Action LU.3.3.1 Develop and adopt Commercial and Industrial Design Review Criteria and Guidelines.

Action LU.3.3.2 Update the Zoning Code to reflect Commercial and Industrial Design Review policies and procedures.

Policy LU.3.4 Identify and protect sites and structures of architectural, historical, archaeological and cultural significance, including significant biological resources. Require new development in historic areas to complement the character of nearby historic structures. (See also the Community Character Element.)

Action LU.3.4.1 Formulate design guidelines that include standards to protect and enhance the historic character and historic buildings of Old Town Pinole.

Policy LU.4.1 Ensure all new development, renovation or remodeling preserves and strengthens Pinole's residential neighborhoods by requiring projects to be harmoniously designed and integrated with the existing neighborhood.

Action LU.4.1.1 Continue to implement the adopted Residential Design Criteria and Guidelines. Action LU.4.1.2 Adopt appropriate guidelines to ensure that hillside development is sited and designed appropriately to protect visual resources and avoid unnecessary site disturbance and geologic risks.

Policy LU.4.2 Maintain the character and long-term viability of the city's residential areas by ensuring that residential projects are well designed and consistent with site and area resources and constraints. The following guidelines shall provide a starting point for establishing project-specific densities, as shown on the Land Use Map:

a) Low End of the Density Range/Below the Maximum Allowable Density: The low end of the range is appropriate for sites with challenging development constraints, such as those with restrictive easements, irregular shape, proximity to important open space or natural resources, other physical or service delivery access challenges, or ongoing safety concerns.

b) High End of the Density Range: The high end of the range is allowable when site development constraint issues (see Policy LU.4.3 and other General Plan elements) can be mitigated through some or all of the following:

1) Creative solutions to building location and/or design.

2) Preservation of views or vistas.

3) Creation of usable open areas for public and/or private enjoyment.

4) Provision of pedestrian/bicycle pathways and facilities for links to existing or proposed routes.

5) Preservation of wildlife resources.

6) Conservation of energy resources (through solar siting, clustering, etc.).

7) Clustering to reduce paving, grading runoff, and changes in vegetation cover.

8) Additional landscaping area is provided to enhance the natural qualities of the site.

9) On-site recreational facilities are provided for the enjoyment of project residents.

10) Traffic, noise or visual effects of the higher-density development would not significantly affect adjacent or nearby residences or the overall streetscape.

11) Proximity to transportation facilities.

12) Provision of affordable housing.

Action LU.4.2.1 Large undeveloped properties with the Rural land use designation should have a zoning designation allowing no more than 1 unit per 5 acres in order to protect important visual, community and environmental resources.

Policy LU.4.3 Cluster development at higher densities to protect natural resources and address site development constraint issues, including archaeological sites, access, traffic, emergency services, water and sewer availability, creek and tree protection, steep slopes, potential geologic hazards, grading impacts, view protection and protection of open space resources.

Action LU.4.3.1 Adopt guidelines to ensure that hillside development is sited and designed to avoid site constraints and natural resources, protect trees and preserve visual resources.

Policy LU.5.1 Designate any undeveloped ridgelines and hillsides as Low Density Residential, Rural, or Open Space. The following are specific policies:

a) Address site development constraints, including potential slope stability problems, protection of open space resources and ridgelines, the need for access easements, water availability above the 400-foot elevation, and accessibility.

b) Cluster development on portions of property to protect existing natural resources and view corridors as well as to minimize the environmental impacts of any new development.

c) Locate and design structures and other improvements so as to minimize cut and fill areas that will impact public views, safety and surrounding

uses, and avoid locating building profiles (silhouettes) above the ridgeline when viewed from public streets and designated public access areas.

d) Consider existing access areas and easements for permanent public access to the ridge trail during future development.

e) Consider these properties for acquisition as open space.

Action LU.5.1.1 Development within the ridgeline resource areas (Figure 5.9) should be sited and designed to preserve visual resources and neighborhood/community separators.

Policy LU.5.2 Proposed development shall adhere to the following policies:

a) Address site development constraints and resources, including archaeological sites, access, riparian protection, tree protection, steep slopes, ridgelines, wetlands, potential geologic hazards, and protection of views and open space resources.

b) Consider clustering all development in areas that are most geologically stable and accessible.

c) Protect resources on the site, including the riparian corridors, visible knolls and heavily wooded areas.

d) Protect drainage channels, the steepest slopes and wildlife corridors (since they provide habitat and trail links), and locate development to minimize crossing drainage areas.

e) Evaluate the visual impacts of development.

In addition, Chapter 7.0, *Private Realm Design Guidelines*, of the Three Corridors Specific Plan includes design guidelines that promote high-quality building design and active and landscaped outdoor spaces. Chapter 8.0, *Public Realm Standards and Design Guidelines* includes guidelines intended to create a unified, safe, and visually attractive public space environment in the Specific Plan corridors. These guidelines will further minimize impacts associated with alteration of visual character in the Specific Plan corridors.

The above General Plan Update policies and action items, as well as the Specific Plan guidelines discussed above, would mitigate impacts to visual character by ensuring that residential projects are well designed and consistent with site and area resources and constraints and by requiring the City to adopt Commercial and Industrial Design Review Criteria and Guidelines for commercial and industrial development. In addition, the future development and redevelopment in the city would be directed toward the existing transportation corridors, thus protecting scenic resources including historic visual resources, creeks and the San Pablo Bay shoreline, ridgelines, hillsides, and tree and vegetative resources. Therefore, impacts would remain **less than significant**.

Mitigation Measures

None required.

Daytime Glare and Nighttime Illumination (Standards of Significance 4)

Impact 4.11.3 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would result in the intensification of land uses within the GPU Planning Area, which has the potential to create new sources of daytime glare and nighttime illumination. This impact is considered **less than significant.**

Lighting nuisances typically are categorized by the following: (1) Glare – Intense light that shines directly or is reflected from a surface into a person's eyes; (2) Skyglow/Nighttime Illumination – Artificial lighting from urbanized sources that alters the rural landscape in sufficient quantity to cause lighting of the nighttime sky and reduction of visibility of stars and other astronomical features; and (3) Spillover Lighting – Artificial lighting that spills over onto adjacent properties, which could interrupt sleeping patterns or cause other nuisances to neighboring residents.

General Plan Update

New and intensified development could result in additional sources of daytime glare and nighttime lighting in the GPU Planning Area. In addition, increased population in the GPU Planning Area could generate additional street lighting and car headlights.

Policy provisions identified below include provisions to limit lighting levels and to establish acceptable types of lighting, fixtures, and the location of lighting in relation to nearby properties. Even with these policies, however, new development could result in significant glare and lighting impacts. Therefore, this impact is **potentially significant**.

Three Corridors Specific Plan

New and intensified development in the Specific Plan area could result in additional sources of daytime glare and nighttime lighting. The Specific Plan includes development standards for both public and private development that require lighting to be shielded downward and security lighting to be recessed, hooded, and located to illuminate only the intended area. The Specific Plan also requires that off-site glare and light trespass be prevented and that parking lot lighting be designed to have a minimal effect on surrounding properties and buildings. Therefore, the Specific Plan would ensure that glare and light intensity resulting from new development would be minimized and impacts would be **less than significant**.

Zoning Code Update

Adoption of the updated General Plan would require amendments to the Zoning Code for consistency with the General Plan land use designations and various General Plan policies. These updates involve the deletion, addition, and modification of certain zoning districts and development standards in order to make the Zoning Code consistent with the updated General Plan (see Section 3.0, Project Description, for more details). These updates would not result in any development activities beyond those analyzed for the proposed GPU. Therefore, the Zoning Code Update would have an impact similar to that for the General Plan Update as discussed above.

Proposed General Plan Policies and Action Items that Address Daytime Glare and Nighttime Illumination

The proposed General Plan incorporates the following policies and actions that provide mitigation to minimize impacts associated with increased daytime glare and nighttime lighting.

Policy CC.2.3 Provide rules and regulations for lighting within Pinole in order to promote a safe and pleasant nighttime environment, to protect and improve safe travel, to prevent nuisances caused by unnecessary light, to protect the ability to view the night sky and to promote energy conservation.

Action CC.2.3.1 Adopt light and glare zoning code regulations for residential development that incorporate best practices and the California Energy Commission updated lighting standards.

Action CC.2.3.2 Adopt light and glare code regulations for commercial development that incorporate best practices and encourage energy conservation.

Action CC.2.3.3 The Illuminating Engineering Society Publication, RR-89, indicating the illumination intensity and uniformity requirements should be utilized for lighting located within Pinole.

Average Maintained	
Activity	**Foot-Candles**
Roadways, residential	0.2
Roadways, commercial	0.9
Parking lots, residential:	0.9
Vehicular traffic	0.5
Pedestrian safety and security	0.8
Parking lots, commercial:	
1. Medium activity lots	
Vehicular traffic	1.0
Pedestrian safety and security	2.4
2. High activity lots	
Vehicular traffic	2.0
Pedestrian safety and security	3.6
Walkways and bikeways	0.5
Building entrances and exits	5.0
Material storage areas:	
Active	20.0
Inactive	1.0

Action CC.2.3.4 All outdoor lighting fixtures shall be designed, shielded, aimed, located and maintained to shield adjacent properties and to not produce glare onto adjacent properties or roadways.

In addition, guidelines 7.8.a through 7.8.i in Chapter 7.0, *Private Realm Design Guidelines*, of the Three Corridors Specific Plan address lighting in the Specific Plan corridors. Guidelines include encouraging exterior light fixtures to be attractively designed to complement the architecture of the project and for projects to direct illumination downward. Guidelines 8.4.2a through 8.4.2o in Chapter 8.0, *Public Realm Standards and Design Guidelines*, address the lighting of public spaces. Guidelines encourage pedestrian-scale lighting and discourage light spillage onto adjacent properties. These guidelines will further minimize impacts associated with nighttime lighting in the Specific Plan corridors.

Implementation of the above provisions will reduce the impacts to daytime glare and nighttime lighting by requiring the City to adopt light and glare zoning code regulations for residential, commercial, and industrial development, as well as by requiring new development to design, shield, aim, locate, and maintain outdoor lighting fixtures to shield adjacent properties and to prevent glare onto adjacent properties or roadways. As mitigated, this impact is **less than significant.**

4.11.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The cumulative setting associated with the proposed General Plan Update, Three Corridors Specific Plan, and Zoning Code Update includes proposed, planned, reasonably foreseeable, and approved projects and development in the region as described in Section 4.0. Developments and planned land uses within the region would contribute to impacts to existing viewsheds and add to existing levels of daytime glare and nighttime lighting, not only in the GPU Planning Area but also in those communities surrounding the GPU Planning Area that have a view of the city.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Impacts to Visual Resources and Visual Character

Impact 4.11.4 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update), along with foreseeable development in the region, would not result in the significant conversion of the city's visual character. This is considered a **less than cumulatively considerable** impact.

Though implementation of the proposed General Plan Update and its associated project components would result in some increased development within the GPU Planning Area, the policies included in the updated General Plan and Three Corridors Specific Plan, and the regulations under the updated Zoning Code, protect scenic resources and maintain visual character as discussed under Impacts 4.11.1 and 4.11.2 above. The General Plan Update policy document and Land Use Map encourage modification/intensification of uses and infill development along the primary commercial corridors subject to the Three Corridors Specific Plan. Policies in the proposed General Plan Update avoid significant alteration of visual resources including historic visual resources, creeks and the San Pablo Bay shoreline, ridgelines, hillsides, and tree and vegetative resources. The general plans for the surrounding

unincorporated county areas and the surrounding cities also include policy provisions for the protection of visual resources and visual character. These policy provisions would include design guidelines and protection of natural resources including the protection of open space, hillsides, and ridgelines. Therefore, further development in the surrounding region would also include policy provisions designed to minimize the alteration of visual resources. Therefore, this impact is considered to be **less than cumulatively considerable.**

Proposed General Plan Policies and Action Items that Address Cumulative Impacts to Visual Resources and Visual Character

The proposed General Plan update contains several goals, policies, and action items that would assist in reducing this potential impact to the GPU Planning Area's visual character. The following list contains those policies and action items that contain specific, enforceable requirements and/or restrictions and corresponding performance standards that assist in reducing (though not eliminating) this impact. Since these policies and action items have been described in detail in prior impact discussions for this section, the following is limited to only listing the policy and action item numbers.

Land Use and Economic Development Element

Policy LU.1.3; Action LU.1.3.1; Action LU.1.3.2; Policy LU.1.4; Action LU.1.4.1; Action LU.1.4.2; Policy LU.1.5; Action LU.1.5.1; Policy LU.1.6; Action LU.1.6.1; Policy LU.3.1; Action LU.3.1.1; Policy LU.3.2; Action LU.3.2.1; Policy LU.3.3; Action LU.3.3.1; Action LU.3.3.2; Policy LU.3.4; Action LU.3.4.1; Policy LU.4.1; Action LU.4.1.1 Action LU.4.1.2; Policy LU.4.2; Action LU.4.2.1; Policy LU.4.3; Action LU.4.3.1; Policy LU.5.1; Action LU.5.1.1; Policy LU.5.2

Community Character Element

Policy CC.1.1; Action CC.1.1.1; Action CC.1.1.2; Action CC.1.1.3; Action CC.1.1.4; Policy CC.1.2; Action CC.1.2.1; Action CC.1.2.2; Policy CC.1.3; Action CC.1.3.1; Action CC.1.3.2; Policy CC.1.4; Action CC.1.4.1; Action CC.1.4.2; Policy CC.1.5; Action CC.1.5.1; Action CC.1.5.2; Action CC.1.5.3; Policy CC.2.1; Action CC.2.1.1; Action CC.2.1.3; Action CC.2.1.5; Policy CC.2.2; Action CC.2.2.1; Action CC.2.2.2; Action CC.2.2.3; Action CC.2.2.4; Action CC.2.2.5; Action CC.2.2.6; Policy CC.2.3; Action CC.2.3.1; Action CC.2.3.2; Action CC.2.3.3; Action CC.2.3.4; Policy CC.4.2; Policy CC.5.1; Action CC.5.1.2; Policy CC.5.3; Action CC.5.3.1; Action CC.5.3.2

Natural Resources and Open Space Element

Policy OS.3.3; Policy OS.3.6; Policy OS.3.14; Policy OS.6.1; Action OS.6.1.1; Action OS.6.1.2; Policy OS6.2; Action OS.6.2.1; Policy OS.6.4; Policy OS.6.5

As discussed above, Chapter 7.0, *Private Realm Design Guidelines*, of the Three Corridors Specific Plan includes design guidelines that promote high-quality building design and active and landscaped outdoor spaces. Chapter 8.0, *Public Realm Standards and Design Guidelines* includes guidelines intended to create a unified, safe, and visually attractive public space environment in the Specific Plan corridors. These guidelines will further minimize cumulative impacts associated with visual character in the Specific Plan corridors.

Mitigation Measures

None required.

REFERENCES

California Department of Transportation (Caltrans). 2010. *Scenic Highway Program, Officially Designated State Scenic Highways*. http://www.dot.ca.gov/hq/LandArch/scenic/schwy.htm (accessed April 21, 2010).

California Energy Commission (CEC). 2010. http://www.energy.ca.gov/title24/ (accessed April 21, 2010).

Pinole, City of. 2007. *City of Pinole Residential Design Criteria and Guidelines*.

4.12 Public Services and Utilities

This section of the Draft Environmental Impact Report (DEIR) describes the public services and utilities that serve the General Plan Update (GPU) Planning Area, including fire protection, law enforcement, public schools, parks and recreation, library services, water, wastewater, solid waste, energy, and communications. Each subsection includes descriptions of existing service provider(s), facilities, service standards, funding sources, and potential impacts on each service resulting from implementation of the proposed General Plan Update.

4.12.1 FIRE PROTECTION AND EMERGENCY MEDICAL SERVICES

4.12.1.1 EXISTING SETTING

City of Pinole Fire Department

The Pinole Fire Department (PFD) shares the Public Safety Building, located at 880 Tennent Avenue, with the Police Department. They respond to calls in both the City of Pinole and the unincorporated area of Tara Hills as well as provide backup for the adjacent areas of Hercules, Crockett, Rodeo, San Pablo, and Richmond (Contra Costa LAFCo, 2009b). The total population served is approximately 27,000 and the PFD handles approximately 2,400 calls per year (Contra Costa LAFCo, 2009b).

Coverage responsibilities for the PFD include the major interstate freeway with nearly a quarter million vehicle trips per day, two major rail lines, underground petroleum pipelines, eleven schools, a hospital, and several large senior housing complexes. Geographically significant features include large wildland interface areas as well as San Pablo Bay bordering the city's north side.

Interaction with surrounding departments is also very high, with a large percentage of calls involving automatic or mutual aid. In September of 2000, PFD, the Contra Costa County Fire Protection District, and the Rodeo-Hercules Fire Protection District began a cooperative agreement to establish and function as "Battalion 7." PFD and Rodeo-Hercules Fire District each have two stations within their respective jurisdictions: Stations 73 and 74 in Pinole, and Stations 75 and 76 in Rodeo-Hercules (CCCFPD, 2007). Each station is staffed by three-person crews consisting of a captain, fire engineer (driver/operator), and firefighter. These agencies provide advanced life support (ALS) care by staffing one of the three positions with a paramedic (CCCFPD, 2007). The collaboration between these agencies provides common communications, dispatch, training, and integrated automatic aid. The battalion chief coverage is shared among the three jurisdictions on a rotational basis (CCCFPD, 2007). Other fire agencies that participate in automatic aid in the West County area include the City of El Cerrito Fire Department (three stations), City of Richmond Fire Department (seven stations), and Crockett-Carquinez Fire Protection District (three paid-on-call stations) (CCCFPD, 2007).

Facilities and Staffing

The Fire Department has 17 full-time firefighters consisting of one fire chief, five captains, four engineers, two engineers/paramedics, and five firefighters/ paramedics. The department uses two fire stations. The locations of the City of Pinole Fire Stations are as follows (City of Pinole, 2009a).

1) Station 73 – located at 880 Tennent Avenue in the Public Safety Building

2) Station 74 – located at 3700 Pinole Valley Road

Station 73 (northwestern portion of city) experiences higher call volumes than Station 74 at the southeastern portion of the city. Station 73 responded to 1,756 service calls in 2007 while Station 74 responded to 785such calls. By comparison, the median fire station in the county fielded 1,207 calls (Contra Costa LAFCo, 2009a).

Response Times and Service Standards

The PFD provides the residents of the City of Pinole and the Planning Area with fire and emergency services including disaster preparedness, fire prevention and safety, fire suppression, paramedic response and emergency transportation and medical services, and public outreach and public education. In 2005 and 2006, the Fire Department had responded to 2,318 and 2,402 calls for service. Emergency medical service (EMS) accounts for 64 percent of call volume. Target response time for fire protection services is 5 minutes or less, with 76 percent of calls responded to within 6 minutes in 2006 (City of Pinole, 2009a).

The Pinole Fire Department utilizes several performance standards for planning purposes, including the goal of maintaining capital facilities sufficient to maintain the following service level:

- First engine company: 5-minute response time in 90 percent of emergency calls
- Water requirements: 3,500 gallons per minute minimum on initial response assignment
- Access widths: turnarounds with minimum inside turning radius of 37.5 feet

The Insurance Services Office (ISO) rating is the recognized classification for a fire department's or district's ability to defend against major fires. The ISO places a grade on community fire protection capabilities and in some cases uses the information for property fire insurance rates. The full survey is performed at approximately ten-year intervals and always begins in December. ISO reviews such components as water supply (hydrant systems), fire apparatus and equipment, staffing levels, maintenance, and training. The grading scale ranges from 1 to 10 with 1 being premium property protection and 10 being minimal fire protection. Pinole is currently graded at a 4; however, a new survey is currently in progress and the city's property protection grade is under review (City of Pinole, 2009b). The survey focuses on large-loss fire potential and not on life-safety and paramedic response components within the fire department.

Funding

The primary source of funding for the PFD is the City General Fund. The City reports that the current financing level is generally adequate to deliver services at an appropriate service level, but is not sustainable (City of Pinole, 2009a). The city's service area requires two staffed stations, yet the addition of the fully staffed Station 74 in 2001 as the second station in the city lacks long-term funding for the second crew. Financial pressures include the scheduled 2012 sunset of the city's utility users tax, the scheduled 2015 sunset of the city's redevelopment project area spending authority, cost inflation trends that exceed revenue projections, extraordinary wastewater expenses to bring the city's wastewater plant into compliance with regulatory requirements, and historically inadequate wastewater fees (until Fiscal Year 2006–07).

A half-cent sales tax was approved in 2006 for funding public safety. The City does not charge a fire safety assessment and is not considering a ballot measure to establish one (City of Pinole, 2009a). Financing opportunities include grant funding, voter-approved extension of the utility users tax, consolidation into a larger fire department to achieve economies of scale and reduce

costs, and implementation of insurance reimbursement billing for medical response to vehicle accidents (City of Pinole, 2009a). The PFD adapted to budget pressures in Fiscal Year 2008–09 by reducing two positions to half-time status. Beginning on July 1, 2010, the PFD will begin "browning out" services at Station 74 for at least 10 shifts each month, or one-third of operations. This reduction in service is anticipated to be in place until June 30, 2011.

PFD expenditures were $4.0 million in Fiscal Year 2006–07. Of this amount, 83 percent was spent on compensation, 8 percent on services and supplies, and 9 percent on equipment. PFD expenditures were projected at $4.0 million in Fiscal Year 2008–09 (City of Pinole, 2009a). Revenue sources include the General Fund (72 percent), contract service payments from ConFire (8 percent), Measure S public safety sales tax (14 percent), development impact fees (4 percent), and redevelopment agency (2 percent).

CONTRA COSTA FIRE PROTECTION DISTRICT

The Contra Costa Fire Protection District (CCFPD) provides emergency fire protection and medical services to the cities of Antioch, Clayton, Concord, Lafayette, Martinez, Pittsburg, Pleasant Hill, San Pablo, and Walnut Creek as well as to the Bay Point, El Sobrante, Pacheco, and Port Chicago areas and other unincorporated areas of Contra Costa County. The CCFPD serves approximately 600,000 people and covers an area of nearly 304 square miles. In addition, the CCFPD serves the City of Pinole on a closest resource basis as part of a three-party inter-agency agreement comprising the CCFPD, the City of Pinole Fire Department, and the Rodeo-Hercules Fire District (RHFD). The City of Pinole is within the CCFPD's Battalion 7 (Grace, 2009).

Facilities and Staffing

Two CCFPD fire stations respond to residential and commercial fires within the City of Pinole: Station 69 located at 4640 Appian Way in El Sobrante, and Station 70 located at 13928 San Pablo Avenue in San Pablo. Station 69 is staffed with one captain, one engineer, and one firefighter with at least one of these staff members being a certified paramedic capable of providing advanced life support (ALS) care. Station 70 is staffed with one captain, one engineer, and two firefighters with at least one of these staff members being a certified paramedic capable of providing ALS care. Both stations are considered to be in fair condition with no staffing or equipment shortages (Grace, 2009).

Response Times and Service Standards

Within Battalion 7, the CCFPD has an established goal of responding to 90 percent of all calls within 5 minutes. However, on average, the CCFPD responds to 90 percent of all calls within 10:47 minutes (Grace, 2009).

Funding

Most of the CCFPD's funding is derived from local property tax revenues. Additional funding comes from fees, intergovernmental revenues, dispatching services, and development impact fees. Development impact fees are collected only in the cities of Antioch and Pittsburg, as well as in the unincorporated areas of the county, and can only be utilized for capital expenditures. Future development in these areas would therefore increase funding for the CCFPD (Grace, 2009).

4.12.1.2 REGULATORY FRAMEWORK

Federal

National Fire Protection Association

The National Fire Protection Association (NFPA) is an international nonprofit organization that provides consensus codes and standards, research, training, and education on fire prevention and public safety. The NFPA develops, publishes, and disseminates more than 300 consensus codes and standards intended to minimize the possibility and effects of fire and other risks (NFPA, 2008). The NFPA publishes the NFPA 1, Uniform Fire Code, which provides requirements to establish a reasonable level of fire safety and property protection in new and existing buildings.

State

California Fire Code

The 2007 California Fire Code (Title 24, Part 9 of the California Code of Regulations) establishes regulations to safeguard against hazards of fire, explosion, or dangerous conditions in new and existing buildings, structures, and premises. The provisions of the Fire Code apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal, and demolition of every building or structure throughout the State of California. The Fire Code includes regulations regarding fire-resistance-rated construction, fire protection systems such as alarm and sprinkler systems, fire services features such as fire apparatus access roads, means of egress, fire safety during construction and demolition, and wildland-urban interface areas.

California Health and Safety Code

Additional state fire regulations are set forth in Sections 13000 et seq. of the California Health and Safety Code, which include regulations for building standards, fire protection and notification systems, fire protection devices such as extinguishers, smoke alarms, high-rise buildings, childcare facility standards, and fire suppression training.

California Occupational Safety and Health Administration

In accordance with the California Code of Regulations, Title 8 Sections 1270, Fire Prevention, and 6773, Fire Protection and Fire Fighting Equipment, the California Occupational Safety and Health Administration (Cal-OSHA) has established minimum standards for fire suppression and emergency medical services. The standards include, but are not limited to, guidelines on the handling of highly combustible materials, fire hosing sizing requirements, restrictions on the use of compressed air, access roads, and the testing, maintenance, and use of all firefighting and emergency medical equipment.

City Emergency Response/Evacuation Plans

The State of California passed legislation authorizing the California Emergency Management Agency (Cal EMA) to prepare a Standard Emergency Management System (SEMS) program, which sets forth measures by which a jurisdiction should handle emergency disasters. Noncompliance with SEMS could result in the state withholding disaster relief from the noncomplying jurisdiction in the event of an emergency disaster.

The City of Pinole is responsible for emergency response and evacuation plans within the city limits. In 2006, the City prepared the Emergency Operation Plan (EOP). The goal of the EOP is to effectively and efficiently organize and coordinate the City's response to major emergencies. The plan is designed to be implemented and exercised prior to an emergency. The EOP identifies four phases of emergency management: preparedness, mitigation, response, and recovery.

Local

Contra Costa County General Plan

The Contra Costa County General Plan is used as the "blueprint" to guide future development in unincorporated portions of the county, including sections of the GPU Planning Area that are outside the Pinole city limits. The following Contra Costa County public facilities policies are applicable to the Planning Area outside the existing city limits of Pinole: Policies 7-62 through 7-86 establish response times, new development fire design requirements, firefighting equipment requirements, and long-term financing of fire and medical response services.

City of Pinole Fire Codes and Guidelines

The City of Pinole adopted the California Fire Code (CFC), which sets the basic requirements to be enforced by the Pinole Fire Department and the Contra Costa County Fire District. The CFC establishes the limits for which districts will allow the storage of explosives and natural gas, controls exterior fire hazards, and establishes requirements for the availability of sufficient water flows and pressure for all pipe valves and fittings. In addition to meeting minimum fire flow requirements, all development projects in the GPU Planning Area would be required to meet other various fire protection requirements identified in the plan check and review process.

4.12.1.3 IMPACTS AND MITIGATION MEASURES

Standards of Significance

A significant impact to fire protection and emergency services would occur if implementation of the proposed project would result in the following:

1) Create substantial adverse physical impacts associated with the provision of new or physically altered fire related facilities or services, the construction and/or provision of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection and emergency services.

Methodology

Evaluation of potential fire service impacts was based on consultation with the staff from the fire protection and emergency service providers in the GPU Planning Area, including the City of Pinole Fire Department and the Contra Costa County Fire Protection District, as well as review of the Contra Costa County General Plan and other relevant literature.

PROJECT IMPACTS AND MITIGATION MEASURES

Increased Demand for Fire Protection and Emergency Medical Services (Standard of Significance 1)

Impact 4.12.1.1 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could result in increased demand for fire protection and emergency medical services within the GPU Planning Area. This impact is considered **less than significant.**

General Plan Update

Implementation of the proposed General Plan Update is projected to result in population growth within the GPU Planning Area, potentially requiring additional fire protection services. The population of the city is projected to increase from the present population of about 20,100 (2010) to an ultimate General Plan buildout population of 23,875 (2030. Although this population increase would result in a slight increase in demand for fire protection and emergency medical services, it is not anticipated that such an increase would result in any significant impacts to either the CCCFD or PFD. Given the more compact urban form proposed by the General Plan Update, it is anticipated that current service levels could adequately serve the increased population. No new or expanded facilities would be needed. As a result this impact is considered **less than significant**.

Three Corridors Specific Plan

Implementation of the proposed Three Corridors Specific Plan would consist of the revitalization of the San Pablo Avenue, Pinole Valley Road, and Appian Way corridors, which could include new development and/or redevelopment of various urban uses. Due to the city's small supply of developable land, the Three Corridors Specific Plan directs the majority of the city's future growth to opportunity sites for infill mixed-use development along the city's commercial corridors in close proximity to transit and other amenities.

The Specific Plan area contains approximately 300 acres of predominantly developed land. In order to accommodate the projected demand for development and invite further capital investment in the city, the Specific Plan would change land uses in order to replace single-use commercial zoning with various mixed-use zones, eliminate commercial floor area ratio (FAR) as a development constraint, increase opportunities for residential development, and increase residential density. If all of the residential properties within the Specific Plan area were to develop according to the proposed provisions of the land use and development standards contained in the Specific Plan, the city would be expected to experience increased residential development of up to 1,076 residential units by 2030. Based on the Association of Bay Area Governments (ABAG) 2007 estimates of 2.89 persons per household, the Specific Plan could result in an additional 3,110 persons by 2030 (1,076 housing units x 2.89 persons per household). Given the urban infill characteristics of the Three Corridors Specific Plan, it is not anticipated that fire department response times would be lengthened or that current service levels would be rendered inadequate. It is not anticipated that services to the existing number of commercial and office buildings within the Plan area would be affected as well. This impact is considered **less than significant**.

Zoning Code Update

Updates to the Zoning Code are intended to further clarify the types and forms of uses permitted under particular land use designations, but would not result in any development activities beyond that analyzed for the proposed General Plan Update. Therefore, the Zoning Code Update would have an impact similar to that for the General Plan Update as discussed above.

Proposed General Plan Policies and Actions that Address Increased Demand for Fire Protection and Emergency Medical Services

Implementation of the following General Plan policies and actions would further reduce impacts associated with fire protection and emergency medical services.

Policy CS.2.3	The Fire Department or assisting fire services providers will strive to provide on-scene response to emergency incidents in the city within 5 minutes 90 percent of the time as funding is available.
Action CS.2.3.1	Continue working with members of Battalion 7 and other emergency services providers to optimize the allocation of resources and most efficiently provide mutual aid in Pinole and surrounding communities.
Action CS.2.3.2	Explore organizational and facility changes that could support the continuation of services in a more cost-effective manner.
Action CS.2.3.3	Implement organizational changes and necessary capital improvements through the annual budget and Capital Improvement Program, and explore alternative funding opportunities to support such changes.
Action CS.2.3.4	The City will encourage public education regarding fire prevention, safety and first aid medical procedures.
Action CS.2.3.5	The Fire Department will strive to provide on-scene response to emergency incidents in the city within 5 minutes 95% of the time.
Action CS.2.3.6	The City will develop a Fire Safety Operations Assessment that identifies and compares different approaches to the provision of emergency services and identifies needed facilities and an appropriate organizational structure to provide cost-effective fire and emergency medical services.
Action CS.2.3.7	In order to continue to provide fire service, the City shall solidify funding for fire services by seeking an extension of the City's Utility Tax. If the City's Utility Tax is not renewed, alternative funding sources shall be researched to ensure adequate funding for City fire services.
Policy CS.2.4	The City will develop an Open Space Management Plan to identify alternative means of managing open space areas for fire protection and to improve access to, and through, open space areas.
Action CS.2.4.1	Examine alternative open space ownership structures that could reduce the City's fire safety maintenance obligations.

Action CS.2.4.2 Examine opportunities to create all-weather emergency vehicle access through open space in order to shorten response times and improve mutual aid between Pinole, Hercules and El Sobrante.

Policy HS.1.1 Permit development only in those areas and with design features that mitigate potential danger to the health, safety and welfare of the residents.

Action HS.1.1.1 Maintain detailed hazard maps for use in development review.

Action HS.1.1.3 Adopt a Very High Fire Hazard Severity Zone (VHFHSZ) ordinance to implement regulations.

Policy HS.1.2 Require appropriate studies to assess identified hazards and ensure that impacts are adequately mitigated.

Action HS.1.2.2 Evaluate ongoing fire protection and emergency medical service delivery in the community, and identify sites for potential relocation of existing fire stations on the General Plan Land Use Map to improve service coverage and decrease response times.

In addition, Chapter 9.0, *Infrastructure and Public Facilities*, of the Three Corridors Specific Plan provides further discussion of fire protection services including service standards and discussions of joint powers agreements that will be in place under buildout conditions. .

The proposed General Plan Update would not result in the need for new or expanded facilities, and there would be a **less than significant impact** to the physical environment.

Mitigation Measures

None required.

4.12.1.4 CUMULATIVE IMPACT ANALYSIS

Cumulative Setting

The cumulative setting for fire protection and emergency medical services includes the service area boundaries of the CCFPD and the PFD. Potential future development and redevelopment of the GPU Planning Area as discussed in Section 4.0, Introduction to the Environmental Analysis and Assumptions Used, would also result in cumulative demands for fire protection and related services.

Cumulative Impacts and Mitigation Measures

Cumulative Fire Protection and Emergency Medical Services

Impact 4.12.1.2 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan and Zoning Code Update), along with other planned development and redevelopment within the GPU Planning Area, would contribute to the cumulative demand for fire protection and emergency medical services. This is considered a **less than cumulatively considerable** impact.

As described under Impact 4.12.1.1 above, the proposed project would not significantly increase demand for fire protection services in the Planning Area and would not result in the need for new or expanded facilities. Although cumulative development and redevelopment within the GPU Planning Area will result in increased demands for fire protection and emergency medical services, these agencies receive a portion of their funding from property tax revenues and development impact fees and will therefore receive additional funding as development occurs. Therefore, this impact and the proposed project's contribution to this impact are considered to be **less than cumulatively considerable**.

Proposed General Plan Policies and Actions that Address Cumulative Fire Protection and Emergency Medical Services

Implementation of the following General Plan Update policies and actions would reduce impacts associated with fire protection and emergency medical services (see Impact 4.12.1.1 for full policy language). Since these policies and actions have been described in detail in prior impact discussions for this section, the following is limited to only listing the policy and action numbers.

Community Services and Facilities Element

Policy CS.2.3, Action CS.2.3.1, Action CS.2.3.2, Action CS.2.3.3, Action CS.2.3.4, Action CS.2.3.5, Action CS.2.3.6, Action CS.2.3.7, Policy CS.2.4, Action CS.2.4.1, Action CS.2.4.2

Health and Safety Element

Policy HS.1.1, Action HS.1.1.1, Action HS.1.1.3, Policy HS.1.2, Action HS.1.2.2

In addition, Chapter 9.0, *Infrastructure and Public Facilities*, of the Three Corridors Specific Plan provides further discussion of fire protection services including service standards and discussions of joint powers agreements that will be in place under buildout conditions. .

Mitigation Measures

None required.

4.12.2 LAW ENFORCEMENT SERVICES

4.12.2.1 EXISTING SETTING

The Pinole Police Department (PPD) and the Contra Costa Sheriff's Department provide law enforcement services to the Planning Area.

City of Pinole Police Department

The PPD provides all services directly related to enhancement and maintenance of public safety for the City of Pinole. Police services include patrol, traffic enforcement, investigative services, and other special services customarily performed by police departments.

The Pinole Police Department provides all law enforcement services to the City of Pinole, serving approximately 20,000 people. The Police Station is located at 880 Tennent Avenue in the Public Safety Building, which it shares with the Fire Department.

Facilities and Staffing

The PPD has three divisions: Field Operations, Investigations, and Support Services. The PPD was created to provide services directed toward the enhancement and maintenance of public safety in the community. The City's 2008/09 budget indicates that the department has 56 personnel, consisting of two administrative secretaries, a deputy chief, a support services manager, a lieutenant, seven sergeants, 25 officers, three community service officers, eight dispatchers, three Records and Property Specialists, and two part-time crossing guards (Contra Costa LAFCo, 2009a and 2009b).

As of July 1, 2009, the PPD began handling code enforcement issues. This division enforces a number of laws pertaining to residential property in the city. Most of these laws have been enacted to protect and preserve the basic character and quality of life in residential neighborhoods. These laws may be enforced by more than one department or division of the City, as well as state or county agencies, where applicable.

The PPD is involved in a number of partnerships. For instance, the PDD funds half a position on the West Contra Costa Narcotics Enforcement Team (WestNET), and the Community Preservation and Safety Unit partners with residential and business community members to develop innovative solutions to quality-of-life issues. The Pinole Police Blotter contains selected crimes and incidents that occurred in Pinole during the listed week. This service is available on the department's website and can also be viewed daily on Pinole Cable Channel 28.

According to the U.S. Federal Bureau of Investigation crime statistics for 2007, Pinole had 112 violent crimes and 792 property crimes, with a rate of 4,797 crimes per 100,000 population (Contra Costa LAFCo, 2009a and 2009b). Crime rates are affected by a number of factors and reflect a city's population, concentration of youth, degree of urbanization, cultural and educational characteristics, geographic location, and modes of transportation, among other factors. Therefore, these rates are a good measure of changed conditions within a city over time, but they should not be considered as a direct evaluation of the adequacy of police services between cities.

According to the PPD *2008 Annual Report*, the PPD completed 3,740 Total Reports in 2008 and responded to 10,302 citizen-initiated calls for service (PPD, 2008). Additionally, the PPD tallied 14,740 officer-initiated calls for service in 2008 (PPD, 2008).

The PPD's *2008 Annual Report* tabulates police response to crimes reported or detected within the City of Pinole and compares the 2008 policing effort with the previous years. According to the report, between 2007 and 2008, calls for service rose by less than 1 percentage point from 28,677 to 28,782, traffic accidents investigated rose 29 percent, and felony crimes rose by 7 percent. During the same time, total arrests (felony and misdemeanor) issued dropped by 30 percent. Also during this time, volunteer hours dropped by 18 percent (PPD, 2008).

Response Times and Service Standards

The City's Police Department utilizes several performance standards for planning purposes, including the goal of providing 1.83 officers per 1,000 residents and maintaining capital facilities sufficient to maintain the following response time (for first unit):

- Code One Service Calls: 60 minutes (assignments are not urgent; however, they shall be completed at the earliest opportunity of the individual assigned)

- Code Two Service Calls: 15 minutes (assignments are urgent, but are not of an emergency nature – response is directly to the assignment)
- Code Three Service Calls: five minutes (emergency assignments calling for all practical haste – police response will allow use of emergency lights and siren)

Funding Mechanisms

The primary source of funding for the Police Department is the City General Fund. Of the 2008/09 budget, 48 percent was allocated for police services (Contra Costa LAFCo, 2009b). Additional funding comes from Measure S funds, the supplemental use tax approved by the voters in 2007 (City of Pinole, 2008). PFD operations are further funded by reimbursements from the City Redevelopment Agency for activities allocated to redevelopment (City of Pinole, 2008).

Contra Costa Sheriff's Department

Facilities and Staffing

The Contra Costa Sheriff's Department (CCSD) provides law enforcement services to all unincorporated portions of western Contra Costa County, including portions of the GPU Planning Area, via its Bay Station located at 5555 Giant Highway in Richmond. The Bay Station is currently staffed with 31 deputy sheriffs, five sergeants, and one lieutenant. One additional sergeant and eight detectives (three positions currently unfilled) are assigned to the Investigations Division in the Planning Area. The community is additionally served by way of an annex office in the Town of El Sobrante, which is primarily staffed by volunteers.

The CCSD is also a participant in a joint mutual aid agreement among all of the law enforcement agencies in Contra Costa County. This agreement states that each of the agencies in the county will maximize its resources to coordinate the resources to respond during time of disaster or emergency. The agreement provides a mechanism for an immediate response to the requesting agency, provided the responding agency has the resources and expertise necessary and available to do so. As such, the GPU Planning Area may be further served by any of the law enforcement agencies in the county when necessary (Bradley, 2008).

Response Times and Service Standards

The CCSD responded to 6,733 calls for service in 2008 in the vicinity of Pinole. The average response time to these calls varied by priority of the call but averaged about 12 minutes from receipt of call to arrival at scene (Bradley, 2008; Contra Costa County, Office of the Sheriff, 2009).

Funding

The Contra Costa Sheriff's Office is funded directly from the County's annual budget (Bradley, 2009).

California Highway Patrol

The California Highway Patrol (CHP) provides traffic regulation and enforcement, and emergency management and assistance on all freeways throughout Contra Costa County as well as on all highways within the unincorporated portions of the county (including Interstates 80 and 680 and State Route 4). The CHP has 81 uniformed officers assigned to the area office

located at 5001 Blum Road in Martinez. Within the Oakland area, the CHP has three to four officers at all times patrolling Interstate 80 (I-80) between the Toll Plaza at the San Francisco-Oakland Bay Bridge and Appian Way. Within the GPU Planning Area, only one of these officers patrols along I-80 and in the unincorporated areas west of Appian Way. However, a second unit will patrol the unincorporated area of North Richmond from Monday through Friday. The average response time for an Oakland are CHP officer was approximately 10 minutes for the year 2008 (Loetscher, 2009).

4.12.2.2 REGULATORY FRAMEWORK

State

City Emergency Response/Evacuation Plans

The State of California passed legislation authorizing the Office of Emergency Services (OES) to prepare a Standard Emergency Management System (SEMS) program, which sets forth measures by which a jurisdiction should handle emergency disasters. Noncompliance with SEMS could result in the state withholding disaster relief from the noncomplying jurisdiction in the event of an emergency disaster.

The City of Pinole is responsible for emergency response and evacuation plans within the city limits. In 2006, the City prepared the Emergency Operation Plan. The goal of the EOP is to effectively and efficiently organize and coordinate the City's response to major emergencies. The plan is designed to be implemented and exercised prior to an emergency. The EOP identifies four phases of emergency management: preparedness, mitigation, response, and recovery.

Local

Contra Costa County General Plan

The Contra Costa County General Plan is used as the "blueprint" to guide future development in unincorporated portions of the county, including sections of the GPU Planning Area that are outside the Pinole city limits. The following Contra Costa County public facilities policies are applicable to the Planning Area outside the existing city limits of Pinole. Policies 7-57 through 7-61 establish facilities requirements to maintain adequate protection services, response times for efficient use of resources and goal response times for emergencies, and level of service (LOS) requirements.

4.12.2.3 IMPACTS AND MITIGATION MEASURES

Standards of Significance

A significant impact to law enforcement services would occur if implementation of the proposed project would result in the following:

1) Create substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for law enforcement services.

Methodology

Evaluation of potential law enforcement impacts was based on consultation with the staff from the law enforcement agencies in the Planning Area, including the City of Pinole Police Department, the Contra Costa County Sheriff's Department, and the California Highway Patrol, as well as review of the Contra Costa County General Plan, Contra Costa LAFCo Municipal Service Review, and other relevant literature.

Project Impacts and Mitigation Measures

Increased Demand for Law Enforcement Services (Standard of Significance 1)

Impact 4.12.2.1 Implementation of the proposed project (General Plan Update, Three Corridor Specific Plan, and Zoning Code Update) would result in increased demand for law enforcement services within the GPU Planning Area. This is a **less than significant** impact.

General Plan Update

Implementation of the proposed General Plan Update is projected to result in population growth within the Planning Area, potentially requiring additional law enforcement services. The population of the city is projected to increase from the present population of about 20,100 (2010) to an ultimate General Plan buildout population of 23,875 (2030. Although this population increase would result in a slight increase in demand for law enforcement services, such an increase would not result in any significant impacts to the department, and no new or expanded facilities, equipment, or staff would be needed to maintain current service levels. Furthermore, department funding would be increased as development occurs through the generation of additional sales, property, and other local taxes.

The service area and population of the CCSD would actually be reduced through implementation of the project as currently unincorporated land is annexed into the city and comes under the jurisdiction of the PPD. Therefore, demand for services from the CCSD could be slightly reduced, and no new or expanded facilities, equipment, or staff would be needed to maintain current service levels.

Finally, the CHP's service area would not be affected by the project, and demand for services would not increase.

Three Corridors Specific Plan

If all of the residential properties within the Specific Plan area were to develop according to the proposed provisions of the land use and development standards contained in the Specific Plan, the city would be expected to experience increased residential development of up to 1,076 residential units by 2030. Based on ABAG's 2007 estimate of 2.89 persons per household, the Specific Plan could result in an additional 3,110 persons by 2030 (1,076 housing units x 2.89 persons per household). Given the urban infill characteristics of the Three Corridors Specific Plan, it is not anticipated that law enforcement services would be affected. It is not anticipated that services to the existing number of commercial and office buildings within the Plan area would be affected as well. This impact is considered **less than significant**.

Zoning Code Update

Updates to the Zoning Code are intended to further clarify the types and forms of uses permitted under particular land use designations, but would not result in any development activities beyond that analyzed for the proposed General Plan Update. Therefore, the Zoning Code Update would have an impact similar to that for the General Plan Update as discussed above.

Proposed General Plan Policies and Actions that Address Increased Demand for Law Enforcement Services

Implementation of the following General Plan Update policies and actions would further reduce impacts associated with law enforcement services.

Policy CS.1.4	Incorporate Crime Prevention Through Environmental Design (CPTED) principles in projects and improvements.
Action CS.1.4.1	Review Structure Designs. Involve law enforcement agencies in review of the design of new and rehabilitated buildings, including lighting and landscaping, to identify ways to increase resident safety.
Policy CS.2.1	The Police Department will strive to provide on-scene response to emergency incidents in the city within 5 minutes.
Action CS.2.1.1	Explore alternative funding options to increase police services to the community.
Policy CS.2.2	The Police Department will work in partnership with citizens and community organizations to expand community-based crime prevention programs.
Action CS.2.2.1	The City will work with criminal justice agencies and community groups to support programs that offer information about community policing, reporting of child and adult abuse and neglect, and other crime prevention techniques.
Action CS.2.2.2	The City will support efforts to strengthen and expand neighborhood watch programs and encourage businesses to participate in these programs.
Action CS.2.2.3	Work with law enforcement agencies and community groups to promote cleanup, graffiti removal and other neighborhood beautification efforts.

In addition, Chapter 9.0, *Infrastructure and Public Facilities*, of the Three Corridors Specific Plan provides further discussion of law enforcement services and confirms that existing law enforcement facilities and equipment appear to be adequate to serve the incremental growth of the Specific Plan project areas. Further, Chapter 7.0, *Private Realm Design Guidelines*, and *Chapter 8.0, Public Realm Standards and Design Guidelines*, of the Specific Plan incorporate principles of Crime Prevention Through Environmental Design (CPTED), which is primarily concerned with promoting safety by providing natural surveillance ("eyes on the street"), controlling and directing access to permitted areas and deterring access to unauthorized or inappopriate areas, and creating a sense of ownership through regular maintenance and a

clear delineation between private and public space. Standards and guidelines based on CPTED will assist in further reducing impacts associated with law enforcement services. .

As no new or expanded facilities or equipment would be needed to maintain current law enforcement service levels, no environmental effects are anticipated. This impact is **less than significant**.

Mitigation Measures

None required.

4.12.2.4 CUMULATIVE IMPACT ANALYSIS

Cumulative Setting

The cumulative setting for law enforcement services includes the current service area boundaries of the City of Pinole Police Department, as well as the entire GPU Planning Area. The reader is referred to Section 4.0 regarding the development assumptions within this setting area at buildout of the proposed project.

Cumulative Impacts and Mitigation Measures

Cumulative Law Enforcement Impacts

Impact 4.12.2.2 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan and Zoning Code Update), along with other planned development and redevelopment within the GPU Planning Area, would contribute to the cumulative demand for law enforcement services. This is considered a **less than cumulatively considerable** impact.

The PPD would provide law enforcement services to all portions of the GPU Planning Area that are annexed to the city or within the City's SOI. Therefore, at buildout of the proposed General Plan Update, the entire cumulative setting area would be served by the PPD. As discussed under Impact 4.12.2.1 above, the proposed project would not significantly impact the PPD's services, and no new or expanded facilities or equipment would be needed to maintain current service levels. Department funding would increase as development occurs through the generation of additional sales, property, and other local taxes.

Since the project would have less significant impact on law enforcement services provided by the PPD or other law enforcement service agencies in the GPU Planning Area, it would not contribute significantly to cumulative impacts on these services. Therefore, this impact would be **less than cumulatively considerable**.

Proposed General Plan Policies and Actions that Address Cumulative Law Enforcement Impacts

Implementation of the following General Plan Update policies and actions would further reduce impacts associated with law enforcement services (see Impact 4.12.2.1 for full policy language). Since these policies and action items have been described in detail in prior impact discussions for this section, the following is limited to only listing the policy and action item numbers.

Community Services and Facilities Element

Policy CS.1.4, Action CS.1.4.1, Policy CS.2.1, Action CS.2.1.1, Policy CS.2.2, Action CS.2.2.1, Action CS.2.2.2, Action CS.2.2.3

In addition, Chapter 9.0, *Infrastructure and Public Facilities*, of the Three Corridors Specific Plan provides further discussion of law enforcement services and confirms that existing law enforcement facilities and equipment appear to be adequate to serve the incremental growth of the Specific Plan project areas. Further, Chapter 7.0, *Private Realm Design Guidelines*, and *Chapter 8.0, Public Realm Standards and Design Guidelines*, of the Specific Plan incorporate principles of Crime Prevention Through Environmental Design (CPTED), which is primarily concerned with promoting safety by providing natural surveillance ("eyes on the street"), controlling and directing access to permitted areas and deterring access to unauthorized or inappopriate areas, and creating a sense of ownership through regular maintenance and a clear delineation between private and public space. Standards and guidelines based on CPTED will assist in further reducing impacts associated with law enforcement services.

Mitigation Measures

None required.

4.12.3 PUBLIC SCHOOLS

4.12.3.1 EXISTING SETTING

The GPU Planning Area is served by the West Contra Costa Unified School District (WCCUSD) as well as the Contra Costa Community College District (CCCCD). Each district is discussed in more detail below.

West Contra Costa Unified School District

The WCCUSD encompasses approximately 110 square miles and serves the cities of Richmond, Hercules, Pinole, El Cerrito, and San Pablo as well as the unincorporated communities of El Sobrante, Kensington, Montalvin, North Richmond, and Tara Hills. The district is made up of 64 schools including 39 elementary schools, 8 middle schools, 9 high schools, and 6 alternative and continuation schools. Based on current facilities, the WCCUSD has a capacity of 36,239 students. As of the 2008–2009 school year, the district had a total student enrollment of about 30,769. Most schools in the GPU Planning Area are below capacity, allowing for more student enrollment. WCCUSD adopted an amended Facilities Master Plan in June 2006, which identified major issues and detailed information on the district's future school needs, funding options, and cost estimates. The WCCUSD has not experienced a significant increase in enrollment in recent years and enrollment is expected to decrease by 2010 (WCCUSD, 2009). The schools located within the GPU Planning Area are shown in **Table 4.12.3-1** below.

TABLE 4.12.3-1
PUBLIC SCHOOLS WITHIN PLANNING AREA

School	Grade Levels	Location	Current Enrollment
Elementary Schools			
Collins	K–6	City	425
Ellerhorst	K–5	City	441
Montalvin Manor	K–6	Planning Area	472
Shannon	K–5	City	317
Stewart	K–6	City	519
Tara Hills	K–6	Planning Area	498
Middle Schools			
Pinole	7–8	City	719
High Schools			
Pinole Valley	9–12	City	1,652
Other			
North Campus Continuation	9–12	Planning Area	189

Source: EDP, 2009

Funding Mechanisms

Districts typically fund new schools and facilities through a combination of local bonds, developer fees, and state bonds. State bonds pay for almost half the costs of new facilities and schools, with local bonds generated from property taxes providing an important source of additional funding. The passage of state bonds is not linked to any increase in property taxes. The principal and interest on state bonds are paid for by the state's general fund, which is made up of mainly personal and corporate income taxes and sales tax revenues. In addition to local bonds, the Kindergarten-University Public Education Facilities Bond Act of 2002 (Prop. 47) was approved by voters in November 2002 and provides for a bond issue of $13.05 billion to fund necessary education facilities to relieve overcrowding and to repair older schools. Funds are determined by the areas of greatest need and must be spent according to strict accountability measures. Under the Leroy F. Greene School Facilities Act (SB 50) and Government Code Section 65995, school districts can levy a mandatory per square foot fees on new residential development, with the amount determined by the State Board of Education.

Service Standards

All school districts in California are required to prepare a facilities master plan (FMP), which includes service standards based on student generation rates and school capacities to determine a particular district's needs through its current plan period. FMPs typically have a planning horizon of ten years, provide a detailed forecast of the district's needs, and identify strategic plans and actions to fulfill those needs. The FMP addresses how many classrooms are needed, at which grade levels, and the cost and timing of identified improvements. The identified improvements are balanced against the available district resources, existing and ultimate capacity constraints, current and projected revenue sources, and outside funding

options. FMPs are influenced by market pressures such as commercial expansion, the phasing and timing of housing developments, availability of state funds, changes in state laws, and the viability of local bond elections. Districts select school sites in accordance with criteria developed by the California Department of Education (CDOE). The CDOE must review and approve all sites considered for selection and use by a district. Student generation rates are used to determine the projected number of students that will result from residential development. Site selection criteria and projected student generation are the basis for determining the location, type, and number of schools required to serve a new development.

Contra Costa Community College District

The Contra Costa Community College District consists of Contra Costa College located in San Pablo, Diablo Valley College located in Pleasant Hill, Los Medanos College located in Pittsburg, the San Ramon Campus, and the Walnut Creek and Brentwood Centers (CCCCD, 2009). None of these campuses are located within the GPU Planning Area. However, the GPU Planning Area is located within the service area of Contra Costa College, which is located just southwest of the GPU Planning Area in the City of San Pablo (CCCCD, 2002).

In 2008, the CCCCD had a total student head count of nearly 40,000, or about 14,400 full-time equivalent students. Contra Costa College had a student head count of approximately 8,411, or about 2,887 full-time equivalent students (Benjamin, 2008).

Funding Mechanisms

The district is funded by a combination of direct state funding, tuition and fee revenues, bonds and government grants. Due to a recent state budget decision, California community college enrollment fees have been increased from $20 to $26 per unit since the fall 2009 term (CCCCD, 2009). Two facilities bonds were recently approved totaling $406.5 million. This includes Measure A for $120 million approved in 2002 by county voters to refurbish aging facilities, build new facilities, and purchase needed equipment for classrooms, and Measure A+ for $286.5 million approved in 2006 by county voters to continue the district's facilities modernization program (CCCCD, 2008).

REGULATORY FRAMEWORK

State

Leroy F. Greene School Facilities Act of 1998 (SB 50)

As discussed above, California voters approved Proposition 1A in November of 1998. Proposition 1A's companion legislation (Chapter 407, Statutes of 1998, SB 50) went into effect upon the measure's approval. Senate Bill (SB) 50 significantly altered the system of fees that can be placed on new development in order to pay for the construction of school facilities. Prior to the passage of Proposition 1A, school districts were limited in the amount of school facility developer fees they could charge. Also, as a result of the Mira, Hart, and Murietta decisions made in the years preceding the passage of Proposition 1A, cities and counties were able to impose additional school facility fees on development as a condition of obtaining land use approval. SB 50 and Proposition 1A provided a comprehensive school facilities financing and reform program by authorizing the $9.2 billion school facilities bond issue, school construction cost containment provisions, and an eight-year suspension of the Mira, Hart, and Murrieta court cases. SB 50 created different levels of developer fees and prohibited local agencies from denying either legislative or adjudicative land use approvals on the basis that school facilities

are inadequate. They also reinstated the school facility fee cap for legislative actions, which is adjusted biannually in January. According to Government Code Section 65996, the development fees authorized by SB 50 are deemed to be full and complete school facilities mitigation. These provisions were in effect until 2006 and will remain in place as long as subsequent state bonds are approved and available.

The three levels of developer fees established by SB 50 are described below.

1) Level 1 fees are base statutory fees. As of January 30, 2008, the maximum assessment for fees was $2.97 per square foot of residential development and $0.47 per square foot of commercial/industrial development.

2) Level 2 fees allow the school district to impose developer fees above the statutory levels, up to 50 percent of certain costs under designated circumstances. The state would match the 50 percent funding if funds are available.

3) Level 3 fees apply if the state runs out of bond funds after 2006, allowing the school district to impose 100 percent of the cost of the school facility or mitigation minus any local dedicated school monies.

In order to levy the alternate (Level 2) fee and qualify for 50 percent state-matching funds, a school district must prepare and adopt a School Facilities Needs Analysis, apply and be eligible for state funding, and satisfy specified criteria. The ability of a city or county to impose fees is limited to the statutory and potential additional charges allowed by the act, as described above.

California Department of Education

The California Department of Education (CDE) establishes standards for school sites pursuant to Education Code Section 17251 and adopts school site regulations, which are contained in the California Code of Regulations, Title 5, commencing with Section 14001 (CDE, 2000). Certain health and safety requirements for school site selection are governed by state regulations and the policies of the CDE School Facilities Planning Division (SFPD) relating to:

- Proximity to airports, high-voltage power transmission lines, railroads, and major roadways;
- Presence of toxic and hazardous substances;
- Hazardous facilities and hazardous air emissions within one-quarter mile;
- Proximity to high-pressure natural gas lines, propane storage facilities, gasoline lines, pressurized sewer lines, or high-pressure water pipelines;
- Noise;
- Results of geological studies or soil analyses; and
- Traffic and school bus safety issues.

The SFPD prepared the *Guide to School Site Analysis and Development* in 1966. The guide assists school districts in determining the amount of land needed to support their educational programs

in accord with their stated goals and in accord with recommendations of the CDE. Site size standards were updated in 1999–2000 to reflect significant changes in education, such as class size reduction in kindergarten through grade three, implementation of the (federal) Education Amendments of 1977, Title IX (gender equity), parental and community involvement, and technology. In addition to the educational reforms noted above, changes regarding the expanded use of buildings and grounds for community use and agency joint use and legislative changes in the site-selection process regarding environmental, toxic, and other student and staff safety issues were included in the updated standards. The guide contains specific recommendations for school size and suggests a ratio of 2:1 between the developed grounds and the building area. CDE is aware that in a number of cases, primarily in urban settings, smaller sites cannot accommodate this ratio. In such cases, the SFPD may approve an amount of acreage less than the recommended gross site size and building-to-ground ratio.

The Kindergarten-University Public Education Facilities Bond Act of 2002 (Prop. 47)

This act was approved by voters in November 2002 and provides for a bond issue of $13,050,000,000 (thirteen billion fifty million dollars) to fund necessary education facilities to relieve overcrowding and to repair older schools. Funds will be targeted to areas of greatest need and must be spent according to strict accountability measures. Funds will also be used to upgrade and build new classrooms in the California community colleges, the California State University, and the University of California to provide adequate higher education facilities to accommodate growing student enrollment.

Local

Contra Costa County General Plan

The Contra Costa County General Plan is used as the "blueprint" to guide future development in unincorporated portions of the county, including sections of the Pinole GPU Planning Area that are outside the Pinole city limits. The Contra Costa County public facilities policies that are applicable to the Planning Area outside the existing city limits are Policy 7-136 through 7-146. These policies address environmental reviews for new schools, the mitigation of new development to provide funding for school facilities, the use of efficient school facility plans to consider relocatable facilities and boundary adjustments, and the use of state/federal funds to fund schools that have been impacted by growth.

4.12.3.3 IMPACTS AND MITIGATION MEASURES

Standards of Significance

An impact on public schools is considered significant if implementation of the proposed project would result in the following:

1) Increased demand for additional personnel, equipment, or facilities and/or results in a negative effect that impairs the ability of the service provider to maintain acceptable level of service for public schools that would result in a physical impact on the environment.

Methodology

Evaluation of potential public school impacts was based on review of the WCCUSD Master Plan and consultations with school district staff.

Impacts and Mitigation Measures

Increased Student Enrollments (Standard of Significance 1)

Impact 4.12.3.1 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would increase student enrollment within the WCCUSD and may require new school facilities and related services. This is considered a **less than significant** impact.

General Plan Update

Implementation of the proposed General Plan Update is projected to result in population growth within the GPU Planning Area, resulting in increased enrollment at schools within the Planning Area. The city's population is projected to increase by about 3,775 persons from current (2010) population of 20,100, by the year 2030. Projected growth associated with implementation of the proposed project would increase student enrollment, which could result in the need for new school facilities and support personnel. Areas of impact include, but are not limited to, the following:

- Classrooms
- Offices, including corporate offices
- Maintenance and transportation facilities
- Personnel for each department

The City has no direct control over the location and construction of schools. However, it does have approval authority over subdivision maps that may propose school sites. The City also makes decisions on infrastructure projects that may be required to support a new or expanded school, such as water and sewer lines and roadways.

WCCUSD's current development impact mitigation fee is $2.97 per square foot of building space for residential development and $0.46 per square foot of building space for commercial/industrial land uses. California Government Code Sections 65995(h) and 65996(b) provide full and complete school facilities mitigation for California Environmental Quality Act (CEQA) purposes. Section 65995(h) states that the payment or satisfaction of a fee, charge, or other requirement levied or imposed pursuant to Section 17620 of the Education Code is deemed to be full and complete mitigation of the impacts for the planning, use, development, or provision of adequate school facilities.

As previously mentioned, the WCCUSD has a capacity of 36,239 students. As of the 2008–2009 school year, the district had a total student enrollment of about 30,769 and most schools in the GPU Planning Area are below capacity, allowing for more student enrollments. In 2008, WCCUSD determined there was a need to review the number of school facilities the district operates to address the issue of declining enrollment. The district developed criteria, examined school capacities and enrollments, reviewed program needs, examined facility condition data and studied the projected demographics of each community, and held numerous public meetings to receive input from the WCCUSD community in order to examine and develop a plan for school consolidation (WCCUSD, 2009). This impact would be **less than significant**.

Three Corridors Specific Plan

Implementation of the proposed Three Corridors Specific Plan would consist of the revitalization of the San Pablo Avenue, Pinole Valley Road, and Appian Way corridors, which could include

new development and/or redevelopment of various urban uses. This would result in the city experiencing increased residential development of up to 1,076 residential units by 2030. Based on ABAG's 2007 estimate of 2.89 persons per household, the Specific Plan could result in an additional 3,110 persons by 2030 (1,076 housing units x 2.89 persons per household), only a portion of which would be of the age group requiring public school enrollment. As discussed above, the WCCUSD has a capacity of 36,239 students and most schools in the GPU Planning Area are below capacity, allowing for more student enrollments. Therefore this impact is considered **less than significant**.

Zoning Code Update

Updates to the Zoning Code are intended to further clarify the types and forms of uses permitted under particular land use designations, but would not result in any development activities beyond that analyzed for the proposed General Plan Update. Therefore, the Zoning Code Update would have an impact similar to that for the General Plan Update as discussed above.

Proposed General Plan Policies and Action Items that Address Increased Student Enrollments

Listed below are proposed General Plan policies designed, in part, to reduce impacts to the natural environment because of school development.

Policy CS.4.1 The City will assist the West Contra Costa Unified School District to ensure mitigation of impacts on school facilities from new growth within Pinole.

Policy CS.4.2 The City will cooperate with the West Contra Costa Unified School District to obtain funds from other sources to provide high-quality public educational facilities.

Implementation of the above General Plan policies, along with payment of state and district fees, would ensure that the proposed project's impacts to public schools would be less than significant.

Mitigation Measures

None required.

4.12.3.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

Cumulative Setting

The GPU Planning Area is served by the West Contra Costa Unified School District. The WCCUSD service area encompasses approximately 110 square miles and serves the cities of Richmond, Hercules, Pinole, El Cerrito, and San Pablo as well as the unincorporated communities of El Sobrante, Kensington, Montalvin, North Richmond, and Tara Hills. Therefore, the cumulative setting for public school impacts is western Contra Costa County including each of the cities and communities within the WCCUSD and CCCCD service areas. The reader is referred to Section 4.0 for a discussion of anticipated development within the area.

Cumulative Impacts and Mitigation Measures

Cumulative Public School Impacts

Impact 4.12.3.2 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update), as well as potential development within the cumulative setting area, would result in cumulative public school impacts. These cumulative public school impacts are considered **less than cumulatively considerable**.

New schools planned within WCCUSD would provide additional capacity to accommodate existing and future enrollment. Additional development would be subject to mitigation consistent with payment of fees as established between the school district, the state, and the local jurisdictions. However, per the Leroy F. Greene School Facilities Act, local jurisdictions are restricted in imposing additional impact fees. Pursuant to state law, payment of statutory fees represents full and complete school facilities mitigation. Per California Government Code Sections 65995(h) and 65996(b), the existing fee mechanisms would fully mitigate the environmental effects of the increased population.

The additional capacity to serve growth anticipated by WCCUSD has the potential to create environmental effects, including increased traffic, noise, potential loss of habitat, water service, water quality, wastewater, and solid waste. Specific impacts cannot be known at this time as the potential size and location of future school facilities are unknown. Therefore, this DEIR evaluates environmental impacts at a programmatic level. If additional facilities, or expansion of existing facilities, were required as a result of the growth associated with the proposed project, environmental impacts would be evaluated at a project level as required by CEQA. Those impacts would be considered at the time that adequate project information was available and the project was being considered for approval by WCCUSD.

Proposed General Plan Policies and Action Items that Address Cumulative Public School Impacts

The proposed General Plan Update contains several policies and actions that would assist in reducing this cumulative public schools impact. The following list contains those policies and actions that include specific, enforceable requirements and/or restrictions and corresponding performance standards that assist in reducing this impact. Since these policies and actions have been described in detail in prior impact discussions for this section, the following is limited to only listing the policy and action item numbers.

Community Services and Facilities Element

Policy CS.4.1, Policy CS.4.2

The proposed General Plan policies listed above would ensure that proposed land uses associated with the proposed project do not adversely affect school facilities. Implementation of the above General Plan policies and associated action items, along with payment of state and district fees, would ensure that the proposed project's impacts to public schools would be less than cumulatively considerable.

Mitigation Measures

None required.

4.12.4 PARKS AND RECREATION

4.12.4.1 EXISTING SETTING

The City of Pinole Recreation Department (PRD) and East Bay Regional Park District (EBRPD) oversee the park and recreational facilities within the GPU Planning Area. The PRD service area boundaries are coterminous with the Pinole city limits. The EBRPD service area boundaries encompass approximately 95,000 acres of open space land and preserves within Contra Costa and Alameda counties.

City of Pinole Recreation Department

Facilities and Staffing

The operations facility of the PRD is located at 635 Tennent Avenue. According to the 2007 City of Pinole Recreation Park and Facility 5-Year Master Plan, the PRD operates and maintains a total of 14 parks, totaling approximately 329 acres. In addition, the PRD is in charge of maintaining six recreational facilities including the Swim Center, Pinole Community Playhouse, Pinole Valley Tennis Courts, Senior Center, Tiny Tots Center, and Youth Center.

Generally, park sites are improved with turf, irrigation, trees, walkways, and tot lot equipment. Other amenities located in parks may include youth sports fields, picnic tables, barbecues, gazebos, basketball facilities, and restrooms.

The PRD operates the Swim Center, which contains the Tiny Tots Center, swimming pool, wading pool, snack bar, and restrooms. The Pinole Youth Center offers programs for youth in grade levels 6 through 12 including after-school programs for grade levels 6 through 8. The center includes a 40-person meeting room, a main recreation room, a study room, nine computer labs, a snack bar, and a back patio. Additionally, PRD oversees the Pinole Community Playhouse, which is a community theater utilized by the City of Pinole School of Performing Arts, the Pinole Community Players, and East Bay Improv. The playhouse facility includes a 100-person theater, a green room, storage, and a snack bar, lobby, and back patio. The Pinole Senior Center is a 15,000 square foot facility that includes a 250-person hall, a lounge, pool room, arts room, computer lab, personal services salon, and meeting room. The center provides social, educational, recreational, health, nutritional, and consumer services and activities.

Service Standards

California Government Code Section 66477, often referred to as the Quimby Act, permits local jurisdictions to require the dedication of land and/or the payment of in-lieu fees for park and recreation purposes. The required dedication and/or fees are based upon the residential density, parkland cost and other factors. Land dedicated and fees collected pursuant to the Quimby Act may only be used for the purpose of developing new or rehabilitating existing park or recreational facilities. The maximum dedication and/or fee allowed under state law are equivalent to providing 5 acres of parkland per 1,000 persons. The PRD adopted the Quimby Act standard for park acreage standards of 3 to 5 acres per 1,000 persons. Currently the City of Pinole has a total of 329 acres of community and neighborhood parks, and a population of approximately 20,100. This equates to a parks ratio of approximately 16.3 acres per 1,000 city residents. Therefore, the City of Pinole park acreage standards are consistent with the Quimby Act or the National Recreation Association standard of 3 to 5 acres per 1,000 residents.

Funding Mechanisms

Along with the need for more parks, there is a need to fund improvements and maintenance of existing facilities. The PRD has identified several mechanisms to provide funding for park improvement projects. Additionally, some projects would be funded by several different funds. The funds for parks and recreation improvements include:

- Redevelopment Agency Recreation/Open Space Fund
- Redevelopment Agency Fernandez Park Fund
- Park Dedication Fund
- Public Facilities Renovation Fund
- Public Works Maintenance Fund
- Senior Center Club Board Fund

East Bay Regional Parks District

Facilities and Staffing

Currently, the EBRPD manages 65 regional parks, 95,000 acres of open space, and 1,100 miles of trails throughout Contra Costa and Alameda counties, including the 212-acre San Pablo Bay Regional Shoreline, portions of which are located within the GPU Planning Area. Additionally, EBRPD manages two golf courses and multiple campsites, fishing docks, interpretive centers, and wedding, banquet, and meeting facilities. The portions of the San Pablo Bay Regional Shoreline within the GPU Planning Area comprise approximately 30 acres and are primarily in a land bank status (Holt, 2009).

Service Standards

The EBRPD is a regional jurisdiction and is therefore not subject to the Quimby Act provisions. As such, the EBRPD has not established any regional parkland acreage standards (Holt, 2009).

Funding Mechanism

The EBRPD receives its funding primarily through an ongoing property tax and assessment the district levies in Alameda and Contra Costa counties. These two funding sources account for approximately 87 percent of the district's total budget. Charges for district services such as park fees, leases, services, and concessions account for 10 percent of the district's total budget. The other 3 percent of the budget includes 1 percent from rents and leases, 1 percent from interest, and 1 percent from miscellaneous sources.

Measure WW, approved by Alameda County and Contra Costa County voters in November of 2008, includes an allocation of $855,000 to acquire and restore the scenic San Pablo Bay shoreline to provide access and wildlife viewing to bayside natural resources and to provide Bay Trail amenities to enhance public use of the bay shoreline (Holt, 2009).

Existing Parks and Recreation Facilities within Planning Area

Parks and recreation facilities serving the Planning Area, along with the location, size, and providing agency for each, are shown in **Table 4.12.4-1** below.

TABLE 4.12.4-1
PARKS AND RECREATIONAL FACILITIES WITHIN PLANNING AREA

Park or Facility	Location within Planning Area	Size (acres)	Amenities
City of Pinole Recreation Department			
Amber Swartz Park	Southeast	5	undeveloped
Bayfront Park	Northwest	2	open field area, tables, BBQ, Restroom, hiking trails, scenic views
Canyon Drive Park	Central	0.5	tables, play area
Dog Park	Southeast	-	two play areas for dogs
Fernandez Park	Northwest	6	tables, BBQ, play area, restroom, drinking fountain, baseball, basketball, gazebo
Louis Francis Park	Northwest	2	tables, BBQ, play area
Hugh Young Park	Southeast	10	undeveloped
Meadow Park	Northwest	1.5	tables, play area, drinking fountain, basketball
Pinole Valley Park	Southeast	231	tables, play area, restroom, drinking fountain, baseball, basketball, soccer
Pinole Valley Picnic Grove	Southeast	-	tables, BBQ, restroom, drinking fountain, hiking trail
Pinon Park	Northwest	0.5	tables, BBQ, benches, play area
Sarah Drive Park	Central	4	undeveloped, natural habitat
View Park	Central	2	benches, hiking trail, drinking fountain, scenic views
Wilson Point Park	Northwest	10	hiking trails
Pinole Valley Tennis Courts	Central	-	lighted tennis courts
Community Playhouse (Memorial Hall)	Central	-	theatre
Swim Center	Southeast	-	pool, wading pool, snack bar
Pinole Sports and Fitness Center	Northwest	-	multi-sport complex
Tiny Tots	Southeast	-	preschool programs
East Bay Regional Parks District			
Point Pinole Regional Shoreline	West of Pinole on San Pablo shoreline	2,315 acres	trails, wildlife, beaches, fishing
Sobrante Ridge Regional Preserve	Southeast of Pinole adjacent to	277 acres	wildlife, trails, picnic facilities

Park or Facility	Location within Planning Area	Size (acres)	Amenities
	city limits		
San Francisco Bay Trail	Northwest	-	400-mile regional trail system

Sources: City of Pinole Recreation Department, 2009; Holt, 2009

4.12.4.2 REGULATORY FRAMEWORK

State

The California Parklands Act of 1980

Although a recreation element is not mandated by law to be included in a general plan, recreation resources are to be considered in the open space element of a general plan (Government Code Section 65560). The California Parklands Act of 1980 (Public Resources Code Section 5096.141–5096.143) identifies "the public interest for the state to acquire, develop, and restore areas for recreation . . . and to aid local governments of the state in acquiring, developing and restoring such areas . . . " The California Parklands Act also identifies the necessity of local agencies to exercise vigilance to see that the parks, recreation areas, and recreational facilities they now have are not lost to other uses.

Quimby Act

The goal of the 1975 Quimby Act (California Government Code Section 66477) was to require developers to help mitigate the impacts of property improvements by requiring them to set aside land, donate conservation easements, or pay fees for park improvements. The Quimby Act gave authority for passage of land dedication ordinances only to cities and counties, thus requiring special districts to work with cities and/or counties to receive parkland dedication and/or in-lieu fees. The fees must be paid and land conveyed directly to the local public agencies that provide park and recreation services community-wide. Revenues generated through the Quimby Act cannot be used for the operation and maintenance of park facilities (Westrup, 2002).

Originally, the Quimby Act was designed to ensure "adequate" open space acreage in jurisdictions adopting Quimby Act standards (e.g., 3 to 5 acres per 1,000 residents). In some California communities the acreage fee was very high where property values were high, and many local governments did not differentiate on their Quimby fees between infill projects and greenbelt developments. In 1982, the Quimby Act was substantially amended via AB 1600. The amendments further defined acceptable uses of or restrictions on Quimby funds, provided acreage/population standards and formulas for determining the exaction, and indicated that the exactions must be closely tied (nexus) to a project's impacts as identified through traffic studies required by CEQA. In other words, AB 1600 requires agencies to clearly show a reasonable relationship between the public need for the recreation facility or park land and the type of development project upon which the fee is imposed (Westrup, 2002). Cities or counties with a high ratio of parkland to inhabitants can set a standard of 5 acres per 1,000 residents for new development. Cities or counties with a lower ratio can only require the provision of up to 3 acres of parkland per 1,000 residents. The calculation of a city's or county's parkland-to-population ratio is based on a comparison of the population count of the last federal census to the amount of city- or county-owned parkland.

Local

Contra Costa County General Plan

The Contra Costa County General Plan is used as the "blueprint" to guide future development in unincorporated portions of the county, including sections of the GPU Planning Area that are outside the Pinole city limits. The Contra Costa County open space policies that are applicable to the Planning Area outside the existing city limits are Policies 9-40 through 9-98. These policies address performance standards for parks and recreation in the Growth Management Elements; the distribution of parks based on the intensity of residential development; access for all capabilities of residents; the protection of water-related recreation; the utilization of funds from agencies to purchase levees and acquire easements; the integration of public trail facilities into flood control facilities; the development of recreational facilities that complement natural topography, waterways, vegetation, and soil characteristics; and controlling adverse environmental impacts between uses and trespassing.

East Bay Regional Park District Master Plan

The purpose of the master plan is to define the vision and the mission of the East Bay Regional Park District and sets the priorities until the year 2007. The plan explains the district's responsibilities and provides a framework for the board of directors and the staff. Additionally, the plan provides policies and guidelines for achieving the standards of service in the areas of resource conservation, management, public access, and recreation.

City of Pinole Recreation Park and Facility 5-Year Master Plan

The City of Pinole Recreation Department has prepared a master plan for fiscal years 2006/2007 through 2010/2011. The plan includes an inventory of the City's existing recreational facilities and amenities and identified safety and liability issues. Based on this inventory, the plan outlines needed improvements throughout the park system and identifies funding sources for each improvement (City of Pinole Recreation Department, 2007).

4.12.4.3 IMPACTS AND MITIGATION MEASURES

Standards of Significance

An impact on public services or utilities is considered significant if implementation of the project would result in any of the following:

1) Increased demand for additional personnel, equipment, or facilities, and/or results in a negative effect that impairs the ability of the service provider to maintain an acceptable level of service for maintenance of public facilities that results in a physical impact on the environment.

Methodology

This section was prepared and evaluated based on consultation with City of Pinole Recreation Department and East Bay Regional Parks District staff and review of the City's Recreation Park and Facility 5-Year Master Plan.

Impacts and Mitigation Measures

Increased Demand for Park and Recreational Facilities (Standard of Significance 1)

Impact 4.12.4.1 Implementation of the proposed project (General Plan Update, Three Corridor Specific Plan, and Zoning Code Update) would increase the demand for existing facilities and require additional parks and recreational facilities to accommodate the anticipated growth associated with the proposed project. This would be a **less than significant** impact.

General Plan Update

Implementation of the proposed General Plan Update is projected to result in population growth within the GPU Planning Area, resulting in increased visitation to and use of Pinole parks. The city's population is projected to increase by an additional 3,775 persons by the year 2030, or a total population of 23,875 persons by the year 2030 versus the current (2010) population of 20,100 persons. A population of 23,875 with current parks facilities (329 acres) would equate to a parks ratio of approximately 13.7 acres per 1,000 city residents. The City of Pinole has over 329 acres of existing lands designated for park uses, and the proposed GPU is increasing this acreage to 331 acres of parkland. This increase would result in a ratio of 27.6 acres per 1,000 city residents. Therefore, the City of Pinole park acreage standards are in compliance with the Quimby Act and the National Recreation Association standard of 3 to 5 acres per 1,000 residents and would be adequate to meet the GPU Planning Area's current and projected population through 2030. This impact would be **less than significant**.

Three Corridors Specific Plan

The Three Corridors Specific Plan is intended to establish more housing choices and job opportunities within the city's commercial corridors.

If all of the residential properties within the Specific Plan area were to develop according to the proposed provisions of the land use and development standards contained in the Specific Plan, the city would be expected to experience increased residential development of up to 1,076 residential units by 2030. Based on ABAG's 2007 estimate of 2.89 persons per household, the Specific Plan could result in an additional 3,110 persons by 2030 (1,076 housing units x 2.89 persons per household), resulting in the need for 3 additional acres of park land. The proposed GPU is increasing the total number of acres of land designated for park use from 329 acres to 331 acres, which would be adequate to meet the Three Corridors Specific Plan area's projected population as well as the projected population under the proposed GPU. Therefore, no significant increase in demand for parks and recreation would result. This impact is considered to be **less than significant**.

Zoning Code Update

Updates to the Zoning Code are intended to further clarify the types and forms of uses permitted under particular land use designations, but would not result in any development activities beyond that analyzed for the proposed General Plan Update. Therefore, the Zoning Code Update would have an impact similar to that for the General Plan Update as discussed above.

Proposed General Plan Policies and Action Items that Address Increased Demand for Park and Recreational Facilities

The following General Plan policies and action items address impacts related to parks and recreational facilities:

Action CS.1.3.4 The City shall periodically prepare and update the Recreation Park and Facility Master Plan to monitor the condition of recreation facilities and to ensure community needs are adequately addressed.

Action CS.3.1.1 The City will utilize the Recreation Park and Facility Master Plan to identify areas that are underserved by recreation facilities and identify opportunity sites that may satisfy existing and projected park and recreation needs.

Action CS.3.1.2 The City will work with community organizations, nonprofit and civic groups, and local schools to provide high-quality recreation programs that address the recreation needs of all ages and cultural interests of the community.

Action CS.3.1.3 The City will seek available funding opportunities to support recreation in Pinole and to leverage available City and Redevelopment Agency financial resources.

Action CS.3.3.4 Implement the trail improvements identified in the Pinole Creek Greenway Master Plan.

Action CS.3.3.6 Explore alternative funding options to acquire land to expand Pinole's trail system.

Action CS.3.3.7 Where possible, secure rights to public access and incorporate trail improvements in development proposals.

Action CS.3.4.1 Prepare and implement a Recreation Facility Master Plan to ensure that the amount of available recreation space is adequate to meet ongoing recreation service needs over time.

Action CS.3.4.2 Future park sites should be planned for neighborhoods that do not currently have a park within walking or bicycling distance.

Action CS.3.4.3 Review of development proposals shall be organized in conjunction with the Recreation Department in order to designate sites for new parks and recreation facilities.

Action CS.3.4.4 Consider allowing incentives such as density bonuses for development projects that provide parks and/or recreational open space.

Action CS.3.4.5 Implement a program to acquire recreational open space areas and permanently protect the land from other future development.

Action CS.3.4.6 Utilize community facilities districts, Mello-Roos and/or lighting districts to provide funding for ongoing maintenance and operation of parks and recreation facilities.

Action CS.3.4.7 The City shall seek out opportunities to work with other government agencies, local land trusts, and other stakeholder groups and organizations to expand park and recreation opportunities within or in close proximity to Pinole.

Policy OS.3.3 Cluster Development. Encourage cluster development and other creative site planning techniques to preserve open space, trails and visual, habitat, recreation and archaeological resources.

Policy OS.3.12 Balance Recreation and Habitat Needs in Open Space. Provide for a variety of recreational activities in open space areas within the City of Pinole while ensuring the protection of important habitat through environmental education and development of Open Space Management Plan.

Policy OS.4.1 Coordinate with other City-wide and regional trail planning efforts to establish a comprehensive network of trails through and Open Space Plan in Pinole.

Policy OS 7.1 Funding for Maintenance. Pursue efforts and partnerships that help provide for a sustainable open space system through adequate funding for maintenance and management of open space.

In addition, Chapter 9.0, *Infrastructure and Public Facilities*, of the Three Corridors Specific Plan provides further discussion of parks and recreation including service standards and planned capitol improvement projects that may further reduce this impact.

Implementation of the above General Plan policies and actions and payment of necessary fees would ensure that impacts under the proposed project related to parks services would be **less than significant.**

Mitigation Measures

None required.

4.12.4.4 CUMULATIVE IMPACT ANALYSIS

Cumulative Setting

The cumulative setting associated with adoption of the proposed project includes proposed, planned, reasonably foreseeable, and approved projects in the region (see Section 4.0), as well as full development of the GPU Planning Area as proposed in the proposed project, expected to occur in the year 2030 and beyond. Under the proposed project, the City would operate and maintain the City's parks and recreation facilities.

Cumulative Impacts and Mitigation Measures

Cumulative Park and Recreation Impacts

Impact 4.12.4.2 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update), in combination with other reasonably foreseeable development, would require additional park and recreation facilities within the GPU Planning Area. This would be a **less than cumulatively considerable** impact.

Implementation of proposed and approved projects associated with the proposed project and other reasonably foreseeable development would contribute to the cumulative demand for regional and local recreational facilities. Cumulative parks and recreational facility impacts are anticipated to be less than cumulatively considerable.

Proposed General Plan Policies and Action Items that Address Cumulative Park and Recreation Impacts

The proposed General Plan Update contains several goals, policies, and actions that would assist in reducing this cumulative parks impact. The following list contains those policies and actions that include specific, enforceable requirements and/or restrictions and corresponding performance standards that assist in reducing this impact. Since these policies and actions have been described in detail in prior impact discussions for this section, the following is limited to only listing the policies and action numbers.

Community Services and Facilities Element

Action CS.1.3.4, Action CS.3.1.1, Action CS.3.1.2, Action CS.3.1.3, Action CS.3.3.4, Action CS.3.3.6, Action CS.3.3.7, Action CS.3.4.1, Action CS.3.4.2, Action CS.3.4.3, Action CS.3.4.4, Action CS.3.4.5, Action CS.3.4.6, Action CS.3.4.7

Natural Resources and Open Space Element

Policy OS.3.3, Policy OS.3.12, Policy OS.4.1, Policy OS.7.1

In addition, Chapter 9.0, *Infrastructure and Public Facilities*, of the Three Corridors Specific Plan provides further discussion of parks and recreation including service standards and planned capitol improvement projects that may further reduce this impact.

Mitigation Measures

None required.

4.12.5 WATER SERVICE

4.12.5.1 EXISTING SETTING

East Bay Municipal Utility District

The East Bay Municipal Utility District (EBMUD) is a public agency that provides drinking water to approximately 1.3 million people and wastewater systems for 640,000 people within its 331

square mile service area in portions of Contra Costa and Alameda counties. The service boundaries for the EBMUD drinking water system extends from Crockett on the north to San Lorenzo on the south (including the cities of Oakland and Berkeley) and encompasses approximately 325 square miles. The EBMUD water system provides service to the entire City of Pinole General Plan Update Planning Area. EBMUD's wastewater system boundaries extend from Richmond on the north to San Leandro on the south and encompass approximately 83 square miles. The EBMUD wastewater system does not extend to the Planning Area (Dudek, 2008). The Wastewater Service subsection contains a discussion of wastewater service in the Planning Area.

Water Supply

EBMUD provides both wholesale and retail water to its customers. Historically, 90 percent of the water used by EBMUD comes from the 577 square mile protected Mokelumne River watershed located on the western slope of the Sierra Nevada range and the remaining 10 percent originates as runoff from protected watershed lands in the East Bay area (EBMUD, 2005). EBMUD has water rights for up to 325 million gallons per day (mgd) or a total of 364,000 acre-feet per year (af/yr) from the Mokelumne River. However, this supply is subject to the availability of Mokelumne River runoff and senior rights of other water users. EBMUD's position in the hierarchy of Mokelumne water users is determined by a variety of agreements between Mokelumne water rights holders, the appropriative water rights permits and licenses which have been issued by the state, pre-1914 rights, and riparian rights. Conditions which restrict EBMUD's ability to use its full entitlements include (EBMUD, 2005):

- Upstream water use by prior right holders;
- Downstream water use by riparian and senior appropriators and other downstream obligations, including protection of public trust resources; and
- Variability in rainfall and runoff.

The availability of water from local runoff is dependent on two factors: hydrologic conditions and storage availability. In dry years, evaporation can exceed runoff, resulting in no net supply. In addition, storage for capturing local runoff is limited. On average, local runoff supply put to beneficial use is 15 to 25 mgd during normal years and close to zero during dry/drought years (EBMUD, 2005).

Due to the above conditions, EBMUD relies on the storage capacity of the Pardee and Comanche reservoirs to make the Mokelumne River's yield more dependable. These reservoirs are discussed in more detail below.

Water Supply Facilities and Infrastructure

The EBMUD water supply system consists of a network of raw water reservoirs, aqueducts, water treatment plants, pumping plants, and distribution pipelines. Major EBMUD water storage and conveyance facilities are discussed in more detail below.

Pardee Dam and Reservoir

The Pardee Dam and Reservoir is located 38 miles northeast of Stockton near the city of Jackson. Pardee Reservoir is used primarily for municipal water supply, for power generation, and also as a source of water for the Jackson Valley Irrigation District. Other uses include non-contact recreational facilities and maintenance of Lower Mokelumne River and fish hatchery

water quality and quantity objectives. The Pardee Reservoir has a licensed capacity of 209,950 acre-feet (AF); however the maximum capacity is 197,950 AF at the spillway crest elevation of 567.7 feet (EBMUD, 2005, 2009a).

Comanche Dam and Reservoir

The Camanche Dam and Reservoir is located 10 miles downstream from the Pardee Dam on the Mokelumne River. The Comanche Dam is operated jointly with the Pardee Dam and functions to store water for irrigation and stream flow regulations, to provide flood protection, to provide water for water rights holders of the Mokelumne River, and to provide water for fisheries and riparian habitat. Comanche Reservoir has a surface area of 7,470 acres. The capacity of the Comanche Reservoir is 417,120 AF at the spillway crest elevation (EBMUD, 2005). The total capacity is not available for water supply storage, however, because as a condition of its water rights, EBMUD manages Comanche and Pardee reservoirs to provide up to 200,000 AF of flood control space each year under an agreement with the U.S. Army Corps of Engineers (USACE). Flood control requirements are based on available storage space and expected runoff during the winter and spring months (EBMUD, 2009a).

Conveyance/Mokelumne Aqueduct System

Water from the Pardee Reservoir travels approximately 91 miles to East Bay water treatment plants and terminal reservoirs through the Pardee Tunnel, the Mokelumne Aqueducts, and the Lafayette Aqueducts. Raw water from the Pardee Reservoir travels first through the Pardee Tunnel, a 2.2-mile, 8-foot-high horseshoe structure completed in 1929, to the Mokelumne Aqueduct System near Valley Springs in Calaveras County. There the raw enters the three 82-mile steel pipelines known as the Mokelumne Aqueducts. The Mokelumne Aqueduct system pipelines have a capacity to carry a total of 200 mgd by gravity flow and up to 325 mgd with pumping at the Walnut Creek pumping plants. These pipelines transport water from the Pardee Tunnel at Camp Seco to Walnut Creek at the east end of two Lafayette Aqueducts. Water flowing by gravity from the Pardee Reservoir takes approximately 30 to 45 hours to reach the Bay Area (EBMUD, 2009a).

Once the raw water enters the EBMUD service area, it is distributed by the Lafayette Aqueducts to filter plants in Walnut Creek, Lafayette, or Orinda for treatment and distribution or stored in one of the terminal reservoirs discussed above for later use. Water is distributed throughout EBMUD's service area (includes both counties) via 4,100 miles of pipelines, 140 pumping plants, and 170 local neighborhood reservoirs having a total capacity of 830 mgd. Average daily system-wide demand in 2008 was approximately 220 mgd (Dudek, 2008).

Pressure Zones

EBMUD's service area is divided into 122 pressure zones ranging in elevation from sea level to 1,450 feet. A pressure zone is an area within a specified elevation range (e.g., 250 to 450 feet) where storage and distribution facilities are designed to deliver water at a pressure range suitable for customer use. Coordination among facilities in different pressure zones is important for maintaining system operations. Generally, the pumping plant(s) in one pressure zone will pump water up to reservoirs in the next higher zone. Pumping plants in that higher pressure zone will in turn pump water up to higher zones. Reservoirs in higher zones provide water by gravity flow to lower-elevation pressure zones (ESA, 2006).

East Bay Terminal Reservoirs

EBMUD operates five terminal reservoirs within the East Bay service area, including the Briones, San Pablo, Upper San Leandro, Chabot, and Lafayette reservoirs. The Briones, San Pablo, and Upper San Leandro reservoirs serve EBMUD throughout the year, and the Chabot and Lafayette reservoirs serve as emergency sources of supply. These five reservoirs have a total storage capacity of 155,550 AF and serve multiple functions, including regulating Mokelumne River supplies in winter and spring, augmenting supplies in with local runoff, providing emergency sources of supply, providing environmental and recreational benefits to East Bay communities, and flood protection (EBMUD, 2009a).

Water Treatment Facilities

EBMUD operates six water treatment plants (WTPs): Walnut Creek, Lafayette, Orinda, Sobrante, Upper San Leandro, and San Pablo. Together the WTPs treat an average-annual demand of 222 mgd. There is substantial overlap in the service areas of the Sobrante, Orinda, and Upper San Leandro WTPs as well as between the service areas of the Lafayette and Orinda WTPs. This overlap notwithstanding, on any given day, production from one WTP could offset some or all of the production from another. In the spring, summer, and fall all but the San Pablo WTP must be operated to meet demands. No service area is shown for the San Pablo WTP because it is a standby facility used only during planned outages of key facilities (ESA, 2006).

Full conventional treatment (treatment process train) consisting of five basic steps — coagulation, flocculation, sedimentation, filtration, and disinfection — is used at the Upper San Leandro, San Pablo, and Sobrante WTPs. The Upper San Leandro and Sobrante WTPs conduct an additional step (ozonation) for taste and odor control. The water sources for these WTPs are East Bay reservoirs that have higher levels of sediment and algae than the Pardee Reservoir and high algae levels can create a grassy taste or smell in treated water. The Upper San Leandro, San Pablo, and Sobrante WTPs are referred to as "conventional" WTPs while the Orinda, Lafayette, and Walnut Creek WTPs use only coagulation, filtration, and disinfection processes for raw water because their source water comes directly from Pardee Reservoir via the Mokelumne Aqueducts and needs less treatment. The treatment process at these WTPs is referred to as "in-line filtration" (ESA, 2006).

The City of Pinole General Plan Update Planning Area is served by the Sobrante Water Treatment Plant. The Lafayette Aqueducts and local creeks supply water to the San Pablo Reservoir, which supplies the Sobrante WTP. Water treated at the Sobrante WTP is distributed to the northern part of the service area (Pinole, Hercules, Richmond, El Sobrante, Rodeo, and Crockett) (ESA, 2006). The sustainable treatment capacity of the Sobrante WTP is 45 mgd to support Claremont Tunnel outages and other emergency operations. However, normal operations include the ozonation processes for taste and odor issues (as discussed above), which limit the WTP's production to approximately 30 mgd during summer operations (ESA, 2006).

Water Treatment and Transmission Improvements Program

EBMUD's Water Treatment and Transmission Improvements Program (WTTIP) is a comprehensive program to improve EBMUD water service by enhancing and modernizing water treatment and moving water quickly and efficiently to where it is needed. The WTTIP includes projects to address a variety of overlapping needs, including meeting existing and future water demands (2030 capacity), meeting future regulatory standards related to water quality, complying with environmental permit conditions, and replacing and upgrading aging infrastructure (ESA, 2006).

Improvements identified in the WTTIP include more than 20 projects that will be staggered over more than ten years. These improvements include both construction of new facilities and updating or refurbishing existing facilities. Changes are planned for EBMUD's Lafayette, Orinda, Walnut Creek, Upper San Leandro, and Sobrante WTPs. Many improvements to the water distribution system are also planned, including neighborhood pipelines, pumping plants, and water storage tanks.

Regional projects identified in the WTTIP include the Bayside Groundwater Project, the Freeport Regional Water Project, and regional desalination projects. These projects are described in more detail below. Projected future water supply quantities from these projects are shown in **Table 4.12.5-1**.

Bayside Groundwater Project – The Bayside Groundwater Project provides a modest, locally available supplemental water supply to help reduce the need for rationing in a prolonged drought by storing treated drinking water in a deep underground aquifer during wet years for future recovery, re-treatment, and distribution to customers during drought. Phase 1, which will be ready for service in 2010, will store an annual average of 1 mgd of water in a deep aquifer beneath San Lorenzo. Water stored in wet years would supply customers in dry years at a delivery rate that does not exceed 1 mgd on a yearly average. After successfully operating Phase 1, EBMUD will consider a larger Phase 2 Bayside Project that would store 2 to 10 mgd. Before moving forward, EBMUD will review results from the groundwater monitoring system and "Extensometer," which measures minute changes (if any) in ground surface elevation during Phase 1 operation (EBMUD, 2010).

Freeport Regional Water Project – EBMUD and the Sacramento County Water Agency (SCWA), in association with the City of Sacramento and the U.S. Bureau of Reclamation, partnered to build a regional water supply project to provide water for East Bay customers in dry years and needed water for the Sacramento region by drawing water from the Sacramento River near the town of Freeport. The Freeport Regional Water Project consists of a new 185-mgd water intake structure and pumping plant on the Sacramento River north of Freeport, a new large-diameter pipeline to transport water eastward from the intake to a new SCWA water treatment plant and to the existing Folsom South Canal, a new water treatment plant in central Sacramento County to treat the water for municipal use by SCWA customers, and two new pumping plants and a large-diameter pipeline to transport water from the southern end of the Folsom South Canal to EBMUD's Mokelumne Aqueducts for use by EBMUD customers. Construction on the Freeport Regional Water Project began in January 2007 and is 95 percent complete. All pipelines have been installed and crews are finishing construction of the intake and pump stations and are testing facilities to prepare for operations. The work is expected to be completed in 2010 (EBMUD, 2010).

Regional Desalination Projects – Four Bay Area water agencies (EBMUD, the Contra Costa Water District, the San Francisco Public Utilities Commission, and the Santa Clara Valley Water District) are jointly exploring a regional desalination project that could improve overall local supply availability in the Bay Area, including emergency water supplies, supplemental supplies during droughts, and alternate supplies during maintenance of water supply facilities. A pilot test in 2009 in eastern Contra Costa County collected data on technical feasibility and environmental impacts. A final report will be completed by the end of 2010 and next steps will be determined once the final report is completed (EBMUD, 2010). It is anticipated that desalinated water could yield as much as 24,080 acre-feet per year for municipal and industrial uses (EBMUD, 2005).

TABLE 4.12.5-1
PROJECTED FUTURE WATER SUPPLY QUANTITIES

Project Name	Normal Year AF to EBMUD	Single Dry Year AF to EBMUD	Multiple Dry Years (AF to EBMUD)		
			Year 1	Year 2	Year 3
Freeport Regional Water Project	0	Up to 112,000[1]	165,000 over three years		
Bayside Groundwater Project (Phase 1)	0	1,120	1,120	1,120	1,120

Note: [1] Contractual single year limit of supply from the U.S. Bureau of Reclamation is 133,000 AF. For continuous operation at 100 MGD, EBMUD's allocation capacity in the Freeport Regional Water Project yields an annual delivery 112,000 AF.
Source: EBMUD, 2005

Projected Supply and Demand

A summary of EBMUD's demand and supply projections through 2030, as identified in the EBMUD *Urban Water Management Plan 2005* (UWMP), is shown in **Table 4.12.5-2** below.

TABLE 4.12.5-2
EBMUD SUPPLY AND DEMAND PROJECTIONS

	2005	2010	2015	2020	2025	2030
Projected Demand (mgd)						
Customer Demand	241	258	267	277	279	281
Demand Adjusted for Conservation	(13)	(21)	(27)	(35)	(35)	(35)
Demand Adjusted for Recycled Water	(6)	(12)	(14)	(14)	(14)	(14)
Planning Level of Demand	**222**	**225**	**226**	**228**	**230**	**232**
Projected Available Supply and Need for Supplemental Supply (mgd)						
Normal Water Year						
Available Supply	222	225	226	228	230	232
Supplemental Supply Need[1]	0	0	0	0	0	0
Single Dry Water Year (Multiple Dry Years – Year 1)						
Available Supply	211	213	215	217	219	220
Deficiency [2]	5%	5%	5%	5%	5%	5%
Supplemental Supply Need	69	0	0	0	0	0
Multiple Dry Water Years – Year 2						
Available Supply	167	168	170	171	173	174
Deficiency [3]	25%	25%	25%	25%	25%	25%
Supplemental Supply Need	40	0	0	0	0	0
Multiple Dry Water Years – Year 3						
Available Supply	43	167	166	153	151	147

	2005	2010	2015	2020	2025	2030
Deficiency [4]	56%	26%	27%	33%	34%	37%
Supplemental Supply Need	15	1	4	18	22	27
Three-Year Drought						
Total Supplemental Supply Need (to limit deficiency to 25%)	124	1	4	18	22	27

Notes:
[1] Supplemental supply need represents the additional amount of water (in mgd) that is necessary to limit customer rationing to 25% in a multiple-year drought while continuing to meet the requirements of senior downstream water rights holders and the provisions of agreements.
[2] Through the Freeport Regional Water Project, the supplemental dry year supply of Central Valley Project water will be used to reduce the rationing goal to 5%of customer demand during the first year of a drought.
[3] Beginning in 2010, the Freeport Regional Water Project supply, along with aggressive EBMUD conservation and recycling programs, will be used to limit rationing to 25% of customer demand during the second year of a 3-year drought.
[4] After completion of the Freeport Regional Water Project in 2010, forecasted supply deficiencies range from 26% to 37% of customer demand during the last year of a 3-year drought.
Source: EBMUD, 2005

As shown, the available supply is greater than or equal to demand during normal year conditions; therefore EBMUD can adequately meet customer demands through the year 2030 during normal year conditions. However, as EBMUD's Mokelumne River supply continues to decrease commensurate with increases in diversions from senior water rights holders upstream, the frequency of normal year conditions will also decrease. Furthermore, EBMUD has been required to increase downstream releases for the protection of fish, wildlife, and riparian habitat as part of settlement agreements in regulatory proceedings. These two factors could reduce the flexibility in EBMUD's operation to manage carry-over storage for multiple dry years (EBMUD, 2005). Unless additional water supply improvements are developed, years where rationing is implemented may increase.

The EBMUD's UWMP identifies several supplemental water supply initiatives to meet projected shortfall, including the Freeport Regional Water Project, the Bayside Groundwater Project, and regional desalination projects. These are described in more detail under the Water Treatment and Transmission Improvements Program subsection above. In addition, recycled water projects and conservation efforts reduce demands on potable water supply, thus extending the existing water supply (EBMUD, 2005).

Water Supply Management Program 2040 Plan

In October of 2009, EBMUD adopted the *Water Supply Management Program 2040 Plan* (WSMP 2040). The WSMP 2040 estimates water supply needs in the EBMUD service area to the year 2040 and sets forth a program of policies and initiatives to meet those needs. The primary purpose of the WSMP 2040 is to identify and recommend solutions for needed supplemental water supplies during dry years. The WSMP presents a set of interrelated actions, or a water supply portfolio, that seeks to ensure reliability for uncertain future conditions and supplies. The WSMP 2040 consists of a rationing level of 10 percent, conservation totaling 39 mgd, recycling totaling 11 mgd, and several supplemental supply components. In addition to the Bayside Groundwater Project and regional desalination projects which are discussed above, supplemental water supply components identified in the WSMP 2040 are discussed below.

Northern California Water Transfers – This component consists involves EBMUD seeking water transfers to supplement dry year supplies. Specific partners, and thus sources, have not been

identified; however the Draft Program Environmental Impact Report (February 2009) for the WSMP assumes that the partners will be in the Sacramento Valley or will be partners with water sources originating north of the Delta. That EIR also assumes conveyance of transferred water would be accomplished via the Freeport Regional Water Project. Other transfer partners or conveyance facilities are not precluded (EBMUD, 2009b).

Sacramento Basin Groundwater Banking/Exchange – This component consists of the development of in-lieu or artificial groundwater recharge and recovery in cooperation/partnership with Sacramento area interests such as SCWA and/or the Sacramento County Groundwater Authority (SCGWA). As conceptualized, EBMUD would support development of facilities to recharge the Sacramento groundwater basin and would receive, as a dry year supply, either groundwater extracted from the basin or surface water in exchange for a portion of the water stored (EBMUD, 2009b).

Enlargement of Pardee Reservoir – Enlargement of the Pardee Reservoir would increase the existing maximum reservoir level by 33 feet and the maximum flood control elevation by 46 feet. This would increase the storage capacity from 209,950 acre-feet to 370,000 acre-feet and, during dry years, would create an additional 51 mgd of water supply in each year for up to three consecutive dry years (EBMUD, 2009b).

Enlargement of Lower Bear Reservoir – Enlargement of the Lower Bear Reservoir would raise the dam by 32 feet and increase the storage capacity within the upper Mokelumne watershed. The Draft Program Environmental Impact Report (February 2009) for the WSMP assumes that, as a partner agency in such a project, EBMUD would receive approximately 4,500 acre-feet during a wet or normal year and 2,500 acre-feet during a dry year (EBMUD, 2009b).

Mokelumne Inter-Regional Conjunctive Use Project (IRCUP)/San Joaquin Groundwater Banking/Exchange – Under this component, one or more IRCUP partners would either obtain a new water right or modify an existing water right to enable surface water to be diverted from the Mokelumne River and banked in the eastern San Joaquin groundwater basin for later use by one or more IRCUP partners (EBMUD, 2009b).

Drought Management Plan

EBMUD determines its water supply availability in April of each year (and as necessary during dry periods) and initiates water reduction programs if the projected supply is unable to fully meet customer needs. EBMUD's Drought Management Program (DMP) follows guidelines based on the projected storage criteria shown in **Table 4.12.5-3**.

TABLE 4.12.5-3
EBMUD DMP STORAGE CRITERIA

Stage	If the Projected Storage in Thousand Acre Feet (TAF) on September 30 Forecast in April is:	Percent of Maximum System Storage	Rationing Reduction Goal
	500 TAF or more	65 % and greater	None
Moderate	500 – 450 TAF	65 to 59%	0 to 15%
Severe	450 – 300 TAF	59 to 39%	15 to 25%
Critical	Less than 300 TAF	39% and below	25%

Source: EBMUD, 2005

In the Supply and Demand Projections table above (**Table 4.12.5-3**), the single dry water year is the year where EBMUD would implement DMP elements at the moderate stage with the goal of achieving up to 15 percent reduction in customer demand. Year 2 of multiple dry water years is the year where EBMUD would implement DMP elements at the severe stage with the goal of achieving between 15 and 25 percent reduction in customer demand. Year 3 of multiple dry water years is the year where EBMUD would implement DMP elements at the critical stage with the goal of achieving between 15 and 25 percent reduction in customer demand.

The DMP establishes both mandatory and voluntary water conservation goals for customers, with measures becoming mandatory when EBMUD declares a water shortage emergency. Section 28 (Water Use During Water Shortage Emergency Condition) of EBMUD's *Regulations Governing Water Service to Customers* defines the water use reduction goals based on customer account type, specifies the water uses that are prohibited during the drought, and provides guidelines on effective water use practices to help customers conserve. Prohibited water uses during drought include using water for decorative ponds, fountains, and other water features that do not recirculate water; washing cars, boats, trailers, aircraft, or other vehicles by hose without a shutoff nozzle; washing sidewalks, walkways, driveways, patios, parking lots, or other hard-surfaced areas with water; irrigating lawn or garden areas on consecutive days or more frequently than three days per week; flushing sewers, hydrants, or washing streets with potable EBMUD water supplies; and using EBMUD potable water for construction, soil compaction, or dust control if a feasible alternative source of water for exists.

4.12.5.2 REGULATORY FRAMEWORK

In addition to the various plans and regulations discussed under the Existing Setting subsection above, the following state and local plans/regulations pertain to the proposed project:

Federal

Safe Drinking Water Act

The Safe Drinking Water Act (SDWA) was originally passed by Congress in 1974 to protect public health by regulating the nation's public drinking water supply. The law was amended in 1986 and 1996 and requires many actions to protect drinking water and its sources — rivers, lakes, reservoirs, springs, and groundwater wells. The SDWA applies to every public water system in the United States but does not regulate private wells that serve fewer than 25 individuals.

The SDWA authorizes the United States Environmental Protection Agency (USEPA) to set national health-based standards for drinking water to protect against both naturally-occurring and man-made contaminants that may be found in drinking water. Originally, the SDWA focused primarily on treatment as the means of providing safe drinking water at the tap. The 1996 amendments changed the existing law by recognizing source water protection, operator training, funding for water system improvements, and public information as important components of safe drinking water. This approach is intended to ensure the quality of drinking water by protecting it from source to tap (USEPA, 2010).

State

Urban Water Management Planning Act

The California Department of Water Resources (DWR) provides urban water management planning services to local and regional urban water suppliers. In 1983, the California Legislature

enacted the Urban Water Management Planning Act (Water Code Sections 10610–10656). The act states that every urban water supplier that provides water to 3,000 or more customers, or that provides over 3,000 acre-feet of water annually, should make every effort to ensure the appropriate level of reliability in its water service sufficient to meet the needs of its various categories of customers during normal, dry, and multiple dry years. The act requires that urban water suppliers develop water management plans to actively pursue the efficient use of available supplies. The act describes the contents of the UWMPs as well as how urban water suppliers should adopt and implement the plans (DWR, 2010). The adopted plan must be updated at least once every five years on or before December 31 in years ending in five and zero. An urban water supplier that does not prepare, adopt, and submit its UWMP to the DWR is ineligible to receive drought assistance from the State of California. The East Bay Municipal Utility District completed its 2005 UWMP in November of 2005. The next cycle of UWMPs (2010) are due to the DWR on July 1, 2011 (DWR, 2010).

Senate Bill 610

Senate Bill (SB) 610 makes changes to the Urban Water Management Planning Act to require additional information in UWMPs if groundwater is identified as a source available to the supplier. Required information includes a copy of any groundwater management plan adopted by the supplier, a copy of the adjudication order or decree for adjudicated basins, and if non-adjudicated, whether the basin has been identified as being overdrafted or projected to be overdrafted in the most current DWR publication on that basin. If the basin is in overdraft, that plan must include current efforts to eliminate any long-term overdraft. A key provision in SB 610 requires that any project subject to the California Environmental Quality Act supplied with water from a public water system be provided a specified water supply assessment, except as specified in the law (DWR, 2010).

Assembly Bill 901

Assembly Bill (AB) 901 requires UWMPs to include information relating to the quality of existing sources of water available to an urban water supplier over given time periods and the manner in which water quality affects water management strategies and supply (DWR, 2010).

Senate Bill 221

SB 221 prohibits approval of subdivisions consisting of more than 500 dwelling units unless there is verification of sufficient water supplies for the project from the applicable water supplier(s). This requirement also applies to increases of 10 percent or more of service connections for public water systems with less than 500 service connections. The law defines criteria for determining "sufficient water supply" such as using normal, single-dry, and multiple-dry year hydrology and identifying the amount of water that the supplier can reasonably rely on to meet existing and future planned uses. Rights to extract additional groundwater, if groundwater is to be used for the project, must be substantiated (DWR, 2010).

California Urban Water Conservation Council

The California Urban Water Conservation Council (CUWCC) was created in 1991 by numerous urban water agencies, public interest organizations, and private entities throughout California to assist in increasing water conservation in the state. The goal of the CUWCC is to integrate best management practices (BMPs) into the planning and management of California's water resources. A Memorandum of Understanding (MOU) Regarding Urban Water Conservation in California (2007) was signed by these agencies and formalizes an agreement to implement the

BMPs and makes a cooperative effort to reduce the consumption of California's water resources (CUWCC, 2010). By signing the CUWCC's MOU, members agree to implement 14 BMPs to conserve water in urban areas. The CUWCC's BMPs were updated in 2008 to include current technology and to credit agencies for innovative water conservation programs. The 14 BMPs are now organized into five categories. Two categories, Utility Operations and Education, are Foundational BMPs, because they are considered to be essential water conservation activities by any utility and are adopted for implementation by all signatories to the MOU as ongoing practices with no time limits. The remaining BMPs are Programmatic BMPs and are organized into Residential, Commercial, Industrial, and Institutional (CII), and Landscape categories. The BMPs are shown in **Table 4.12.5-4** below. As a signatory to the CUWWC MOU, the East Bay Municipal 5Utility District is making a good faith effort to implement all of the BMPs (EBMUD, 2005).

TABLE 4.12.5-4
CUWCC REVISED BMPS

Old BMP Number & Name	New BMP category
1. Water Survey Programs for Single-Family Residential and Multi-Family Residential Customers	Programmatic: Residential
2. Residential Plumbing Retrofit	Programmatic: Residential
3. System Water Audits, Leak Detection and Repair	Foundational: Utility Operations – Water Loss Control
4. Metering with Commodity Rates for All New Connections and Retrofit of Existing Connections	Foundational: Utility Operations – Metering
5. Large Landscape Conservation Programs and Incentives	Programmatic: Landscape
6. High-Efficiency Clothes Washing Machine Financial Incentive Programs	Programmatic: Residential
7. Public Information Programs	Foundational: Education – Public Information Programs
8. School Education Programs	Foundational: Education – School Education Programs
9. Conservation Programs for Commercial, Industrial, and Institutional (CII) Accounts	Programmatic: Commercial, Industrial, and Institutional
10. Wholesale Agency Assistance Programs	Foundational: Utility Operations – Operations
11. Retail Conservation Pricing	Foundational: Utility Operations – Pricing
12. Conservation Coordinator	Foundational: Utility Operations – Operations
13. Water Waste Prohibition	Foundational: Utility Operations – Operations
14. Residential ULFT Replacement Programs	Programmatic: Residential

Source: CUWCC, 2010

Local

Regulations Governing Water Service to Customers of EBMUD

Section 29 (Prohibiting Wasteful Use of Water) of EBMUD's *Regulations Governing Water Service to Customers* sets forth regulations and restrictions on both residential and nonresidential water use in order to conserve EBMUD's water supply for the greatest public benefit and to reduce the quantity of water used by EBMUD's customers. If EBMUD observes from meter readings that apparently excessive water use is occurring at a customer's premises, it can authorize installation of a flow-restricting device on the service line after a written warning to the customer. The regulations also allow for discontinuation of service for continued violations.

4.12.5.3 IMPACTS AND MITIGATION MEASURES

Standards of Significance

The impact analysis provided below is based on the following State CEQA Guidelines Appendix G thresholds of significance. A water supply impact is considered significant if implementation of the project would:

1) Result in the need for new systems or a substantial expansion or alteration to the local or regional water treatment or distribution facilities that would result in a physical impact to the environment.

2) Not have sufficient water supplies available to serve the project from existing entitlements and resources, thus resulting in the need for new or expanded entitlements.

Methodology

The analysis of water supply and infrastructure impacts contained in this subsection is based primarily on review of EBMUD's *Urban Water Management Plan 2005*, *Water Supply Management Program 2040 Plan*, and the *Water Treatment and Transmission Improvements Program Draft Environmental Impact Report* (2006). Water supply and demand projections, as well as infrastructure conditions and needs, discussed in these documents were compared to potential impacts resulting from growth anticipated in association with the proposed project and whether those impacts would have a significant effect on the physical environment. Proposed General Plan policies that would reduce identified impacts are listed, as are mitigation measures that would further lessen impacts.

Impacts and Mitigation Measures

Increased Demand for Water Supplies and Water Supply Infrastructure (Standards of Significance 1 and 2)

Impact 4.12.5.1 Implementation of the General Plan Update, Three Corridor Specific Plan, and Zoning Code Update would require additional water supplies, as well as additional water supply infrastructure, to meet the projected water demands. This is considered a **less than significant** impact.

General Plan Update and Three Corridors Specific Plan

Water service would continue to be supplied to the GPU Planning Area by EBMUD after implementation of the General Plan Update. Future development within the Planning Area consistent with land uses identified in the General Plan Update would result in an increase in water demand over current conditions. However, EBMUD can adequately meet its projected customer demands through the year 2030 during normal year conditions. EBMUD's water demand projections are based on a study conducted in 2000, *Districtwide Update of Water Demand Projections* (2000 Demand Study). As discussed in the EBMUD 2005 UWMP, the 2000 Demand Study reflects future land uses based on adopted general and specific plans in 1998. As shown in **Table 4.12.5-2** above, the 2005 UWMP identifies the 2000 Demand Study forecasts of customer demand of 281 mgd in 2030, which is reduced to 232 mgd to take into account projected savings from EBMUD's conservation and recycled water programs. The 2000 Demand Study would have used population projections from the City of Pinole 1995 General Plan, which was the City's adopted General Plan in 1998. The 1995 General Plan projected that the Pinole Planning Area would grow by 3,231 people over its 20-year planning period, from 27,069 people in 1990 to 30,300 people in the year 2010. Currently, the City of Pinole is built out and most large land holdings in the city have been developed. As such, under the proposed update to its General Plan, it is anticipated that the City of Pinole will have minimal growth in the future. The City does not anticipate expanding its Sphere of Influence (SOI) or annexing any land into the city in the foreseeable future. Due to the city's small supply of developable land, the updated General Plan and the Three Corridors Specific Plan direct the majority of the city's future growth to sites designated for mixed and multiple-family use in the San Pablo Avenue, Pinole Valley Road, and Appian Way corridors. The Three Corridors Specific Plan also identifies opportunity sites for infill mixed-use development along the city's commercial corridors in close proximity to transit and other amenities. As such, implementation of the Specific Plan could result in an additional 1,076 housing units in the city by 2030. Therefore, the total population of the city could increase from the current (2010) population of 20,100 to 23,875 by the General Plan buildout year of 2030 (2.89 persons per household x 1,076 housing units + existing population of 20,100 = 23,875 persons). This growth and development projection is even lower than that identified in the City of Pinole 1995 General Plan for the year 2010. Therefore, growth projections associated with the proposed General Plan Update and Three Corridors Specific Plan would be consistent with those used in EBMUD's 2000 Demand Study and it is anticipated that EBMUD would have adequate supplies to meet increased demand in the City of Pinole in normal years. Furthermore, EBMUD has indicated that it would be able to serve project sites under the proposed General Plan Update in the City of Pinole from existing water supplies (Rehnstrom, 2009).

EBMUD also indicated, however, that customers should plan for shortages in times of drought. Due to the continued decrease of EBMUD's Mokelumne River commensurate with increases in diversions from senior water rights holders upstream and required increases in downstream releases for the protection of fish, wildlife, and riparian habitat as part of settlement agreements in regulatory proceedings, the flexibility in EBMUD's operation to manage carry-over storage for multiple dry years will be reduced in the future. Therefore, unless additional water supply improvements are developed, years where rationing is implemented may increase.

As described in more detail under the Existing Setting subsection, EBMUD has identified several supplemental water supply initiatives to meet projected shortfall. Supplemental water supply projects, along with projected supplies from each project, are shown in **Table 4.12.5-5** below.

TABLE 4.12.5-5
EBMUD SUPPLEMENTAL WATER SUPPLY PROJECTS

Supplemental Supply Project	Projected Water Supply
Freeport Regional Water Project	112,000 AF/YR in single dry year 165,000 AF over three years in multiple-year drought
Bayside Groundwater Project (Phase 1)	1,120 AF/YR in each year of a three-year drought
Regional Desalination Projects	24,080 AF/YR
Northern California Water Transfers	Unknown
Sacramento Basin Groundwater Banking/Exchange	Unknown
Enlargement of Pardee Reservoir	51 mgd in each year of a three-year drought
Enlargement of Lower Bear Reservoir	4,500 AF/YR in wet or normal years 2,500 AF/YR in dry years
Mokelumne Inter-Regional Conjunctive Use Project (IRCUP)/San Joaquin Groundwater Banking/Exchange	Unknown

Source: EBMUD, 2005; EBMUD, 2009b

In addition to infrastructure required for the supplemental supply projects listed above, the provision of expanded water service to the City under the proposed General Plan Update and Three Corridors Specific Plan could require the expansion and development of new water infrastructure facilities, including water supply conveyance pipelines and treatment facilities. EBMUD has indicated that projects developed under the General Plan Update would more than likely be served from existing water treatment plant capacity (Rehnstrom, 2009). However, future development could require water main extensions in order to ensure adequate water supplies, fire flows, and system redundancy. Future development could also result in the need for pipeline or fire hydrant relocation, as well as off-site pipeline improvements (Kirkpatrick, 2007). Future development projects would be required to consult with the EBMUD New Business Office to determine cost and infrastructure needs for providing water service, including additional water treatment capacity or water conveyance pipelines. Therefore impacts to water supply and infrastructure are considered **less than significant**.

Zoning Code Update

Updates to the Zoning Code are intended to further clarify the types and forms of uses permitted under particular land use designations, but would not result in any development activities beyond that analyzed for the proposed General Plan Update. Therefore, the Zoning Code Update would have an impact similar to that for the General Plan Update as discussed above.

Proposed General Plan Policies and Action Items that Address Increased Demand for Water Supply and Water Supply Infrastructure

The proposed General Plan incorporates the following policies and actions that provide mitigation to minimize impacts associated with increased demand for water supplies and water supply infrastructure:

Policy GM.2.1 Plan for Public Facility and Service Needs. Future development shall be planned based on public facility and service capacity, community-wide needs, sound citywide and neighborhood planning, and public improvement programming.

Action GM.2.2.1 Service Standards. Periodically monitor, review and update Pinole's service standards to maintain fire, police, parks, sewer, water, and flood control services within Pinole. The following standards will be used to guide decision making through the development review process.

Parks and Recreation

Parks: 3.0 acres of neighborhood or regional parks, or 5.0 acres of dedicated open space per 1,000 residents.

Fire

Pinole will endeavor to maintain capital facilities, equipment and staffing sufficient to maintain the following service level:

1. First Engine Company: 5-minute response time for emergency calls 90 percent of the time.

2. Water Requirements: 3,500 gallons per minute (gpm) minimum on initial response assignment.

Police

Pinole will strive to maintain capital facilities, equipment and staffing to maintain a 5-minute response time for emergency calls.

Sanitary Facilities

Pinole will continue to work with Hercules and the West County Wastewater District to monitor, manage and maintain Pinole's wastewater collection and treatment system and to upgrade as necessary to meet permit requirements and capacity needed for current flow amounts and projected future growth.

Water

Verification by East Bay Municipal Utility District (EBMUD) that adequate water supply and quality can be provided and shall be required for approval of new development.

Flood Control

1. Capacity: Flood protection facilities should be designed to contain a 100-year flood event, as determined by the Federal Emergency Management Agency (FEMA).

2. Climate Change: Flood protection improvements should anticipate the probable effect of climate changes as they relate to sea level.

3. Upstream Improvements: Coordinate with EBMUD to plan for a detention/diversion basin south of the city to meter peak period flows in Pinole Creek.

Policy GM.2.2 Costs of New Development. Ensure that any new development in the city pays its share of the costs associated with the provision of facilities for fire, police, schools, parks, sanitary facilities, water and flood control necessitated by it, by attaching project-specific mitigation requirements as conditions of approval.

Action GM.2.2.3 Growth Management Capital Projects. Include capital projects, generally showing complete project cost and intended project phasing, in Pinole's annual Capital Improvement Program which are necessary to:

1. Extend services to new development.

2. Maintain traffic standards established in the General Plan.

3. Address the City's responsibilities under the adopted West Contra Costa Action Plan.

4. Maintain standards for fire, police, parks, sewer, water and flood control established in Pinole's Growth Management Element. (Note: See Measure J program relating to Capital Improvement Program.)

Action GM.2.2.4 Development Review. Participate in regional review of development proposals that have the potential to impact regional facilities, resources and services.

1. Circulate environmental documents to surrounding jurisdictions for review and comment.

2. Submit to the West Contra Costa County Technical Advisory Committee proposed revision(s) to the West County Action Plan to mitigate impacts associated with proposed General Plan amendments over the threshold specified in the adopted West County Action Plan.

3. Participate in the conflict resolution process established by the CCTA in the Growth Management Implementation Documents as a means of resolving disputes between neighboring jurisdictions related to the Action Plan and other Measure C/J transportation-related issues.

4. Ensure that all new development bears a fair share cost of mitigating impacts on the City's ability to provide essential services.

Policy GM.2.3 Development Costs. Services and capital improvements necessary to serve new development should be installed and funded by the project.

Action GM.2.3.1 Where feasible, development should provide improvements necessary to ensure adequate service to the project and create an adequate mechanism for ensuring ongoing funding for necessary services.

Action GM.2.3.2 Where improvements are needed to serve multiple projects or existing development, the City will maintain a development mitigation program to collect the proportionate share of a development's contribution to capital and service costs associated with regional and local facilities and services needed to support the development. The development mitigation program may include, but not be limited to:

1. Development Impact Fees;
2. User Fees;
3. Quimby Act Fees or other Park and Recreation Fees;
4. Transportation Management Fees; and
5. Connection Fees.

Policy CS.5.1 The City will make improvements to the water supply system to maintain system capability and reliability.

Policy CS.5.2 The City will continue to promote the conservation of water by all users.

Action CS.5.2.1 The City shall investigate establishing new guidelines requiring water use restrictions for irrigation systems and use of drought-resistant and native plants in landscaping.

Policy OS.8.1 Manage and encourage water sustainably through planning, conservation, reclamation and recycling.

Action OS.8.1.1 The City will collaborate with local, regional and state water suppliers and water resource managers to comprehensively plan for a sustainable water supply.

Action OS.8.1.2 Will coordinate water resource management planning with other conservation planning efforts, such as open space and park planning, and creek restoration. Action OS.8.1.3 Continue to work with the East Bay Municipal Water District to create a master plan for reclaimed water infrastructure (a "purple pipe" system) in Pinole.

Action OS.8.1.6 Explore mechanisms with EBMUD to install infrastructure to transport existing or future supplies of reclaimed water ("purple pipe") or pay an in-lieu fee equal to the cost of installation, to be used toward the implementation of the City-wide system.

Policy OS.8.2 Low Impact Development. Integrate Low Impact Development (LID) practices in all new development to reduce, treat, infiltrate and manage runoff flows caused by storms, urban runoff and impervious surfaces.

Action OS.8.2.1	Pursue Municipal Code changes that support LID development standards.
Policy OS.8.3	Groundwater Recharge. Encourage natural groundwater recharge and identify groundwater recharge opportunities to combine groundwater recharge with habitat protection and recreational land uses, as part of other conservation planning efforts such as open space and park planning and creek restoration, where appropriate.
Policy OS.8.7	Interagency Water Resource Projects. Help implement interagency projects, such as expansion of wastewater treatment capacity, joint development of new treatment or distribution infrastructure, water exchanges, and reclaimed water sales with local, regional and state water suppliers and water resource managers to ensure a sustainable water supply.
Action OS.8.7.3	Work cooperatively with applicable agencies to encourage water conservation by disseminating education and outreach materials and providing local water conservation incentives.
Action OS.8.7.4	Work cooperatively with other wastewater system operators to identify and implement projects that result in reuse of treated wastewater, particularly in landscaping and public facilities, consistent with public health requirements.
Policy SE.9.1	Encourage policies to prudently manage water resources to sustain plant and animal life, support urban activities and protect public health and safety.
Action SE.9.1.1	Where feasible, institute a water conservation program for City of Pinole facilities; for example, installation of waterless urinals and low-flow sinks and showers.
Action SE.9.1.2	Encourage the use of recycled water and drought-resistant landscaping in Pinole facilities, public roadway landscape, and new development.
Action SE.9.1.3	Establish incentives for development projects that achieve a 20% reduction in water use over baseline of 1995.
Action SE.9.4.1	Conduct a water reclamation study for using reclaimed wastewater for irrigation.
Action SE.9.4.2	Establish criteria and standards to permit the safe and effective use of gray water (on-site water recycling). Review, and appropriately revise, without compromising health or safety, other building code requirements that might prevent the use of such systems.
Action SE.9.4.3	Create an inventory of non-potable water uses within the jurisdiction that could be served with recycled water.
Action SE.9.4.4	Establish a water conservation plan that may include such policies and actions as reducing per capita water consumption, restricting landscape watering, performance standards for irrigation equipment and water

fixtures, and requirements that increased demand from new construction be offset with reductions so that there is no net increase in water use.

Action SE.9.4.5 Implement a public outreach campaign to promote water conservation.

Action SE.9.5.3 Pinole will install water-efficient landscapes and irrigation, including planting drought-tolerant plants and native species, covering exposed dirt with moisture-retaining mulch, using advanced technology such as moisture-sensing irrigation controls, and promoting urban agriculture by installing edible landscapes that provide local food.

In addition, guidelines in Chapter 7.0, *Private Realm Standards and Design Guidelines*, and Chapter 8.0, *Public Realm Standards and Design Guidelines*, of the Three Corridors Specific Plan encourage the use of native, drought-tolerant species in landscaping designs as well as the limiting of turf, the use of custom irrigation systems that conserve water, and the use of recycled water to reduce water consumption. The reader is also referred to Chapter 9.0, *Infrastructure and Public Facilities*, of the Specific Plan, which confirms that new development must "pay for itself." Therefore, if new development proposed within the Specific Plan Area causes an increased demand on the system, the developer would be responsible for paying for the necessary system improvements (new distribution pipelines, water supply or storage) in order to meet the increased demand and/or higher flow requirements.

Implementation of the above General Plan Update policies and actions, as well as Specific Plan standards and guidelines, would ensure that the new development under the General Plan Update would not proceed without adequate water supply and necessary water supply infrastructure. Particularly, Action GM.2.2.1 establishes service standards that require new development projects to obtain verification from EBMUD that adequate water supply and quality can be provided. Policy GM.2.2 requires the City to attach project-specific mitigation requirements as conditions of approval to ensure that new development pays its share of the costs associated with the provision of facilities for water services. General Plan Update policies also encourage water conservation and the use of recycled water in order to decrease demands on EBMUD potable water supply. Given these conditions, this impact is considered **less than significant**.

Mitigation Measures

None required.

4.12.5.4 CUMULATIVE IMPACT ANALYSIS

Cumulative Setting

The cumulative water supply setting includes the water service area of EBMUD, which consists of 325 square miles in portions of Contra Costa and Alameda counties. The service boundaries for the EBMUD drinking water system extends from Crockett on the north to San Lorenzo on the south (including the cities of Oakland and Berkeley). EBMUD's boundaries within Contra Costa County include the cities of Danville, El Cerrito, Hercules, Lafayette, Moraga, Orinda, Pinole, Richmond, and an Pablo; portions of the cities of Pleasant Hill, San Ramon, and Walnut Creek; and unincorporated communities of Alamo, Crockett, Diablo, El Sobrante, Kensington, and Rodeo. According to the *Final Water and Wastewater Services Municipal Services Review for West Contra Costa County* (Dudek, 2008), the 2008 estimated population for EBMUD's service area in Contra Costa County was 460,000 residents. The population served by EBMUD within

Contra Costa County is expected to reach 570,000 by 2030, with an average annual growth rate of 0.8 percent (Dudek, 2008).

The cumulative setting includes all existing, planned, proposed, approved, and reasonably foreseeable development within the EBMUD service area that currently places demand on EBMUD water supplies and infrastructure or is expected to place demand on them in the future.

Cumulative Impacts and Mitigation Measures

Cumulative Water Supply and Water Supply Infrastructure Impacts

Impact 4.12.5.2 Implementation of the proposed General Plan Update and its associated project components would contribute to the cumulative demand for water supply and associated infrastructure in EBMUD's service area. This is considered a **cumulatively considerable** impact.

As stated under Impact 4.12.5.1 above, EBMUD has adequate water supplies to serve its service area in normal or wet years; however supplemental water supplies would be required during dry years. Future development in the Pinole Planning Area, as well as other existing, planned, proposed, approved, and reasonably foreseeable development within the EBMUD service area, would place further demands on EBMUD's supplies and could result in greater cumulative shortages. EBMUD has identified several supplemental water supply initiatives to meet projected shortfall, as shown in **Table 4.12.5-5** above. Furthermore, development in the Pinole Planning Area, along with other development in the service area, would require the expansion and development of new water infrastructure facilities, including water supply conveyance pipelines and treatment facilities. All future development projects in the EBMUD service area would be required to consult with the EBMUD New Business Office to determine cost and infrastructure needs for providing water service, including additional water treatment capacity or water conveyance pipelines. The documented and potential physical environmental effects of these facilities are detailed under Impact 4.12.5.1 above.

Proposed General Plan Policies and Action Items that Cumulative Water Supply and Water Supply Infrastructure

The proposed General Plan incorporates the following policies and actions that provide mitigation to minimize the proposed project's contribution to cumulative water supply and infrastructure impacts. Since these policies and action items have been described in detail in prior impact discussions for this section, the following is limited to only listing the policy and action item numbers.

Growth Management Element

Policy GM.2.1, Action GM.2.2.1, Policy GM.2.2, Action GM.2.2.3, Action GM.2.2.4, Policy GM.2.3, Action GM.2.3.1, Action GM.2.3.2

Community Services and Facilities Element

Policy CS.5.1, Policy CS.5.2, Action CS.5.2.1

Natural Resources and Open Space Element

Policy OS.8.1, Action OS.8.1.1, Action OS.8.1.2, Action OS.8.1.3, Action OS.8.1.6, Policy OS.8.2, Action OS.8.2.1, Policy OS.8.3, Policy OS.8.7, Action OS.8.7.3, Action OS.8.7.4

Sustainability Element

Policy SE.9.1, Action SE.9.1.1, Action SE.9.1.2, Action SE.9.1.3, Action SE.9.4.1, Action SE.9.4.2, Action SE.9.4.3, Action SE.9.4.4, Action SE.9.4.5, Action SE.9.5.3

In addition, guidelines in Chapter 7.0, *Private Realm Standards and Design Guidelines*, and Chapter 8.0, *Public Realm Standards and Design Guidelines*, of the Three Corridors Specific Plan encourage the use of native, drought-tolerant species in landscaping designs as well as the limiting of turf, the use of custom irrigation systems that conserve water, and the use of recycled water to reduce water consumption. The reader is also referred to Chapter 9.0, *Infrastructure and Public Facilities*, of the Specific Plan, which confirms that new development must "pay for itself." Therefore, if new development proposed within the Specific Plan Area causes an increased demand on the system, the developer would be responsible for paying for the necessary system improvements (new distribution pipelines, water supply or storage) in order to meet the increased demand and/or higher flow requirements.

Implementation of the above General Plan Update policies and actions, as well as Specific Plan standards and guidelines, would ensure that new development under the General Plan Update would not proceed without adequate water supply and necessary water supply infrastructure. Additionally, policies and action items would reduce the General Plan Update's contribution to cumulative water supply and infrastructure impacts by encouraging water conservation and the use of recycled water in order to decrease demands on EBMUD's potable water supply. This impact is considered to have a **less than cumulatively considerable** impact.

Mitigation Measures

None required.

4.12.6 WASTEWATER SERVICE

4.12.6.1 EXISTING SETTING

The City of Pinole Public Works Department and the West County Wastewater District (WCWD) provide public wastewater conveyance, treatment, and disposal services within the GPU Planning Area.

City of Pinole Public Works Department

The City of Pinole Public Works Department provides public wastewater conveyance, disposal, and treatment via the Pinole/Hercules Water Pollution Control Plant for approximately 14,300 properties within the cities of Pinole and Hercules.

Wastewater Facilities and Infrastructure

The City of Pinole's wastewater infrastructure consists of a collection and conveyance system, shared ownership of the Pinole/Hercules Water Pollution Control Plant a shallow water outfall, and a deep water outfall shared with the Rodeo Sanitary District (Dudek, 2008).

Pinole/Hercules Water Pollution Control Plant

The Pinole/Hercules Water Pollution Control Plant (WPCP) is located at the foot of Tennent Avenue in the City of Pinole. The cities of Hercules and Pinole jointly share in this facility; the City of Pinole is the designated operator. The WPCP was originally built in 1955 as a primary treatment facility and has since undergone two major expansions and several modifications. In 1972 the WPCP was upgraded from a primary to a secondary treatment facility, with 2 million gallons per day (mgd) flow capacity (City of Pinole, 2010). In 1985, the WPCP was again upgraded to its current capacity of 4.06 mgd average dry weather flow (ADWF) and peak wet weather flow (PWWF) of 10.3 mgd. Of the 4.06 mgd capacity, 1.79 mgd is allocated to Pinole and 2.27 mgd is allocated to Hercules. However, the improvements that were made in the 1980s significantly underestimated solids loading. This imbalance in processing solids has reduced the actual capacity of the WPCP from 4.06 mgd to 3.2 mgd. The plant process (activated sludge) removes approximately 97 percent of the waste from the water. The water is then disinfected with hypochlorite. Secondary effluent is conveyed to the Rodeo Sanitary District (RSD) Water Pollution Control Plant where it is combined with RSD effluent and discharged from a deep water outfall in Rodeo that discharges into San Pablo Bay (Dudek, 2010). When the combined flow of the WPCP and RSD exceed the capacity of the deep water outfall or when wet weather flows exceed the 10 mgd capacity of the WPCP, effluent is discharged from a shallow water outfall located at the WPCP.

Currently, average dry weather flows at the WPCP are 3.0 mgd, with 1.60 mgd from Hercules and 1.40 mgd from Pinole (JPA, 2010). However, the plant has recently experienced wet weather flows of approximately 20 mgd, which exceeds permitted capacity (see **Table 4.12.6-1**).

TABLE 4.12.6-1
ACTUAL FLOW DATA PHWWTP

	Currently	As Designed
Dry Weather Flow	3.0 mgd	4.06 mgd
Wet Weather Flow	20 mgd	10.3 mgd

Source: JPA, 2010

As discussed under the Regulatory Framework subsection below, discharge from the WPCP is regulated by the San Francisco Bay Regional Water Quality Control Board (RWQCB) under Order R2-2007-0024 issued in March of 2007. The order mandates corrective measures to increase the wet weather treatment capacity at the WPCP and to correct issues related to the effluent discharge from the shallow water outfall at the WPCP. The San Francisco Bay RWQCB has set a compliance time schedule requiring that all facilities be completed and online by June 1, 2016. As a result, the cities of Pinole and Hercules will be requesting a permit that would increase the maximum daily wet weather treatment capacity of the WPCP. The City of Pinole will also request that the RWQCB consider including a permit term that would allow an instantaneous wet weather flow capacity of 20 mgd to accommodate extremely high rainfall events (AECOM, 2010).

In order to increase wet weather flow capacity at the WPCP and comply with San Francisco Bay RWQCB Order R2-2007-0024, the City is currently in the process of analyzing ways to meet the Board's order. The *Draft Environmental Impact Report, Pinole-Hercules Water Pollution Control Plant Improvement Project*, completed by AECOM in March of 2010, analyzes two options for improving the WPCP – a larger effluent pipe to the RSD and Pinole-only flows at the existing plant (AECOM, 2010).

Collection and Conveyance System

The City's wastewater collection system includes 46.5 miles of sewer pipelines and two lift stations (Dudek, 2008). The City provides preventive maintenance on the system, including hydroflushing and mechanical cleaning and inspecting for root intrusion, pipe integrity, and removal of foreign objects. The City has issues with inflow and infiltration due to the age of the sewer mains in the older parts of the City's collection system (Dudek, 2008).

Shallow and Deep Water Outfalls

Pinole discharges treated wastewater through a deep water outfall that is shared with the City of Hercules and RSD. The outfall is located in Rodeo and discharges into San Pablo Bay. Management and use of the outfall is governed by a Joint Powers Agreement (JPA) that the three agencies entered into in 1977. RSD manages the facility, and the agencies share proportionally in administrative and capital costs based on peak hourly wet weather flows (Dudek, 2008).

In addition to the deep water outfall, there is a shallow water outfall at the WPCP. This outfall is used when the combined flow of the WPCP and RSD exceed the capacity of the deep water outfall, when the deep water discharge is being repaired, or when wet weather flows exceed the 10 mgd capacity of the WPCP. As previously mentioned, the City is required to complete tasks outlined in the RWQCB order to prevent discharge to the shallow water outfall (Dudek, 2008).

West County Wastewater District

The West County Wastewater District (WCWD) is a publicly owned wastewater agency providing sewage collection, treatment, and disposal services to a 16.9 square mile service area that includes the City of San Pablo, all of the northern subdivisions of Richmond, portions of the City of Pinole, the communities of El Sobrante, East Richmond Heights, Tara Hills, Rollingwood and Bayview, and portions of the unincorporated county (WCWD, 2010). Within the GPU Planning Area, the WCWD provides service for 0.4 square miles of the City of Pinole and the unincorporated community of El Sobrante and Tara Hills.

The WCWD also provides contract services to the Crockett Community Services District for lift station maintenance, sanitary sewer maintenance, emergency response, and engineering support for the Crockett wastewater collection system. WCWD maintains a large County-owned stormwater pump station and the West County Justice Center wastewater pump station by contract with the County (Dudek, 2008).

Wastewater Facilities and Infrastructure

WCWD's infrastructure consists of a wastewater collection and conveyance system and treatment facilities, as well as disposal facilities owned by the West County Agency, a joint powers authority between WCWD, the City of Richmond, and the Richmond Municipal Sewer

District (RMSD). The joint powers authority was formed in 1977 for the purpose of constructing and maintaining effluent and sludge disposal facilities, including the Bay outfall, 5-mile pipeline, dechlorination facilities, biosolids drying beds, and laboratory facilities.

Water Pollution Control Plant

WCWD's Water Pollution Control Plant is located at 2377 Garden Tract in North Richmond. The plant has a permitted dry weather capacity of 12.5 mgd and 21 mgd wet weather capacity; the current average dry weather flows are approximately 7.9 mgd and the average wet weather flows are 14 mgd (Dudek, 2008). The WCWD provides approximately 3 mgd of secondary effluent to EBMUD's North Richmond Water Reclamation Facility (NRWRP), where it receives tertiary treatment and is used in the cooling towers at Chevron's refinery or for irrigation at the Richmond Country Club. Secondary effluent that is not used at the NRWRP is conveyed to the Richmond plant where effluent from both plants is dechlorinated and discharged to San Francisco Bay through a deep water outfall (Dudek, 2008).

Collection and Conveyance System

The WCWD wastewater collection system includes 242.3 miles of gravity sewer pipelines and 11 miles of force mains. The City of Pinole constituted a small portion of the District's service area. As the WCWD's service area is characterized by hilly terrain, the collection system operates with 18 pump stations and gravity flow. WCWD's collection system includes approximately 117 miles of 6-inch clay pipe, much of which was constructed prior to 1970. The concrete used to seal the old joints has been gradually decomposing, leading to increased infiltration and inflow. Therefore, the WCWD is replacing 6-inch pipelines with pipe with an 8-inch minimum diameter and using a longer-lasting joint material, thus reducing the potential for sanitary sewer overflows and infiltration and inflow (Dudek, 2008).

The WCWD collection system within the Planning Area consists of the Tara Hills Pump Station, Pinole Lift Station, Fitzgerald Lift Station, and several miles of gravity sewer lines. The Tara Hills Pump Station and associated gravity sewer mains serve the portion of the Planning area located north of Interstate 80 (I-80). The Pinole Lift Station and Fitzgerald Lift Station and associated sewer gravity mains serve the portion of the Planning Area located south of I-80. The approximate average dry weather flow (ADWF) from the WCWD pump stations located within the Planning Area is 0.27 mgd (City of Pinole, 2009a and 2009b).

Disposal Facilities

Treated wastewater from the WCWD wastewater plant that is conveyed to the Richmond plant is combined with the effluent from the Richmond plant, dechlorinated, and discharged through a combined 72-inch diameter deep water outfall into central San Francisco Bay (Dudek, 2008).

4.12.6.2 REGULATORY FRAMEWORK

Federal

Clean Water Act

The Clean Water Act (CWA) is the primary federal legislation governing surface water quality protection. The statute employs a variety of regulatory and nonregulatory tools to sharply reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff. These tools are employed to achieve the broader goal of

restoring and maintaining the chemical, physical, and biological integrity of the nation's waters so that they can support "the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water." Pollutants regulated under the CWA include "priority" pollutants, including various toxic pollutants; "conventional" pollutants, such as biochemical oxygen demand (BOD), total suspended solids (TSS), fecal coliform, oil and grease, and pH; and "non-conventional" pollutants, including any pollutant not identified as either conventional or priority. The CWA regulates both direct and indirect discharges (USEPA, 2010).

National Pollutant Discharge Elimination System

As authorized by Section 402 of the Clean Water Act, the National Pollutant Discharge Elimination System (NPDES) Permit Program controls water pollution by regulating point sources that discharge pollutants into waters of the United States. It is the responsibility of the Regional Water Quality Control Boards to preserve and enhance the quality of the state's waters through the development of water quality control plans and the issuance of waste discharge requirements (WDRs). WDRs for discharges to surface waters also serve as NPDES permits (SWRCB, 2010).

Under Phase I, which started in 1990, the Regional Water Quality Control Boards have adopted NPDES stormwater permits for medium (serving between 100,000 and 250,000 people) and large (serving more than 250,000 people) municipalities. As part of Phase II, the State Water Resources Control Board adopted a General Permit for the Discharge of Storm Water from Small MS4s (WQ Order No. 2003-0005-DWQ) to provide permit coverage for smaller municipalities, including non-traditional small MS4s, which are governmental facilities such as military bases, public campuses, and prison and hospital complexes. The MS4 permits require the discharger to develop and implement a stormwater management plan/program with the goal of reducing the discharge of pollutants to the maximum extent practicable (MEP). MEP is the performance standard specified in Section 402(p) of the Clean Water Act. The management programs specify what best management practices (BMPs) will be used to address certain program areas. The program areas include public education and outreach, illicit discharge detection and elimination, construction and post-construction, and good housekeeping for municipal operations (SWRCB, 2010).

On September 2, 2009, the SWRCB adopted a new NPDES Construction General Permit that will become effective on July 1, 2010, and will replace Order 99-08-DWQ. The new permit has some significantly different requirements from the existing permit. Under the existing permit, dischargers who implement BMPs to the best of their ability are deemed to be in compliance with the permit. The new permit, however, sets quantitative standards that must be achieved, regardless of the BMPs that are implemented. In addition, whereas the existing permit relies on discharger-developed stormwater pollution prevention plans (SWPPPs) as its primary compliance mechanism, the effect of SWPPPs is much more limited under the new permit. Significant changes and additions to the new permit include a new risk-based permitting approach, numeric action levels and numeric effluent limitations, post-construction standards, increased BMP requirements, rain event action plans, increased monitoring and reporting requirements, certification requirements for key project personnel, and new penalties for violations of permit conditions.

General Pretreatment Regulations

Another type of discharge that is regulated by the CWA is discharge that goes to a publicly owned treatment works (POTW). POTWs collect wastewater from homes, commercial buildings, and industrial facilities and transport it via a collection system to the treatment plant. Here, the

POTW removes harmful organisms and other contaminants from the sewage so it can be discharged safely into the receiving stream. Generally, POTWs are designed to treat domestic sewage only. However, POTWs also receive wastewater from industrial (non-domestic) users. The General Pretreatment Regulations establish responsibilities of federal, state, and local government, industry, and the public to implement pretreatment standards to protect municipal wastewater treatment plants from damage that may occur when hazardous, toxic, or other wastes are discharged into a sewer system and to protect the quality of sludge generated by these plants. Discharges to a POTW are regulated primarily by the POTW itself, rather than the state/tribe or USEPA (USEPA, 2010).

State

Porter-Cologne Water Quality Act

In 1969, the California Legislature enacted the Porter-Cologne Water Quality Control Act to preserve, enhance, and restore the quality of the state's water resources. The act established the State Water Resources Control Board and nine Regional Water Quality Control Boards as the principal state agencies with the responsibility for controlling water quality in California. Under the act, water quality policy is established, water quality standards are enforced for both surface water and groundwater, and the discharges of pollutants from point and nonpoint sources are regulated. The act authorizes the State Water Resources Control Board to establish water quality principles and guidelines for long-range resource planning including groundwater and surface water management programs and control and use of recycled water (DOE, 2010).

State Water Resources Control Board

Created by the State Legislature in 1967, the five-member State Water Resources Control Board (SWRCB) allocates water rights, adjudicates water right disputes, develops statewide water protection plans, establishes water quality standards, and guides the nine Regional Water Quality Control Boards located in the major watersheds of the state. The joint authority of water allocation and water quality protection enables SWRCB to provide comprehensive protection for California's waters (SWRCB, 2010).

SWRCB is responsible for implementing the CWA and issues NPDES permits to cities and counties through Regional Water Quality Control Boards. The GPU Planning Area is located within a portion of the state that is regulated by the San Francisco Bay RWQCB.

Waste Discharge Requirements Program

In general, the Waste Discharge Requirements (WDR) Program (sometimes also referred to as the Non Chapter 15 (Non 15) Program) regulates point discharges that are exempt pursuant to Subsection 20090 of Title 27 and not subject to the federal Water Pollution Control Act. Exemptions from Title 27 may be granted for nine categories of discharges (e.g., sewage, wastewater) that meet, and continue to meet, the preconditions listed for each specific exemption. The scope of the WDR Program also includes the discharge of wastes classified as inert, pursuant to Section 20230 of Title 27. Several SWRCB programs are administered under the WDR Program, including the Sanitary Sewer Order and recycled water programs (SWRCB, 2010).

Sanitary Sewer Order

A sanitary sewer overflow (SSO) is any overflow, spill, release, discharge, or diversion of untreated or partially treated wastewater from a sanitary sewer system. SSOs often contain high levels of

suspended solids, pathogenic organisms, toxic pollutants, nutrients, oil, and grease and can pollute surface and ground waters, threaten public health, adversely affect aquatic life, and impair the recreational use and aesthetic enjoyment of surface waters. To provide a consistent, statewide regulatory approach to address SSOs, SWRCB adopted Statewide General Waste Discharge Requirements for Sanitary Sewer Systems, Water Quality Order No. 2006-0003 (Sanitary Sewer Order) on May 2, 2006. The Sanitary Sewer Order requires public agencies that own or operate sanitary sewer systems to develop and implement sewer system management plans and report all SSOs to the State Water Resources Control Board's online SSO database known as the California Integrated Water Quality System (CIWQS). All public agencies that own or operate a sanitary sewer system that comprises more than one mile of pipes or sewer lines which conveys wastewater to a publicly owned treatment facility must apply for coverage under the Sanitary Sewer Order (SWRCB, 2010). Therefore, both the City of Pinole and the West County Wastewater District are required to report all sanitary sewer overflows to the CIWQS and to prepare Sewer System Management Plans (SSMP) in accordance with the requirements of Order No. 2006-0003.

- **City of Pinole** – In 2008, the City of Pinole reported nine SSOs, the largest of which released 4,500 gallons of wastewater (CIWQS, 2010). Pinole has prepared an SSMP that includes an Emergency SSO Response Plan and a Pumping and Collection Systems Reliability and Management Plan. Emergency response personnel from the City's Public Works Department are on call 24 hours per day, 7 days a week (Dudek, 2008).

- **WCWD** – In 2009, the WCWD reported 14 SSOs, the largest of which released 5,000 gallons of wastewater (CIWQS, 2010). WCWD is preparing its SSMP, which includes a Fats, Oils and Grease Control Program that is expected to reduce the number of blockages and retain capacity within the sewer system. WCWD has an Overflow Emergency Response Plan that includes an on-call response team. The WCWD is also reducing the risk of future SSOs through its sewer ordinance, which requires testing of building sewers and sewer laterals under specific circumstances. Sewers and laterals that do not pass the prescribed tests must be repaired or replaced per the WCWD's policies (Dudek, 2008).

Recycled Water Policy

To establish uniform requirements for the use of recycled water, SWRCB adopted a statewide Recycled Water Policy on February 3, 2009. The purpose of the policy is to increase the use of recycled water from municipal wastewater sources that meets the definition in Water Code Section 13050(n), in a manner that implements state and federal water quality laws. The policy describes permitting criteria that are intended to streamline the permitting of the vast majority of recycled water projects. The intent of this streamlined permit process is to expedite the implementation of recycled water projects in a manner that implements state and federal water quality laws while allowing the Regional Water Quality Control Boards to focus on projects that require substantial regulatory review due to unique site-specific conditions (SWRCB, 2010).

Statewide General Permit for Landscape Irrigation Uses of Recycled Water

In July 2009, the State Water Resources Control Board adopted General Waste Discharge Requirements for Landscape Irrigation Uses of Municipal Recycled Water (General Permit). The intent of the law is to develop a uniform interpretation of state standards to ensure the safe, reliable use of recycled water for landscape irrigation uses, consistent with state and federal water quality law, and for which the California Department of Public Health has established uniform statewide standards. The law is also intended to reduce costs to producers and users of recycled water by streamlining the permitting process for using recycled water for landscape irrigation (SWRCB, 2010).

Department of Public Health

The California Department of Public Health (DPH), formerly the Department of Health Services, is responsible for establishing criteria to protect public health in association with recycled water use. The criteria issued by DPH are found in the California Code of Regulations, Title 22, Division 4, Chapter 3, entitled Water Recycling Criteria. Commonly referred to as Title 22 Criteria, the criteria contain treatment and effluent quality requirements that vary based on the proposed type of water reuse. Title 22 sets bacteriological water quality standards on the basis of the expected degree of public contact with recycled water. For water reuse applications with a high potential for the public to come into contact with the reclaimed water, Title 22 requires disinfected tertiary treatment. For applications with a lower potential for public contact, Title 22 requires three levels of secondary treatment, basically differing by the amount of disinfectant required (South Bay Water Recycling, 2010).

Title 22 also specifies the reliability and redundancy for each recycled water treatment and use operation. Treatment plant design must allow for efficiency and convenience in operation and maintenance and provide the highest possible degree of treatment under varying circumstances. For recycled water piping, DPH has requirements for preventing backflow of recycled water into the public water system and for avoiding cross-connection between the recycled and potable water systems (South Bay Water Recycling, 2010).

DPH does not have enforcement authority for the Title 22 criteria; instead the RWQCBs enforce them through enforcement of their permits containing the applicable criteria (CWRTF, 2003).

Regional

San Francisco Bay Regional Water Quality Control Board

The GPU Planning Area is within the jurisdiction of the San Francisco Bay RWQCB. Wastewater generators must obtain a permit from the San Francisco Bay RWQCB to discharge their wastewater. Pursuant to the federal Clean Water Act and California's Porter-Cologne Water Quality Control Act as discussed above, the San Francisco Bay RWQCB regulates wastewater discharges to surface waters, like San Francisco Bay and San Pablo Bay, through the NPDES program. Stormwater is also subject to NPDES regulations, but it is regulated separately. Under California law, the San Francisco Bay RWQCB requires WDRs for some discharges in addition to those subject to NPDES permits. For example, the San Francisco Bay RWQCB issues WDRs for wastewater recycled for reuse and wastewater discharged to land, including on-site treatment systems (RWQCB, 2010).

Order No. R2-2007-0024 – Waste Discharge Requirements for the Pinole-Hercules Water Pollution Control Plant

In March 2007, the San Francisco Bay RWQCB issued Order No. R2-2007-0024 permitting discharge from the WPCP. The City of Pinole is the named discharger. The order includes requirements that Pinole undertake corrective measures to increase dry and wet weather capacity at the WPCP in order to eliminate blending at the deep water outfall and prevent discharge at the shallow outfall. As a 50 percent owner, the City of Hercules is responsible for assisting Pinole as needed and cost sharing in these requirements.

Order No. R2-2008-0004 – Revised Tentative CDO Requiring West County Agency, West County Wastewater District, the City of Richmond, and the Richmond Municipal Sewer District No. 1 to Cease and Desist Discharging Wastewater in Violation of Requirements to Waters of the State

In January 2008, the San Francisco Bay RWQCB adopted Order No. R2-2008-0004, a Revised Tentative Cease and Desist Order, with effluent limitations that the WCWD and other agencies will have to meet by 2016. The order includes time schedules for compliance; capital improvements may not be necessary if compliance can be met through best management practices and other efforts.

Local

Pinole Municipal Code

Chapter 13.05, Regulation of Waste Discharge, of the City of Pinole Municipal Code sets forth uniform requirements for contributors to the wastewater collection and treatment system of the WPCP and enables the City to comply with all applicable state and federal laws required by the Clean Water Act and the General Pretreatment Regulations, which are described above.

City of Hercules Sewer Lateral Ordinance

On May 13, 2010 the City of Hercules adopted a Sewer Lateral Ordinance (No. 457). The purposes of this ordinance are (1) to provide for operation and maintenance of the City's sewer system in a reliable and serviceable condition, (2) to eliminate or minimize sewage overflows by eliminating or minimizing stoppages and reducing sources of infiltration and inflow in the City's sewer system, (3) to comply with applicable legal requirements pertaining to the City's sewer system and (4) to protect the public health and safety by establishing and providing a mechanism for enforcing performance standards for private sewer laterals that connect or are connected to a City Public Sewer Main. The requirements to obtain a Sewer Lateral Certificate of Compliance are to act in accordance with the Sewer Lateral Ordinance Requirements.

Impacts and Mitigation Measures

Standards of Significance

The impact analysis provided below is based on the following State CEQA Guidelines Appendix G thresholds of significance. A wastewater service impact is considered significant if implementation of the project would:

1) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board.

2) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

3) Result in a determination by the wastewater treatment provider that serves or may serve the project that it has inadequate capacity to serve the project's projected demand, in addition to the provider's existing commitments.

Methodology

The analysis of wastewater service impacts contained in this subsection is based primarily on consultation with the City of Pinole Public Works Department and the West County Wastewater District, as well as review of municipal service reviews prepared for the Contra Costa Local Agency Formation Commission. Future wastewater flow projections, as well as infrastructure conditions and needs, discussed in these documents were compared to potential impacts resulting from growth anticipated in association with the proposed project and whether those impacts would have a significant effect on the physical environment. Proposed General Plan policies that would reduce identified impacts are listed, as are mitigation measures that would further lessen impacts.

Impacts and Mitigation Measures

Increased Demand for Wastewater Service (Standards of Significance 2 and 3)

Impact 4.12.6.1 Implementation of the General Plan Update, Three Corridor Specific Plan, and Zoning Code Update would increase wastewater flows and demand for sanitary sewer facilities. Increased flows could exceed the capacity of the wastewater conveyance, treatment, and disposal systems of the City of Pinole Public Works Department and the West County Wastewater District. This is considered a **less than significant** impact.

General Plan Update and Three Corridors Specific Plan

The City of Pinole Public Works Department and the West County Wastewater District provide public wastewater conveyance, treatment, and disposal services within the Planning Area. Currently, the City of Pinole is built out, and most large land holdings in the city have been developed. As such, under the proposed update to its General Plan, it is anticipated that the City of Pinole will have minimal growth in the future. The City does not anticipate expanding its Sphere of Influence (SOI) or annexing any land into the city in the foreseeable future. Due to the city's small supply of developable land, the updated General Plan and the Three Corridors Specific Plan direct the majority of the city's future growth to sites designated for mixed and multiple-family use in the San Pablo Avenue, Pinole Valley Road, and Appian Way corridors. The Three Corridors Specific Plan also identifies opportunity sites for infill mixed-use development along the city's commercial corridors in close proximity to transit and other amenities. As such, implementation of the Specific Plan could result in an additional 1,076 housing units in the city by 2030. Therefore, the total population of the city could increase from the current (2010) population of 20,100 to 23,875 (2.89 persons per household x 1,076 housing units + existing population of 20,100 = 23,875 persons). Increased population and development would increase wastewater flows which would, in turn, result in increased demand for wastewater services. Meeting increased demand would require the extension of new wastewater collection system infrastructure including collectors, trunks, and interceptor sewer lines and appurtenances. Increased treatment and disposal capacity would also be required to ensure adequate treatment of the City's wastewater flows.

Wastewater Treatment

Pinole/Hercules WPCP

Currently, the WPCP is permitted to treat 4.06 mgd average dry weather flow and 10.3 mgd peak wet weather flow. The proposed General Plan Update estimates that the 2030 flow

amount would be 3.93 mgd (**Table 4.12.6-2**), which is below the existing capacity of the WPCP (4.06 mgd). Therefore, it is anticipated that the average dry weather capacity of the WPCP will not need to be expanded as a result of development under the General Plan Update and Three Corridors Specific Plan. However, as discussed above, the improvements that were made in the 1980s significantly underestimated solids loading, resulting in a reduction of actual capacity at the WPCP from 4.06 mgd to 3.2 mgd. The WPCP will need to improve its ability to process solids, such as by the use of clarifiers and aeration basins, in order to realize the actual capacity of the plant. Furthermore, the WPCP has experienced wet weather flows of almost 20 mgd, which exceeds permitted capacity. Any development resulting in increased flows over existing conditions would exacerbate this inadequacy. This is a **significant** impact.

TABLE 4.12.6-2
CITY OF PINOLE DRY WEATHER FLOW

Dry Weather Flow	Hercules	Pinole	Combined
Current flows at PHWWTP	1.60 mgd	1.40 mgd	3.00 mgd
Anticipated 2030 Flows	0.63 mgd	0.30 mgd	0.93 mgd
Total	**2.23 mgd**	**1.70 mgd**	**3.93 mgd**

Source: AECOM, 2010

The City is currently considering the Pinole-Hercules WPCP Improvement Project, which involves (1) the construction of upgrades at the existing plant, relocation of the City of Pinole Corporation Yard, and construction of a new parallel force main to the Rodeo Sanitary District to serve a portion of the City of Pinole and the City of Hercules, or (2) treatment of a portion of the City of Pinole flows only at the existing plant and upgrades to the WPCP facility.

Environmental review is in progress for the WPCP improvements necessary to serve the City and meet regulatory requirements. The *Draft Environmental Impact Report, Pinole-Hercules Water Pollution Control Plant Improvement Project* (AECOM, 2010) identifies environmental impacts associated with improvements to the WPCP. Since future development under the proposed General Plan Update and Three Corridors Specific Plan would utilize wastewater treatment infrastructure analyzed in this EIR, development under the proposed General Plan Update and Three Corridors Specific Plan would indirectly contribute to the following significant environmental effects identified therein (AECOM, 2010):

- Short-term increases in construction source noise levels;
- Short-term construction impacts to air quality; and
- Long-term operational air pollutant emissions.

WCWD

As previously discussed, the WCWD Water Pollution Control Plant has a permitted dry weather capacity of 12.5 mgd and 21 mgd wet weather capacity; the current ADWF is approximately 7.9 mgd and the AWWF is 14 mgd. The WCWD has indicated that there is adequate capacity at the plant to serve existing and future development under the General Plan Update (WCWD, 2009).

Wastewater Conveyance

As discussed under Existing Setting above, both the City's and the WCWD's current wastewater collection systems have significant amounts of inflow and infiltration. Increased wastewater flows

would exacerbate these conditions and could result in inadequate wastewater conveyance. In addition, the provision of expanded wastewater services to the city under the proposed General Plan Update and Three Corridors Specific Plan could require the expansion and development of new wastewater conveyance infrastructure.

Table 4.12.6-3 identifies types of potential project-specific environmental impacts from the improvement and/or extension of wastewater treatment and conveyance infrastructure. However, the potential programmatic environmental impacts that could be associated with construction/expansion of these facilities have been identified and disclosed in this DEIR as part of overall development of the Planning Area.

TABLE 4.12.6-3
TYPES OF POTENTIAL ENVIRONMENTAL IMPACTS ASSOCIATED WITH NEW WASTEWATER TREATMENT AND SUPPLY INFRASTRUCTURE

Types of Potentially Affected Resources	Related and Potential Impacts
Geology and Soils	Increase in erosion and sedimentation from construction activities; geologic hazards could cause problems for new facilities and their operators if they are not sited carefully.
Wetlands	Changes in the amount or functions and values of various types of wetlands from the construction of new facilities.
Botanical Resources including Special-status Species	Disturbance to rare plants and their habitat and other types of vegetation from construction activities.
Wildlife Resources including Special-status Species	Changes in the amount and quality of affected wildlife habitat from construction activities.
Visual Resources	Short-term direct visual impacts associated with construction activities (trunk sewers). Addition of new project facilities could affect the visual environment. New pipelines and pumping stations near or in residential areas or highly visited areas would cause negative impacts. Adverse visual impacts during the construction and operation of new or expanded wastewater infrastructure.
Agriculture	Permanent direct loss of agricultural productivity (trunk sewer construction, operation and percolation ponds) and potential indirect conversion of agricultural land by expansion of urban services through agricultural lands within the Planning Area (sewer mains). Some irrigated land or grazing land could be taken out of production where project conveyance facilities need to be located to accommodate growth.
Cultural Resources	Historic, prehistoric, and ethnographic resources could be affected by the construction and maintenance of new facilities.
Public Utilities	The routing and sitting of new project facilities could interfere with the operation or maintenance of existing or planned public utilities, including communication and energy infrastructure.

Types of Potentially Affected Resources	Related and Potential Impacts
Air Quality and Noise	Air quality emissions (direct) of oxides of nitrogen (NOx) during construction (trunk and sewer mains, wastewater treatment capacity expansion). Traffic and loud noises could occur during the construction phase of new projects. Short-term increases in noise during construction (trunk and sewer mains) as well as operational noise from new or expanded lift stations would likely impact nearby residents and recreationists. Adverse odor impacts during the construction and operation of new or expanded wastewater infrastructure.
Transportation	Local roads would experience traffic increases during construction. Property access would be temporarily disrupted during trunk sewer construction.
Public Health and Safety	Construction activities could create some safety hazards. Temporary direct disruption or property access (trunk sewer construction).
Water Quality	Degradation of water quality (groundwater). Any expansion of the TWWTP would require a Waste Discharge Requirement (WDR) permit from the RWQCB. This would substantially reduce the possibility of significant water quality impacts.
Growth-inducing Effects	New wastewater infrastructure would likely cause growth-inducing impacts.

Zoning Code Update

Updates to the Zoning Code will be administrative in nature to further clarify the types and forms of uses permitted under particular land use designations, but would not result in any development activities beyond that analyzed for the proposed General Plan Update. Therefore, the proposed Zoning Code update would have **no impact** associated with increased demand for wastewater services.

Proposed General Plan Policies and Action Items that Address Increased Demand for Wastewater Service

The proposed General Plan incorporates the following policies and actions that provide mitigation for wastewater service impacts:

Action GM.1.1.5 Hercules. Endeavor to work with the City of Hercules to address wastewater treatment and disposal issues and opportunities to ensure compliance with operating permits, to provide sewage disposal to accommodate anticipated growth, and to remedy existing facilities deficiencies.

Policy GM.2.1 Plan for Public Facility and Service Needs. Future development shall be planned based on public facility and service capacity, community-wide needs, sound citywide and neighborhood planning, and public improvement programming.

Action GM.2.2.1 Service Standards. Periodically monitor, review and update Pinole's service standards to maintain fire, police, parks, sewer, water, and flood control services within Pinole. The following standards will be used to guide decision making through the development review process.

Parks and Recreation

Parks: 3.0 acres of neighborhood or regional parks, or 5.0 acres of dedicated open space per 1,000 residents.

Fire

Pinole will endeavor to maintain capital facilities, equipment and staffing sufficient to maintain the following service level:

1. First Engine Company: 5-minute response time for emergency calls.

2. Water Requirements: 3,500 gallons per minute (gpm) minimum on initial response assignment.

Police

Pinole will strive to maintain capital facilities, equipment and staffing to maintain a 5-minute response time for emergency calls.

Sanitary Facilities

Pinole will continue to work with Hercules and the West County Wastewater District to monitor, manage and maintain Pinole's wastewater collection and treatment system and to upgrade as necessary to meet permit requirements and capacity needed for current flow amounts and projected future growth.

Water

Verification by East Bay Municipal Utility District (EBMUD) that adequate water supply and quality can be provided and shall be required for approval of new development.

Flood Control

1. Capacity: Flood protection facilities should be designed to contain a 100-year flood event, as determined by the Federal Emergency Management Agency (FEMA).

2. Climate Change: Flood protection improvements should anticipate the probable effect of climate changes as they relate to sea level.

3. Upstream Improvements: Coordinate with EBMUD to plan for a detention/diversion basin south of the city to meter peak period flows in Pinole Creek.

Policy GM.2.2 Costs of New Development. Ensure that any new development in the city pays its share of the costs associated with the provision of facilities for fire, police, schools, parks, sanitary facilities, water and flood control necessitated by it, by attaching project-specific mitigation requirements as conditions of approval.

Action GM.2.2.3 Growth Management Capital Projects. Include capital projects, generally showing complete project cost and intended project phasing, in Pinole's annual Capital Improvement Program which are necessary to:

1. Extend services to new development.
2. Maintain traffic standards established in the General Plan.
3. Address the City's responsibilities under the adopted West Contra Costa Action Plan.
4. Maintain standards for fire, police, parks, sewer, water and flood control established in Pinole's Growth Management Element. (Note: See Measure J program relating to Capital Improvement Program.)

Action GM.2.2.4 Development Review. Participate in regional review of development proposals that have the potential to impact regional facilities, resources and services.

1. Circulate environmental documents to surrounding jurisdictions for review and comment.
2. Submit to the West Contra Costa County Technical Advisory Committee proposed revision(s) to the West County Action Plan to mitigate impacts associated with proposed General Plan amendments over the threshold specified in the adopted West County Action Plan.
3. Participate in the conflict resolution process established by the CCTA in the Growth Management Implementation Documents as a means of resolving disputes between neighboring jurisdictions related to the Action Plan and other Measure C/J transportation-related issues.
4. Ensure that all new development bears a fair share cost of mitigating impacts on the City's ability to provide essential services.

Policy GM.2.3 Development Costs. Services and capital improvements necessary to serve new development should be installed and funded by the project.

Action GM.2.3.1 Where feasible, development should provide improvements necessary to ensure adequate service to the project and create an adequate mechanism for ensuring ongoing funding for necessary services.

Action GM.2.3.2 Where improvements are needed to serve multiple projects or existing development, the City will maintain a development mitigation program to collect the proportionate share of a development's contribution to

capital and service costs associated with regional and local facilities and services needed to support the development. The development mitigation program may include, but not be limited to:

1. Development Impact Fees;
2. User Fees;
3. Quimby Act Fees or other Park and Recreation Fees;
4. Transportation Management Fees; and
5. Connection Fees.

Policy GM.4.1 Planning for Present and Future Community Needs. Plan for, provide and maintain a level of public infrastructure facilities and services that adequately serves the present and future needs of the community.

Policy CS.6.1 The City shall continue to make capital improvements to the wastewater collection and treatment system to maintain system capability and reliability.

Action CS.6.1.1 The City shall ensure that all parts of the collection system are maintained in adequately safe condition.

Action CS.6.1.2 The City shall implement treatment plant improvements as necessary to ensure that all permit requirements are met and the system is adequate to accept and treat all flows.

Action CS.6.1.3 The City will continue to implement a program to inspect and repair the City's sewer collection system to reduce both infiltration and inflow.

Action CS.6.1.4 New sewer collection and transmission systems shall be designed and constructed to minimize potential inflow and infiltration, and the existing collection system will be upgraded to reduce inflow and infiltration.

Policy CS.6.2 The City will strive to provide sufficient capacity at the Pinole/Hercules Water Pollution Control Plant to serve anticipated demand in the service area.

Action CS.6.2.1 The Pinole Public Works Department shall be given the opportunity to review and make recommendations on all new development proposals to ensure there is adequate capacity to serve the project.

Action CS.6.2.2 The City will strive to prepare a capital replacement plant management report and update as needed to implement Goal CS.6.

Action CS.6.2.3 The City will strive to update the Water Pollution Control Plant to improve the plant's ability to process solids to solve the imbalance in solids processing that has reduced the actual capacity of the plant.

Policy CS.6.3 The City will assure that all improvements to the sewer system necessitated by the approval of new projects are proportionately financed by the project sponsor.

Policy CS.6.4 The City shall promote beneficial uses of wastewater biosolids and effluent.

Action OS.8.5.1 Continue to employ pollution prevention techniques in all city operations and maintenance activities, consistent with Contra Costa County Clean Water Program regulations.

Action SE.9.1.5 Continue to plan and implement upgrades or other options to improve solids processing, comply with permit requirements, and help prevent overflow and runoff into the Bay.

In addition, Chapter 9.0, *Infrastructure and Public Facilities*, of the Three Corridors Specific Plan provides further discussion of wastewater service in the Specific Plan areas, including service standards, RWQCB requirements, and planned capitol improvement projects that may further reduce this impact.

As discussed above, existing wastewater treatment and conveyance infrastructure would not be adequate to accommodate wastewater service demands resulting from the proposed General Plan Update. However, implementation of the proposed General Plan policies and actions listed above would reduce this impact by requiring the City to ensure that adequate wastewater facilities would be available to serve new development and. The policies also require the City to continue to make capital improvements to the wastewater collection and treatment system to maintain system capability and reliability and to update the WPCP to improve the plant's ability to process solids to solve the imbalance in solids processing that has reduced the actual capacity of the plant. The policies also require the City to continue to implement a program to inspect and repair the City's sewer collection system to reduce infiltration and inflow and to design new infrastructure to avoid infiltration and inflow. Furthermore, new or expanded wastewater conveyance and treatment facilities needed to serve new development would undergo site-specific, project-level CEQA analysis at such time as they are proposed for development. Therefore, impacts associated with wastewater conveyance and treatment facilities would be considered **less than significant**.

Mitigation Measures

None required.

Waste Discharge Requirements (Standard of Significance 1)

Impact 4.12.6.2 Implementation of the General Plan Update, Three Corridor Specific Plan, and Zoning Code Update could result in wastewater discharge that would exceed wastewater treatment requirements of the San Francisco Bay Regional Water Quality Control Board. This impact is considered **less than significant.**

General Plan Update

Since the primary growth in the city will be concentrated in the Three Corridors Specific Plan area, the wastewater analysis for the GPU Planning Area and the Three Corridors Specific Plan is combined below.

Three Corridors Specific Plan

As identified under Impact 4.12.6.1 above, the proposed General Plan Update and its associated project components would increase wastewater flows in the Planning Area. Increased wastewater flows associated with the proposed project could result in failure to meet the discharge requirements set forth by the San Francisco Bay RWQCB. The San Francisco RWQCB has issued two WDR orders that pertain to the City's Planning Area. Order No. R2-2007-0024 permits discharge from the WPCP and includes requirements that Pinole undertake corrective measures to increase dry and wet weather capacity at the WPCP in order to eliminate blending at the deep water outfall and prevent discharge at the shallow outfall. Order No. R2-2008-0004, a Revised Tentative Cease and Desist Order, sets forth effluent limitations that the West County Wastewater District and other agencies will have to meet by 2016. The order includes time schedules for compliance; capital improvements may not be necessary if compliance can be met through best management practices and other efforts.

The potential environmental effects of infrastructure upgrades necessary to meet future demands and comply with these WDR orders are discussed under Impact 4.12.6.1 above. This impact is considered to be **potentially significant.**

Zoning Code Update

Updates to the Zoning Code are intended to further clarify the types and forms of uses permitted under particular land use designations, but would not result in any development activities beyond that analyzed for the proposed General Plan Update. Therefore, the Zoning Code Update would have an impact similar to that for the General Plan Update as discussed above.

Proposed General Plan Policies and Action Items that Address Wastewater Discharge Requirements

The proposed General Plan incorporates the following policies and actions that provide mitigation for wastewater discharge impacts:

Policy CS.6.1	The City shall continue to make capital improvements to the wastewater collection and treatment system to maintain system capability and reliability.
Action CS.6.1.1	The City shall ensure that all parts of the collection system are maintained in adequately safe condition.
Action CS.6.1.2	The City shall implement treatment plant improvements as necessary to ensure that all permit requirements are met and the system is adequate to accept and treat all flows.
Action CS.6.1.3	The City will continue to implement a program to inspect and repair the City's sewer collection system to reduce both infiltration and inflow.

Action CS.6.1.4 New sewer collection and transmission systems shall be designed and constructed to minimize potential inflow and infiltration, and the existing collection system will be upgraded to reduce inflow and infiltration.

Action OS 8.5.1 Continue to employ pollution prevention techniques in all city operations and maintenance activities, consistent with Contra Costa County Clean Water Program regulations.

Action SE.9.1.5 Continue to plan and implement upgrades or other options to improve solids processing, comply with permit requirements, and help prevent overflow and runoff into the Bay.

In addition, Chapter 9.0, *Infrastructure and Public Facilities*, of the Three Corridors Specific Plan provides further discussion of wastewater service in the Specific Plan areas, including service standards, RWQCB requirements, and planned capitol improvement projects that may further reduce this impact.

Mitigation Measures

In addition to the proposed General Plan policies and actions listed above, the following mitigation measure shall be implemented:

MM 4.12.6.2 The City shall include an action in the General Plan requiring all future development to demonstrate that there is sufficient sewer/wastewater treatment capacity to accommodate the proposed development and that the required sewer/wastewater infrastructure is in place before issuance of Certificate of Occupancy. Furthermore, all on-site and off-site sewer conveyance systems shall be in place prior to the issuance of Certificate of Occupancy and all financing shall be assured to the satisfaction of the City.

Implementation of the above mitigation measure would ensure that sufficient sewer/wastewater treatment capacity would be available to accommodate future development in the Planning Area. Therefore, this impact would be reduced to a **less than significant level.**

CUMULATIVE IMPACT ANALYSIS

Cumulative Setting

The cumulative setting for wastewater services includes the entire service area of the PHWWTP as well as a portion of the service area of the WCWWTP. The service area of the PHWWTP includes the entire City of Hercules, and a portion of the City of Pinole; the service area of the WCWWTP includes a portion of the City of Pinole and a portion of its Sphere of Influence. The cumulative setting also encompasses all existing, planned, proposed, approved, and reasonably foreseeable development within the City's wastewater service area and the existing portion of the WCWD service area within the Planning Area at buildout of the proposed General Plan, expected to occur by 2030. The reader is referred to Table 4.0-1 in Section 4.0 of this DEIR for a list of development projects within the Planning Area.

Cumulative Impacts and Mitigation Measures

Cumulative Wastewater Service Impacts

Impact 4.12.6.3 Implementation of the General Plan Update, Three Corridor Specific Plan, and Zoning Code Update, as well as existing, planned, proposed, approved, and reasonably foreseeable development in the City of Pinole Public Works Department and West County Wastewater District wastewater service areas, would increase wastewater flows and require additional infrastructure and treatment capacity to accommodate anticipated demands. The proposed project's contribution to this impact is considered to be **less than cumulatively considerable**.

Under cumulative conditions, both the City of Pinole and the WCWD would provide wastewater services to the Planning Area. As discussed under Impact 4.12.6.1 above, existing wastewater conveyance and treatment infrastructure would not be adequate to accommodate wastewater service demands resulting from implementation of the General Plan Update and its associated project components. Other existing, planned, proposed, approved, and reasonably foreseeable development in the City's and WCWD's service area would contribute to further cumulative shortages of capacity. However, implementation of the proposed General Plan policies listed below would reduce this impact by requiring the City to ensure that adequate wastewater facilities would be available to serve new development and by requiring the City to continue to make capital improvements to the wastewater collection and treatment system to maintain system capability and reliability. The policies also require the City to continue to implement a program to inspect and repair the City's sewer collection system to reduce infiltration and inflow and to design new infrastructure to avoid infiltration and inflow. In addition, while the specific environmental impacts associated with new or expanded wastewater facilities have not been determined since project-level design and CEQA analysis is not within the scope of this DEIR, the programmatic environmental impacts associated with these facilities will result in impacts to the environment as discussed under Impact 4.12.6.1. Therefore, the proposed General Plan Update would not contribute significantly to cumulative wastewater infrastructure impacts, and this impact is considered **less than cumulatively considerable**.

Proposed General Plan Policies and Action Items that Address Cumulative Wastewater Service Impacts

The proposed General Plan incorporates the following policies and actions that provide mitigation to minimize the proposed project's contribution to cumulative wastewater service impacts. Since these policies and action items have been described in detail in prior impact discussions for this section, the following is limited to only listing the policy and action item numbers.

Growth Management Element

Action GM.1.1.5, Policy GM.2.1, Action GM.2.2.1, Policy GM.2.2, Action GM.2.2.3, Action GM.2.2.4, Policy GM.2.3, Action GM.2.31, Action GM.2.3.2, Policy GM.4.1

Community Services and Facilities Element

Policy CS.6.1, Action CS.6.1.1, Action CS.6.1.2, Action CS.6.1.3, Action CS.6.1.4, Policy CS.6.2, Action CS.6.2.1, Action CS.6.2.2, Action CS.6.2.3, Policy CS.6.3, Policy CS.6.4

Natural Resources and Open Space Element

Action OS.8.5.1

Sustainability Element

Action SE. 9.1.5

In addition, Chapter 9.0, *Infrastructure and Public Facilities*, of the Three Corridors Specific Plan provides further discussion of wastewater service including service standards, RWQCB requirements, and planned capitol improvement projects that may further reduce cumulative impacts.

Mitigation Measures

None required.

4.12.7 SOLID WASTE

4.12.7.1 EXISTING SETTING

West Contra Costa Integrated Waste Management Authority

The West Contra Costa Integrated Waste Management Authority (WCCIWMA) is a California Joint Exercise of Powers that is responsible for maintaining solid waste management systems for residents and businesses within an approximately 74 square mile area of western Contra Costa County including the cities of El Cerrito, Hercules, Pinole, Richmond, and San Pablo as well as unincorporated areas of El Sobrante, Tara Hills, Bayview/Montalvin, East Richmond Heights, Rollingwood, and North Richmond. These areas receive solid waste collection services from Richmond Sanitary Service, Inc. (RSS) under an exclusive collection franchise agreement between Contra Costa County and RSS dated October 12, 1993. The WCCIWMA manages all solid waste services provided after the material is collected, such as:

- Transfer and landfill collected garbage
- Process collected recyclables
- Process collected green waste
- Operate the Authority (staffing and administrative)
- Implement household hazardous waste programs
- Implement waste prevention and recycling programs
- Public education and outreach (Lehon, 2009)

Richmond Sanitary Service

The commercial, residential, and industrial solid waste hauler for the Planning Area is Richmond Sanitary Service (RSS). The City encourages recycling and has included information on recycling programs on its website. The City of Pinole is currently meeting the diversion rate mandated by Assembly Bill (AB) 939. Household hazardous waste is taken to the West County Drive-Through Household Hazardous Waste Collection Facility, located at 101 Pittsburg Avenue in Richmond at the Richmond Parkway.

Solid Waste Facilities

In October 2006, the West Contra Costa County Sanitary Landfill (WCCSL) was closed. Solid waste from Pinole is now transported to the closed WCCSL site, where waste is processed at the Golden Bear Transfer Station. Golden Bear Transfer Services, Inc., a subsidiary of Republic Services, Inc., opened the transfer facility when the landfill was closed. From there, unrecyclable materials are transferred to the Keller Canyon Landfill for disposal (Lehon, 2009).

The Keller Canyon Landfill is located at 901 Bailey Road in Pittsburg in Contra Costa County. The landfill is operated under Permit Number 07-AA-0032, with a disposal area of 244 acres, and is classified as a Class II landfill accepting agricultural, construction/demolition, and industrial wastes as well as sludge (biosolids) in addition to mixed municipal waste. The landfill is permitted to accept a maximum of 3,500 tons per day and has a total permitted capacity of 75,018,280 cubic yards. As of November 2004, this landfill had 63,408,410 cubic yards of remaining capacity and is estimated to cease operation in December 2030 (Lehon, 2009; CIWMB, 2009a).

Recyclable materials collected by RSS are processed at the Integrated Resource Recovery Facility (IRRF). This facility is owned and operated by the WCCIWMA and is located just off the Richmond Parkway at 101 Pittsburg Avenue in North Richmond. Household hazardous waste is collected at a permanent facility located at the IRRF. The household hazardous waste facility is open two days a week and the first Saturday of each month and accepts a wide variety of materials from local residents and small businesses. Some of the items accepted are electronic waste, pharmaceuticals, sharps and syringes, and used cooking oil/grease. The material is reused, recycled, or properly disposed. Yard debris is taken to the closed WCCSL and is processed into ground cover and mulch and for other beneficial reuse. The WCCIWMA also maintains a database of local resources and facilities that take various materials such as tires, appliances, and mixed plastics (Lehon, 2009).

Service Standards/Solid Waste Diversion

There are no established service standards for solid waste within the Planning Area. However, under AB 939, the County's Integrated Waste Management Plan requires recycling programs that are intended to result in a 50 percent diversion away from landfills. In 2006, the WCCIWMA, which includes the City of Pinole, had an estimated diversion rate of 53 percent (CIWMB, 2009b). In order to achieve the required 50 percent diversion rate, the WCCIWMA implements various source reduction, recycling, and reuse efforts including a commingled recycling collection program and green waste collection for residents within its service area.

Funding Mechanisms

<u>West Contra Costa Integrated Waste Management Authority</u>

Funding for services provided by the WCCIWMA is obtained via a monthly fee called the IRRF Fee. The IRRF Fee is included in monthly garbage bills sent to customers. This fee is calculated annually based on an annual operating budget and then adjusted based on the actual costs. The fee provides funding for the following services (excluding collection):

- Transfer, transportation, and disposal services
- Recycling processing services
- Household hazardous waste collection and management services
- Public education and outreach programs

The WCCIWMA also receives a portion of net revenues from the sale of recyclable materials at the IRRF. Sixty-five (65) percent of this revenue is used to stabilize rates charged to customers. In addition, the WCCIWMA has secured over $1.4 million of grant funds over the past ten years to complement programs and services and offset costs (Lehon, 2009).

It should be noted that the current solid waste service fees and rates in western Contra Costa County are some of the highest rates of all nine Bay Area counties and, historically, the community is sensitive to any cost or price increases to expand solid waste services (Lehon, 2009).

4.12.7.2 REGULATORY FRAMEWORK

Federal

Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (RCRA) was enacted in 1976 to address the huge volumes of municipal and industrial solid waste generated nationwide. After several amendments, the act as it stands today governs the management of solid and hazardous waste and underground storage tanks (USTs). The RCRA, enacted in 1976, is an amendment to the Solid Waste Disposal Act of 1965. The RCRA has been amended several times, most significantly by the Hazardous and Solid Waste Amendments (HSWA) of 1984. The RCRA is a combination of the first solid waste statutes and all subsequent amendments. The act authorizes the USEPA to regulate waste management activities and authorizes states to develop and enforce their own waste management programs, in lieu of the federal program, if a state's waste management program is substantially equivalent to, consistent with, and no less stringent than the federal program.

State

California Integrated Waste Management Act (AB 939)

The California Integrated Waste Management Act of 1989 (AB 939) requires every city and county in the state to prepare a Solid Reduction and Recycling Element (SRRE) to its Solid Waste Management Plan that identifies how each jurisdiction will meet the mandatory state waste diversion goals of 25 percent by 1995 and 50 percent by 2000. The purpose of AB 939 is to "reduce, recycle, and re-use solid waste generated in the State to the maximum extent feasible."

The term "integrated waste management" refers to the use of a variety of waste management practices to safely and effectively handle the municipal solid waste stream with the least adverse impact on human health and the environment. The act has established a waste management hierarchy, as follows:

- Source Reduction
- Recycling
- Composting
- Transformation
- Disposal

California Integrated Waste Management Board Model Ordinance

Subsequent to the Integrated Waste Management Act, additional legislation was passed to assist local jurisdictions in accomplishing the goals of AB 939. The California Solid Waste Re-use and Recycling Access Act of 1991 (Sections 42900–42911 of the Public Resources Code) required the CIWMB to approve a model ordinance for adoption by any local government for the transfer, receipt, storage, and loading of recyclable materials in development projects by March 1, 1993. The act also required local agencies to adopt a local ordinance by September 1, 1993, or to allow the model ordinance to take effect.

Per Capita Disposal Measurement System (SB 1016)

Senate Bill (SB) 1016 was passed into law in late 2008 and is intended to make the process of goal measurement as established by the Integrated Waste Management Act of 1989 (AB 939) simpler, timelier, and more accurate. SB 1016 builds on AB 939 compliance requirements by implementing a simplified measure of jurisdictions' performance. SB 1016 accomplishes this by changing to a disposal-based indicator — the per capita disposal rate — which uses only two factors: a jurisdiction's population (or in some cases employment) and its disposal as reported by disposal facilities. SB 1016 shifts from the historical emphasis on using calculated generation and estimated diversion to using annual disposal as a factor when evaluating jurisdictions' program implementation (CIWMB, 2008b).

Local

Contra Costa County General Plan

The Contra Costa County General Plan is used as the "blueprint" to guide future development in unincorporated portions of the county, including sections of the GPU Planning Area that are outside the Pinole city limits. The Contra Costa County public facilities policies applicable to the Planning Area outside the existing city limits are Policies 7-87 through 7-100. These policies address considering solid waste disposal capacities in county and city land use planning and permitting activities; coordination with solid waste management facilities in adjoining counties; encouragement of solid waste recovery to extend the life of landfills; locations of future landfills for lands designated landfill; the restriction of access to landfills; and the requirement for all applications for solid waste facilities to apply for a General Plan amendment.

Contra Costa County Construction and Demolition Ordinance

The County's construction and demolition ordinance became effective July 8, 2004, and applies to all construction, renovation, or demolition projects that are 5,000 square feet in size or greater. Covered projects are required to reuse, recycle, or otherwise divert at least 50 percent of the construction and demolition debris generated on the job site. Permit applicants must submit a Debris Recovery Plan prior to receiving a construction or demolition permit and they must submit a Debris Recovery Report prior to receiving a final inspection. If the project fails to meet the diversion requirement or the applicant fails to make a good faith effort to meet the diversion requirement, the applicant may be subject to fines and civil penalties (CIWMB, 2008a).

City of Pinole Municipal Code

Chapter 8.08 of the City of Pinole Municipal Code contains rules and regulations regarding the storage, disposal, collection, and handling of solid waste within the city.

4.12.7.3 IMPACTS AND MITIGATION MEASURES

Standards of Significance

An impact on solid waste services is considered significant if implementation of the proposed project would result in any of the following:

1) Be served by a landfill without sufficient permitted capacity to accommodate the project's solid waste disposal needs.

2) Fail to comply with federal, state, and local statutes and regulations related to solid waste.

Methodology

Evaluation of potential solid waste service impacts was based primarily on information from the California Integrated Waste Management Board. This material was compared to the proposed General Plan Update's specific solid waste service-related impacts. The impact analysis below focuses on whether those impacts would have a significant effect on the physical environment.

Impacts and Mitigation Measures

Increased Solid Waste Generation (Standards of Significance 1 and 2)

Impact 4.12.7.1 Implementation of the proposed project (General Plan Update, Three Corridor Specific Plan, and Zoning Code Update) would increase solid waste generation and the demand for related services. This is considered a **less than significant** impact.

General Plan Update

Implementation of the proposed General Plan Update is projected to result in population growth within the Planning Area, resulting in the generation of more solid waste and potentially requiring increased solid waste collection and disposal services. The city's population is projected to increase from the present population of about 20,100 (2010) to an ultimate General Plan buildout population of 23,875 (2030), an increase of about 3,775 people. The area's 2007 per capita waste disposal rate is 4.8 pounds per person per day. Given the estimated disposal rate, an increase of 3,775 people would generate an additional 3,307 tons of solid waste per year.

According to the WCCIWMA, it is anticipated that current service levels and facility capacities would be adequate to serve the city's projected 2030 buildout population and no decline in services would result. Therefore this impact is considered **less than significant**.

Three Corridors Specific Plan

Implementation of the proposed Three Corridors Specific Plan would consist of the revitalization of the San Pablo Avenue, Pinole Valley Road, and Appian Way corridors, which could include new development and/or redevelopment of various urban uses. Due to the city's small supply of developable land, the Three Corridors Specific Plan directs the majority of the city's future growth to opportunity sites for infill mixed-use development along the city's commercial corridors in close proximity to transit and other services.

The Specific Plan area contains approximately 300 acres of predominantly developed land. In order to accommodate the projected demand for development and invite further capital investment in the city, the Specific Plan would change land uses in order to replace single-use commercial zoning with various mixed-use zones, eliminate commercial floor area ratio (FAR) as a development constraint, increase opportunities for residential development, and increase residential density. If all of the residential properties within the Specific Plan area were to develop according to the proposed provisions of the land use and development standards contained in the Specific Plan, the city would be expected to experience increased residential development of up to 1,076 residential units by 2030. Based on ABAG's 2007 estimate of 2.89 persons per household, the Specific Plan could result in an additional 3,110 persons by 2030 (1,076 housing units x 2.89 persons per household). As mentioned above, according to the WCCIWMA, it is anticipated that current service levels and facility capacities would be adequate to serve the city's projected 2030 buildout population and no decline in services would result. This impact is considered **less than significant**.

Zoning Code Update

Updates to the Zoning Code are intended to further clarify the types and forms of uses permitted under particular land use designations, but would not result in any development activities beyond that analyzed for the proposed General Plan Update. Therefore, the Zoning Code Update would have an impact similar to that for the General Plan Update as discussed above.

Proposed General Plan Policies and Actions that Address Increased Solid Waste Generation

Implementation of the following General Plan policies and actions would further reduce impacts associated with solid waste generation.

Policy CS.8.1	The City will continue to encourage efforts to reduce, recycle and compost as many materials as possible to minimize demand for future waste disposal facilities.
Action CS.8.1.1	Continue to meet or exceed the waste diversion requirements of 50 percent, and develop and implement a program to reduce waste entering the landfill by attaining a 75 percent diversion rate by January 2020.
Action CS.8.1.2	Encourage Pinole residents, businesses and industries to reduce the use of non-biodegradable and non-recyclable materials, including reduced use of packaging and use of reusable, rather than disposable, products.
Action CS.8.1.3	Construction sites shall provide for the salvage, reuse or recycling of construction and demolition materials.
Action CS.8.1.4	Public buildings will incorporate on-site storage facilities for recycled materials.
Policy CS.8.2	Educate the public and provide opportunities to utilize waste reduction techniques.
Action CS.8.2.1	Distribute public education materials on solid waste source reduction, recycling and composting, and the proper handling of household hazardous waste.

Action CS.8.2.2	Increase opportunities for safe disposal or recycling of electronic waste (e-waste) and hazardous waste by residents and businesses in Pinole.
Action CS.8.2.3	Continue community-wide efforts, such as the regular area swap meets, to minimize waste.
Policy SE.5.1	Continue and expand programs to reduce solid waste generated from all sectors of the city. Programs may include recycling, reuse, source reduction and composting.
Action SE.5.1.1	Continue the City's e-waste recycling program.
Action SE.5.1.2	Improve and expand curbside recycling and other residential recycling services.
Action SE.5.1.3	Continue to improve internal City and County waste prevention practices.
Action SE.5.1.4	Expand City recycling of asphalt and other street material.
Action SE.5.1.5	Encourage continued commercial food-waste collection program.
Action SE.5.1.6	Develop an ordinance reducing construction-generated waste.
Action SE.5.1.7	Develop and implement a plan for City communications and facilities to eventually become primarily paperless.
Policy SE.5.2	Support public awareness and participation in household waste management, control and recycling.
Action SE.5.2.1	Promote and expand recycling programs, purchasing policies, and employee education to reduce the amount of waste produced.
Policy SE.5.4	Reduce waste from construction activities.
Action SE.5.4.1	Pinole will adopt a Construction and Demolition Waste Recovery Ordinance, requiring building projects to recycle or reuse a minimum percentage of unused or leftover building materials.
Action SE.5.4.2	Require all new development and major rehabilitation projects to recycle or salvage a majority of the non-hazardous construction and demolition debris.
Action SE.5.4.3	Establish clear and consistent guidelines for how and when used construction materials can be used in new or remodel construction.

In addition, Chapter 9.0, *Infrastructure and Public Facilities*, of the Three Corridors Specific Plan provides further discussion of solid waste and confirms that if new development proposed within the Specific Plan Area causes an increased demand on the solid waste collection system, the developer will have to coordinate with the City and service providers in order to meet the increased demand. Further, Chapter 7.0, *Private Realm Standards and Design Guidelines*, of the Specific Plan requires the provision of recycling containers in all proposed trash enclosures and

Chapter 8.0, *Public Realm Standards and Design Guidelines*, requires the provision of recycling containers in public spaces.

As previously mentioned, the WCCIWMA anticipates that current service levels and facility capacities would be adequate to serve the city's projected 2030 buildout population and no decline in services will result. This impact is considered to be **less than significant**.

Mitigation Measures

None required.

4.12.7.4 CUMULATIVE IMPACT ANALYSIS

Cumulative Setting

The cumulative setting for solid waste includes the service area boundaries of the West Contra Costa Integrated Waste Management Authority. The authority is responsible for maintaining solid waste management systems for residents and businesses in the communities of El Cerrito, Hercules, Pinole, Richmond, and San Pablo as well as unincorporated areas of El Sobrante, Tara Hills, Bayview/Montalvin, East Richmond Heights, Rollingwood, and North Richmond.

The cumulative setting includes all existing, planned, proposed, approved, and reasonably foreseeable development within the West Contra Costa Integrated Waste Management Authority service area that currently places demand on the Keller Canyon Landfill.

Cumulative Impacts and Mitigation Measures

Cumulative Solid Waste Impacts

Impact 4.12.7.2 Implementation of the proposed project (General Plan Update, Three Corridor Specific Plan, and Zoning Code Update), along with other existing, planned, proposed, approved, and reasonably foreseeable development within the West Contra Costa Integrated Waste Management Authority service area, would result in cumulative solid waste impacts. This is considered a **less than cumulatively considerable** impact.

Richmond Sanitation Service collects the city's solid waste and ultimately disposes of it at the Keller Canyon Landfill. The West Contra Costa Integrated Waste Management Authority has indicated that the implementation of the proposed project in combination with other proposed projects and projected growth would result in a cumulative increase in waste generation; however, the increase could be accommodated. The West Contra Costa Integrated Waste Management Authority, which includes the City of Pinole, is currently meeting the source reduction requirements of AB 939 and will continue to implement the Source Reduction and Recycling Element (SRRE), which would ensure continued compliance with AB 939 under the proposed General Plan Update.

Proposed General Plan Policies and Actions that Address Cumulative Solid Waste Impacts

Implementation of the following General Plan policies and actions would further reduce impacts associated with solid waste (see Impact 4.12.7.1 for full policy language). Since these policies and action items have been described in detail in prior impact discussions for this section, the following is limited to only listing the policy and action item numbers.

Community Services and Facilities Element

Policy CS.8.1, Action CS.8.1.1, Action CS.8.1.2, Action CS.8.1.3, Action CS.8.1.4, Policy CS.8.2, Action CS.8.2.1, Action CS.8.2.2, Action CS.8.2.3

Sustainability Element

Policy SE.5.1, Action SE.5.1.1, Action SE.5.1.2, Action SE.5.1.3, Action SE.5.1.4, Action SE.5.1.5, Action SE.5.1.6, Action SE.5.1.7, Policy SE.5.2, Action SE.5.2.1, Policy SE.5.4, Action SE.5.4.1, Action SE.5.4.2, Action SE.5.4.3

In addition, Chapter 9.0, *Infrastructure and Public Facilities*, of the Three Corridors Specific Plan provides further discussion of solid waste and confirms that if new development proposed within the Specific Plan Area causes an increased demand on the solid waste collection system, the developer will have to coordinate with the City and service providers in order to meet the increased demand. Further, Chapter 7.0, *Private Realm Standards and Design Guidelines*, of the Specific Plan requires the provision of recycling containers in all proposed trash enclosures and Chapter 8.0, *Public Realm Standards and Design Guidelines*, requires the provision of recycling containers in public spaces.

Implementation of the above policy provisions and Specific Plan standards and guidelines would reduce any potential cumulative solid waste impacts to a **less than cumulatively considerable** level.

Mitigation Measures

None required.

4.12.8 ENERGY AND COMMUNICATION SERVICES

4.12.8.1 EXISTING SETTING

Electric Services

Pacific Gas and Electric (PG&E) provides electricity to the City of Pinole and the GPU Planning Area. The PG&E service area covers nearly 70,000 square miles in northern and central California and serves approximately 15 million people (PG&E, 2010). The existing electric facilities in the PG&E service area include 123,054 circuit miles of electric distribution lines and 18,610 circuit miles of interconnected transmission lines.

Within the GPU Planning Area, the majority of energy that PG&E provides is renewable (57 percent), and the remaining energy sources are gas (42 percent) and coal (1 percent). All construction and maintenance activities for electric facilities are the responsibility of PG&E. **Table 4.12.8-1** below shows electricity consumption by land use for PG&E's service area from 1997 to 2007 expressed in millions of kWh.

TABLE 4.12.8-1
ELECTRICITY CONSUMPTION FOR PGE'S SERVICE AREA
(IN MILLIONS OF KWH)
1997–2007

Year	Ag & Water Pump	Commercial Building	Commercial Other	Industry	Mining & Construction	Residential	Street Light	Total Usage
1997	5,975	31,203	4,897	21,750	2,716	28,599	559	**95,699**
1998	5,000	31,156	4,841	21,117	2,563	29,596	572	**94,845**
1999	6,005	33,176	5,165	20,572	2,585	30,521	509	**98,534**
2000	6,004	34,503	5,279	20,748	2,599	31,646	552	**101,331**
2001	6,350	33,329	4,857	18,893	2,397	29,657	509	**95,993**
2002	6,439	34,220	4,944	18,143	2,283	30,537	503	**97,070**
2003	6,324	35,243	4,682	17,954	2,477	31,976	516	**99,171**
2004	6,778	35,741	4,987	18,352	2,642	32,708	532	**101,740**
2005	5,402	35,819	5,113	18,619	2,863	33,106	537	**101,460**
2006	6,010	36,943	5,407	18,561	2,912	34,345	542	**104,719**
2007	7,864	37,731	5,851	18,317	3,068	34,608	549	**107,988**

Source: ECDMS, 2010

Natural Gas Services

PG&E provides natural gas services to the city of Pinole and the GPU Planning Area. As stated above, the PG&E service area covers nearly 70,000 square miles in northern and central California and serves approximately 15 million people (PG&E, 2010). The existing natural gas facilities in the Planning Area consist of 4½-inch to 16-inch pipelines delivering service to all customers that are not served by private propane tanks. All construction and maintenance activities for natural gas facilities are the responsibility of PG&E. **Table 4.12.8-2** below shows natural consumption by land use for PG&E's service area from 1997 to 2007 expressed in millions of therms.

TABLE 4.12.8-2
NATURAL GAS CONSUMPTION FOR PG&E'S SERVICE AREA
(IN MILLIONS OF THERMS)
1997–2007

Year	Ag & Water Pump	Commercial Building	Commercial Other	Industry	Mining & Construction	Residential	Total Usage
1997	56	707	67	1,942	14	1,963	**4,749**
1998	59	765	67	1,726	26	2,264	**4,907**
1999	68	808	64	1,734	20	2,404	**5,098**
2000	78	777	55	1,817	27	2,148	**4,902**
2001	50	631	44	1,618	20	2,016	**4,379**
2002	59	806	35	1,536	23	2,075	**4,534**
2003	84	872	49	1,461	13	2,034	**4,513**
2004	64	799	68	1,531	29	2,009	**4,500**
2005	41	768	78	1,552	37	1,933	**4,409**
2006	48	907	104	1,513	45	2,005	**4,622**
2007	46	859	50	1,513	37	2,023	**4,528**

Source: ECDMS, 2010

Telephone and Telecommunication Services

AT&T and Comcast

AT&T (formerly known as SBC Communications) provides local telephone service to the city, while cable television service is provided through Comcast. Both providers have the ability to maintain these services to meet the need of city residents and businesses in the future.

Both the city and the county have experienced a dramatic increase in demand for telecommunications products and services in the last decade as this industry has emerged to provide a new form of customer phone and related services. The City of Pinole requires all wireless communication facilities to have a use permit. Use permit applicants are required to submit a master plan for all related facilities, a computer enhanced photo image of the site, a mock-up of an antenna, if proposed, a preliminary report based on the current Federal Communications Commission (FCC) rules, regulations and standards, and alternative site analysis. The use permit requires Planning Commission approval before wireless communication facilities can be installed.

The State Public Utilities Commission, which maintains that local jurisdictions cannot prohibit or otherwise unduly restrict utilities such as cellular phone installations, regulates telecommunications.

Telephone and Internet facilities in the GPU Planning Area include both aerial and underground fiber and copper lines transmission lines. The majority of new telephone facilities are collocated underground with other utilities on poles or in underground trenches and are constructed in public and roadway rights-of-way to reduce visual and aesthetic impacts and potential safety

hazards. The environmental review of providing telephone and cable services is typically handled on a case-by-case basis in conjunction with individual development projects.

4.12.8.2 REGULATORY FRAMEWORK

State

California Public Utilities Commission

The California Public Utilities Commission (CPUC) is the state agency that regulates privately owned electric, natural gas, telecommunications, water, railroad, rail transit, and passenger transportation companies, in addition to authorizing video franchises. The CPUC grants operating authority, regulates service standards, sets rates, and monitors utility operations for safety, environmental stewardship, and public interest.

Traditionally, general rate cases have been the major form of regulatory proceeding for the CPUC. General rate case applications may be filed every three years and take about a year to complete. The utility bases its revenue request on its estimated operating costs and revenue needs for a particular future year. Customer rates will be based on the CPUC's determination of how much revenue the utility reasonably requires to operate.

California Building Energy Efficiency Standards

Title 24, Part 6 of the California Code of Regulations, known as the Building Energy Efficiency Standards, was established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. The Energy Commission adopted the 2008 Standards on April 23, 2008, and the Building Standards Commission approved them for publication on September 11, 2008. The new standards will go in to effect on July 1, 2009 (CEC, 2008).

CEQA Appendix F

In order to assure that energy implications are considered in project decisions, the California Environmental Quality Act (CEQA) requires that Environmental Impact Reports (EIRs) include a discussion of the potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful and unnecessary consumption of energy. Appendix F of the CEQA Guidelines, which is designed to assist in the preparation of an EIR, lists energy impact possibilities and potential conservation measures.

Local

Contra Costa County General Plan

The Contra Costa County General Plan is used as the "blueprint" to guide future development in unincorporated portions of the county, including sections of the GPU Planning Area that are outside the Pinole city limits. The Contra Costa County General Plan does not have any specific policies regarding electrical, natural gas, and telephone service; however, the housing element contains discussion about energy conservation measures and programs for energy assistance in which PG&E participates.

City of Pinole Municipal Code

Title 17, Section 33.060 of the City of Pinole Municipal Code states that applicants for wireless telecommunication facilities shall provide site plans showing provisions for undergrounding of all utilities.

4.12.8.3 IMPACTS AND MITIGATION MEASURES

Standards of Significance

A public services or utilities impact is considered significant if implementation of the project would result in any of the following:

1) The need for new systems or supplies, or a substantial expansion or alteration to power or natural gas facilities or infrastructure that results in a physical impact on the environment.

2) The wasteful, inefficient and unnecessary consumption of energy during project construction, operation, maintenance and/or removal.

Methodology

Evaluation of potential electricity, natural gas, or telecommunication impacts was based on information from the California Energy Commission and the California Public Utilities Commission and consultation with the service providers. This material was then compared to the proposed General Plan Update's specific electricity, natural gas, or telecommunication impacts. The impact analysis below focuses on whether or not the physical environment would be significantly affected.

Evaluation of potential impacts on electrical, natural gas, and telephone services resulting from the proposed project was based on consultation with the service providers, review of California Energy Commission provisions, state standards, the Contra Costa County General Plan, and the proposed City of Pinole General Plan.

Impacts and Mitigation Measures

Increased Demand for Electrical, Natural Gas, and Telecommunication Services (Standards of Significance 1 and 2)

Impact 4.12.8.1 Implementation of the proposed project (General Plan Update, three Corridors Specific Plan, and Zoning Code Update) would require additional electric and natural gas supplies, along with conveyance facilities for these and telephone and cable television services. This is considered a **less than significant** impact.

PG&E provides electrical service to the city and would likely serve subsequent development projects. PG&E would need to increase their power supplies to serve development under the proposed project. It is not certain how PG&E would need to increase its power supplies. PG&E provides power generated by a variety of sources, including hydrological, wind, fossil fuel, and nuclear. As growth in the area occurs, it is anticipated that PG&E would need to construct new substations to provide adequate electrical service under project conditions. Additional transmission lines would be necessary to deliver electrical service. All electrical distribution lines,

substations, transmission, delivery facilities, and easements required to serve the Planning Area are subject to CEQA review. Potential environmental effects of obtaining more power through the development of power plants include, but are not limited to, air quality, biological resources, cultural resources (depending on location), hazardous materials, land use, noise and vibration, traffic, visual resources, waste management, water and soil resources, and health hazards. Potential environmental effects for the construction of transmission lines include, but are not limited to, air quality (during construction), biological resources (depending on location), cultural resources (depending on location), hazardous materials, land use, noise and vibration (during construction), traffic, visual resources, and health hazards.

PG&E also provides natural gas service to the city. PG&E would need to extend its natural gas infrastructure to serve new development. Potential environmental effects for the construction of gas lines include, but are not limited to, air quality (during construction), biological resources (depending on location), cultural resources (depending on location), hazardous materials, land use, noise and vibration (during construction), traffic, and health hazards.

Development under the proposed project would be required to comply with the changes to Title 24 of the California Code of Regulations regarding energy efficiency. These new energy efficiency standards were developed in response to the state's energy crisis as well as AB 970 (Building Energy Efficiency Standards) and SB 5X (Outdoor Lighting Standards) requirements to avoid the wasteful, inefficient and unnecessary consumption of energy and to improve residential and nonresidential building energy efficiency, minimize impacts to peak energy usage periods, and reduce impacts on overall state energy needs.

AT&T and Comcast provide cable, Internet, and telephone service to the city. While implementation of the proposed project would result in growth in the city and require the expansion of these services, most of the underground and aerial telephone, cable, and Internet transmission lines are generally collocated with other utilities on poles or in underground trenches and are constructed in public and roadway rights-of-way to reduce visual and aesthetic impacts and potential safety hazards.

While the environmental effects of necessary infrastructure to serve development accommodated by the proposed project are addressed programmatically in this DEIR, the environmental review of providing electrical, natural gas, telephone, and cable services is typically handled on a case-by-case basis in conjunction with individual development projects. A project-level CEQA document would analyze the potential environmental impacts of a project involving additional infrastructure at a more specific level and would identify mitigation measures more specific to those impacts. Since specific infrastructure projects have not been identified at this time, potential impacts are addressed at a programmatic level only. This impact is considered **less than significant**.

Three Corridors Specific Plan

Implementation of the proposed Specific Plan would consist of the revitalization of the San Pablo Avenue, Pinole Valley Road, and Appian Way corridors, which could include new development and/or redevelopment of various urban uses. Such development would not be expected to result in substantial population growth beyond that projected as part of the proposed General Plan Update. Therefore, no significant increase in electrical, natural gas, or telephone services beyond those addressed in the proposed General Plan would be expected to result. This impact is considered to be **less than significant**.

Zoning Code Update

Updates to the Zoning Code are intended to further clarify the types and forms of uses permitted under particular land use designations, but would not result in any development activities beyond that analyzed for the proposed General Plan Update. Therefore, the Zoning Code Update would have an impact similar to that for the General Plan Update as discussed above.

Proposed General Plan Policies and Actions that Address Increased Demand for Electrical, Natural Gas, and Telecommunication Services

The following General Plan policies address effects related to the provision of electric, natural gas, and cable/television services in the Planning Area:

Action CS.1.1.4 The City shall increase the energy efficiency and hazard resistance of public buildings.

Policy CS.9.1 The City will seek opportunities to improve the energy efficiency of facilities and operations.

Action CS.9.1.1 Continue to encourage the use of solar energy, both active and passive, in the orientation and design of all new construction projects.

Action CS.9.1.2 Continue efforts to convert public buildings to solar power wherever possible.

In addition, Chapter 7.0, *Private Realm Standards and Design Guidelines*, of the Three Corridors Specific Plan encourages the incorporation of building siting and design techniques that increase energy efficiency including orienting buildings to maximize solar access and the use of solar power systems, green roofs, and green building practices. Chapter 8.0, *Public Realm Standards and Design Guidelines*, encourages energy efficiency in public facilities and public lighting. Furthermore, Chapter 17.94 of the Zoning Code Update allows for the use of wind energy conversion systems in all zoning districts with the issuance of a use permit and provides specific performance standards for such systems.

Implementation of the above policy and action items, coupled with adherence to state standards and regulations, would ensure that implementation of the proposed project would not result in the wasteful, inefficient and unnecessary consumption of energy. In addition, the above policy and action items and state standards and regulations would ensure electric, natural gas, telephone, cable, and Internet-related impacts of the project would be considered **less than significant.**

Mitigation Measures

None required.

CUMULATIVE IMPACT ANALYSIS

Cumulative Setting

The cumulative setting for electrical, natural gas, and cable services encompasses the service areas of the each particular service provider (e.g., PG&E, AT&T, and Comcast), under full development of the Planning Area, expected to occur in the year 2030 and beyond. The

cumulative setting for electric service and natural gas also includes Northern California, which is currently experiencing a great amount of growth and a subsequent cumulative demand for these services and related infrastructure.

The California electrical industry was deregulated in March 1998. Since the summer of 2000, the state has been experiencing a shortage of electrical generation. This shortage has been caused by several factors, including but not limited to substantial statewide population and industry growth, complications associated with deregulation, increases in power and natural gas costs, decreases in power generation capacity of the Pacific Northwest (Oregon and Washington), and inadequate power generation capacity within the state. Based on the current situation with the California Energy Commission, it is anticipated that power supplies will be available to serve California in the short term.

Cumulative Impacts and Mitigation Measures

Cumulative Electrical, Natural Gas, and Telephone Service Impacts

Impact 4.12.8.2 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update), as well as potential development in the surrounding areas, would result in an increase in cumulative utility service demands. The proposed project would have a **less than cumulatively considerable** impact on electrical, natural gas, telephone, and cable television services.

There are a number of development projects in the vicinity of the City of Pinole and Contra Costa County that would be served by PG&E and result in a cumulative demand for electric service. To serve the cumulative development conditions, PG&E's existing transmission lines may need to be reconstructed, substations may need to be upgraded or added, and additional distribution lines would need to be added. It is not expected that the proposed project would trigger the need for transmission upgrades. Detailed electrical demands for the proposed project are not available at this time but would add to the cumulative demand on electrical supplies.

Under cumulative conditions, individual development projects would continue to receive natural gas service from smaller gas lines that connect to the main transmission line. In order for future development areas to receive natural gas service, they would need to tap into the main transmission line and construct separate distribution gas lines that would extend into each development. Additional pressure reduction equipment and pressure regulators would also be required to provide adequate gas pressure to all future PG&E natural gas customers. The environmental effects of necessary improvements for natural gas infrastructure would be limited to temporary construction effects associated with air quality, noise, water quality, and temporary construction traffic control. Mitigation measures identified in Section 4.3, Air Quality and Climate Change, Section 4.5, Noise, and Section 4.9, Hydrology and Water Quality, would reduce these temporary impacts.

The provision of cable and cable services would not result in additional cumulative environmental impacts identified for electric or natural gas under Impact 4.12.8.1, as facilities are generally collocated and placed within public rights-of-way to reduce such impacts. The construction of new utility infrastructure is subject to CEQA review and compliance, and the physical effects of extending service and infrastructure will be analyzed on a project-by-project basis as new development proposals are received. Fee-based utilities and services, such as electric, natural gas, and cable/telephone, provide for additional development through capital

improvements based on service fees and connection fees, which would ensure adequate funding mechanisms even for cumulative conditions. The proposed project's electric, natural gas, telephone, and cable television impacts are less than significant and less than cumulatively considerable.

Proposed General Plan Policies and Actions that Address Cumulative Electrical, Natural Gas, and Telephone Service Impacts

The proposed General Plan update contains several policies and actions that would assist in reducing this cumulative electric, natural gas, and telephone service impact. The following list contains those policies and action items that include specific, enforceable requirements and/or restrictions and corresponding performance standards that assist in reducing this impact. Since these policies and actions have been described in detail in prior impact discussions for this section, the following is limited to only listing the policy and action item numbers.

Community Services and Facilities Element

Action CS.1.1.4, Policy CS.9.1, Action CS.9.1.1, Action CS.9.1.2

In addition, Chapter 7.0, *Private Realm Standards and Design Guidelines*, of the Three Corridors Specific Plan encourages the incorporation of building siting and design techniques that increase energy efficiency including orienting buildings to maximize solar access and the use of solar power systems, green roofs, and green building practices. Chapter 8.0, *Public Realm Standards and Design Guidelines*, encourages energy efficiency in public facilities and public lighting. Furthermore, Chapter 17.94 of the Zoning Code Update allows for the use of wind energy conversion systems in all zoning districts with the issuance of a use permit and provides specific performance standards for such systems.

The proposed General Plan policy and action items listed above would assist in addressing cumulative effects related to the provision of electric, natural gas, and cable/television services in the Planning Area.

Mitigation Measures

None required.

REFERENCES

AECOM. 2010. Draft Environmental Impact Report, Pinole-Hercules Water Pollution Control Plant Improvement Project. Sacramento, California.

Benjamin, Helen. 2008. Chancellor. Contra Costa Community College District. About the District: Backward Glance, Present Stance, and Future Chance.

Bradley, Ron. 2008. Lieutenant, Contra Costa County Office of the Sheriff. Personal communication dated March 19.

California Department of Education (CDE), School Facilities Planning Division. 2000. Guide to School Site Analysis and Development, 2000 Edition. Sacramento, California. Note: Reference in text as (CDE, 2008).

California Department of Finance (DOF). 2009. E-5 Population and Housing Estimates for Cities, Counties and the State, 2001–2009, with 2000 Benchmark. Sacramento, California.

California Department of Water Resources (DWR). 2010. http://www.water.ca.gov/ (accessed February 17, 2010).

California Energy Commission. 2008. http://www.energy.ca.gov/.

California Energy Consumption Data Management System (ECDMS). 2010. http://www.ecdms.energy.ca.gov/elecbyplan.aspx (accessed February 11, 2010).

California Environmental Protection Agency, San Francisco Bay Regional Water Quality Control Board (RWQCB). 2010. http://www.swrcb.ca.gov/sanfranciscobay/index.shtml. (accessed February 17, 2010).

California Integrated Waste Management Board (CIWMB). 2008a. Local Government Summaries: Jurisdictions with Construction and Demolition (C&D) Ordinances: Contra Costa County. URL: http://www.ciwmb.ca.gov/LGCentral/Summaries/07/JurisCnD.htm (accessed April 1, 2009).

California Integrated Waste Management Board (CIWMB). 2008b. Per Capita Disposal and Goal Measurement (2007 and Later). http://www.ciwmb.ca.gov/LGCentral/Basics/PerCapitaDsp.htm (accessed April 1, 2009).

California Integrated Waste Management Board (CIWMB). 2009a. Active Landfills Profile for Keller Canyon Landfill (07-AA-0032). http://www.ciwmb.ca.gov/Profiles/Facility/Landfill/LFProfile1.asp ?COID=7&FACID=07-AA-0032 (accessed April 1, 2009).

California Integrated Waste Management Board. 2009b. Jurisdictional Profile for West Contra Costa Integrated Waste Management Authority. http://www.ciwmb.ca.gov/Profiles/Juris/JurProfile2.asp?RG=R&JURID=568&JUR=West+Contra+Costa+Integrated+Waste+Management+Authority (accessed April 1, 2009).

California State Water Resources Control Board, California Integrated Water Quality System Project (CIWQS). 2010. https://ciwqs.waterboards.ca.gov/ciwqs/ (accessed February 20, 2010).

California Urban Water Conservation Council (CUWCC). 2010. http://www.cuwcc.org/ (accessed February 17, 2010).

California's Water Recycling Task Force (CWRTF). 2003. Water Recycling 2030, Recommendations of California's Water Recycling Task Force.

City-Data.com. 2010. Tara Hills. http://www.city-data.com/city/Tara-Hills-California.html (accessed February 8, 2010).

Contra Costa Community College District (CCCCD). 2002. Office of District Research. Contra Costa Community College District Service Area Boundary Map.

Contra Costa Community College District (CCCCD). 2007. Office of District Research. Contra Costa County Projections by College Service Area.

Contra Costa Community College District (CCCCD). 2008. Contra Costa Community College Master Plan.

Contra Costa Community College District (CCCCD). 2009. Contra Costa Community College District Official Website. http://www.4cd.net/default.aspx# (accessed August 24, 2009).

Contra Costa County Fire Protection District (CCCFPD). 2007. Investigation Report: Michele Drive Line of Duty Deaths. http://www.firetactics.com/CONTRA%20COSTA%20LODD%20REPORT%207.17.08.pdf (accessed February 8, 2010).

Contra Costa County, Office of the Sheriff. 2009. Emergency Services. Crime Analysis, Intelligence and Terrorism. Median Response Time by Call Priority Beats 2 & 3 Bay Station Jan. 2008– Dec. 2008.

Contra Costa LAFCo. 2009a. Municipal Service Review: Fire and Emergency Medical Service Providers. http://www.contracostalafco.org/municipal_service_reviews.htm (accessed February 8, 2010).

Contra Costa LAFCo. 2009b. West County Sub-Regional Municipal Service Review. 2009. http://www.contracostalafco.org/municipal_service_reviews.htm (accessed February 8, 2010).

Dudek. 2008. Final Water and Wastewater Services Municipal Services Review for West Contra Costa County. Riverside, California. (prepared for Contra Costa Local Agency Formation Commission)

East Bay Municipal Utility District (EBMUD). 2005. Water Resources Planning Division. Urban Water Management Plan 2005.

East Bay Municipal Utility District (EBMUD). 2009a. Water Supply Management Program 2040 Plan.

East Bay Municipal Utility District (EBMUD). 2009b. Draft Program Environmental Impact Report Water Supply Management Program 2040. SCH# 2008052006.

Education Data Partnership (EDP). 2009. Education Data Partnership, District Report: West Contra Costa Unified School District. http://www.ed-data.k12.ca.us/welcome.asp (accessed March 20, 2009).

ESA. 2006. EBMUD Water Treatment and Transmission Improvements Program Draft Environmental Impact Report SCH # 2005092019. (prepared for East Bay Municipal Utility District)

Gigliotti, Michael. 2009. Land Agent. Pacific Gas and Electric. Written correspondence dated March 13.

Grace, Richard. 2009. Assistant Chief, Support Services Division, Contra Costa Fire Protection District (CCFPD). Written correspondence dated March 23.

Holt, Brian W., AICP. 2009. Senior Planner, East Bay Regional Park District. Written correspondence dated April 27.

Kirkpatrick, William. 2007. Manager of Water Distribution Planning, East Bay Municipal Utilities District. Personal communication (letter) dated January 2.

Lehon, Chris. 2009. Executive Director, West Contra Costa Integrated Waste Management Authority. 2009. Written correspondence dated March 30.

Loetscher, Scot. 2009. California Highway Patrol, Special Projects Division. Personal communication dated March 18.

McPartland, Gail. 2009. Deputy County Librarian, Contra Costa County Library. 2009. Written correspondence dated March 27.

National Fire Protection Association (NFPA). 2008. http://www.nfpa.org/.

Pacific Gas & Electric (PG&E). 2010. http://www.pge.com/about/company/profile/.

Pinole, City of. 2008. Weekly Activities Report. http://www.ci.pinole.ca.us/about/docs/cmreport/20080307cmrpt.pdf (accessed February 8, 2010).

Pinole, City of. 2009a. City of Pinole General Plan Background Report. http://www.ci.pinole.ca.us/planning/genplan07/documents.html#GeneralPlanBackgroundDocuments.

Pinole, City of. 2009b. Administrative Report. http://www.ci.pinole.ca.us/about/docs/cmreport/20091113cmrpt.pdf (accessed February 8, 2010).

Pinole, City of. 2010. http://www.ci.pinole.ca.us/ (accessed February 17, 2010).

Pinole (City of) Police Department (PPD) 2008. 2008 Annual Report. http://www.ci.pinole.ca.us/police/reports-stats.html (accessed February 8, 2010).

Pinole (City of) Recreation Department. 2007. City of Pinole Recreation Park and Facility Five-Year Master Plan for Fiscal Years 2006/2007 through 2010/2011.

Pinole (City of) Recreation Department. 2009. City of Pinole Recreation Department. http://www.ci.pinole.ca.us/recreation/index.html (accessed August 24, 2009).

Rehnstrom, David. 2009. Senior Civil Engineer, Water Service Planning, East Bay Municipal Utilities District. Personal communication (letter) dated February 25.

South Bay Water Recycling. 2010. Regulation. http://www.sanjoseca.gov/sbwr/regulation.htm (accessed February 17, 2010).

State Water Resources Control Board (SWRCB). 2010. http://www.waterboards.ca.gov/ (accessed February 17, 2010).

United States Department of Energy (DOE). 2010. Porter-Cologne Water Quality Control Act.

http://www.etec.energy.gov/Regulation/Porter-Cologne-Water-Quality-Control-Act.html (accessed February 17, 2010).

United States Environmental Protection Agency (USEPA). 2010. http://www.epa.gov/ (accessed February 17, 2010).

West Contra Costa Unified School District (WCCUSD). 2007. Facilities Master Plan.

West Contra Costa Unified School District (WCCUSD). 2009. School Consolidation/Closure Review. 2009.

West County Wastewater District (WCWD). 2009. Personal communication (letter).

West County Wastewater District (WCWD). 2010. http://www.wcwd.org/index.htm (accessed February 17, 2010).

Westrup, Laura. Planning Division, California Department of Parks and Recreation. May 28, 2002. Quimby Act 101 An Abbreviated Overview. Note: Reference in text as (Westrup, 2002).

4.13 Climate Change

This section of the Draft Environmental Impact Report (Draft EIR; DEIR) addresses climate change and associated environmental effects. The reader is also referred to Section 4.12, Public Services and Utilities, for additional discussion regarding electrical and natural gas service.

4.13.1 EXISTING SETTING

GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE

To fully understand global climate change, it is important to recognize the naturally occurring "greenhouse effect" and to define the greenhouse gases (GHGs) that contribute to this phenomenon. The temperature on earth is regulated by this greenhouse effect, which is so named because the earth's atmosphere acts like a greenhouse, warming the planet in much the same way that an ordinary greenhouse warms the air inside its glass walls. Like glass, the gases in the atmosphere let in light yet prevent heat from escaping.

Greenhouse gases are naturally occurring gases such as water vapor, carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O) that absorb heat radiated from the earth's surface. GHGs — CO_2, CH_4, N_2O, and others — are transparent to certain wavelengths of the sun's radiant energy, allowing them to penetrate deep into the atmosphere or all the way to the earth's surface. Clouds, ice caps, and particles in the air reflect about 30 percent of this radiation, but oceans and land masses absorb the rest (70 percent of the radiation received from the sun) before releasing it back toward space as infrared radiation. GHG and clouds effectively prevent some of the infrared radiation from escaping; they trap the heat near the earth's surface where it warms the lower atmosphere. If this natural barrier of atmospheric gases were not present, the heat would escape into space and earth's average global temperatures could be as much as 61 degrees Fahrenheit (°F) cooler (NASA, 2009).

In addition to natural sources, human activities are exerting a major and growing influence on climate by changing the composition of the atmosphere and by modifying the land surface. Particularly, the increased consumption of fossil fuels (natural gas, coal, gasoline, etc.) has substantially increased atmospheric levels of greenhouse gases. Measured global GHG emissions resulting from human activities, especially the consumption of fossil fuels, have grown since pre-industrial times, with an increase of 70 percent between 1970 and 2004 (IPCC, 2007). This increase in atmospheric levels of GHG unnaturally enhances the greenhouse effect by trapping more infrared radiation as it rebounds from the earth's surface and thus traps more heat near the earth's surface. Prominent GHGs contributing to the greenhouse effect and climate change include carbon dioxide, methane, ozone (O_3), nitrous oxide, and chlorofluorocarbons (CFCs). Emissions of these gases are attributable to human activities associated with the industrial/manufacturing, utilities, transportation, residential, and agricultural sectors (CEC, 2006a).

According to the USEPA, the earth's average surface temperature has increased by about 1.2°F to 1.4°F since 1900. The warmest global average temperatures on record have all occurred within the past 15 years, with the warmest two years being 1998 and 2005. Eleven of the years between 1995 and 2006 ranked among the hottest years on record since 1850, when reliable worldwide temperature measurements began (IPCC, 2007). Most of the warming in recent decades is likely the result of human activities. Other aspects of the climate are also changing, such as rainfall patterns, snow and ice cover, and sea level.

Global Implications

Recognizing the problem of global climate change, the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP) established the Intergovernmental Panel on Climate Change (IPCC) in 1988. It is open to all members of the United Nations and WMO. The role of the IPCC is to assess on a comprehensive, objective, open, and transparent basis the scientific, technical, and socioeconomic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts, and options for adaptation and mitigation. IPCC projects that the earth's average surface temperature should rise 1.8°F to 6.3°F before the year 2100 (IPCC, 2007). At a more local level, the California Climate Action Team found that California-specific models estimate an average warming increase of 2.7 to 10.5°F throughout California before the year 2100 (CAT, 2009). This may not seem like a significant increase, yet even at the lowest projected global increase of 1.8 °F, the earth would be warmer than it has been for 10,000 years (Miller, 2000).

The IPCC Fourth Assessment Report's Working Group I Summary for Policymakers synthesizes current scientific understanding of global climate change and projects future climate change using the most comprehensive set of well-established global climate models. The report incorporates findings of the current effects of global climate change. These findings include:

- The intensity of tropical cyclones (hurricanes) in the North Atlantic has increased over the past 30 years, which correlates with increases in tropical sea surface temperatures.
- Droughts have become longer and more intense and have affected larger areas since the 1970s, especially in the tropics and subtropics.
- Since 1900 the Northern Hemisphere has lost 7 percent of the maximum area covered by seasonally frozen ground.
- Mountain glaciers and snow cover have declined worldwide.
- Satellite data since 1978 show that the extent of Arctic sea ice during the summer has shrunk by more than 20 percent.
- Since 1961, the world's oceans have been absorbing more than 80 percent of the heat added to the climate, causing ocean water to expand and contributing to rising sea levels. Between 1993 and 2003, ocean expansion was the largest contributor to sea level rise.
- Melting glaciers and losses from the Greenland and Antarctic ice sheets have also contributed to recent sea level rise.

An enhanced greenhouse effect will generate new patterns of microclimate and may have significant impacts on the economy, environment, and transportation infrastructure and operations due to increased temperatures, intensity of storms, sea level rise, and changes in precipitation. Impacts may include flooding of tunnels, coastal highways, runways, and railways, buckling of highways and railroad tracks, submersion of dock facilities, and a shift in agriculture to areas that are now cooler. Such prospects will have strategic, security, and transportation implications.

Climate change affects public health and the environment. Increased smog and emissions, respiratory disease, reduction in the state's water supply, extensive coastal damage, and

changes in vegetation and crop patterns have been identified as effects of climate change. The impacts of climate change are broad-ranging and interact with other market failures and economic dynamics, giving rise to many complex policy problems. The findings are the latest in a string of reports warning that the rate of carbon dioxide accumulating in the atmosphere is increasing at an alarming pace.

California Implications

Climate change and global warming could negatively affect agriculture, forestry, water resources, coastal areas, energy production, air quality, public health, public infrastructure, natural protections, sensitive species and habitats, public safety, and the economy (CAT, 2009; BCDC, 2009). The estimated economic value of shoreline development that could be impacted by a 55-inch rise in sea level is $62 billion. As the existing climate throughout California changes over time, mass migration of species, or worse, failure of species to migrate in time to adapt to the perturbations in climate, could also result.

Agriculture

Potential impacts, such as reduced water supply, more severe droughts, more winter floods, and drier growing seasons, will affect California's agriculture. Many farms, especially in the fruit and nut business, require long-term investments, making fast adaptation difficult, and could thus experience serious losses if decisions continue to be made with no regard to expected climate changes.

Fishing

Studies found that as a result of changes in ocean conditions, the distribution and abundance of major fish stocks will change substantially. Impacts to fisheries related to El Niño/Southern Oscillation illustrate how climate directly impacts marine fisheries on short-term scales. Higher sea surface temperatures in 1997–1998 during the El Niño had a great impact on market squid, California's largest fishery by volume. The California Regional Assessment reports that landings fell to less than 1,000 metric tons in that season, down from 110,000 tons in the 1996–1997 season. Other unusual events also occurred such as poor salmon returns, a series of plankton blooms, and seabird die-offs.

Coastline

With climate changes, recreational facilities and developed coastlines will also be more vulnerable to hurricanes, storm surges, and flooding. Increasing population growth in coastal areas is a reason for further concern, since these areas could be more vulnerable to climate change impacts. Impacts of expected sea level rise and increased storm surges are numerous. Beachfront homes and harbors as well as wetlands may flood. Sewage systems may be overwhelmed by storm runoff and high tides.

Sea Level Rise

The San Francisco Bay Conservation and Development Commission (BCDC) issued a report on sea level rise in April 2009, which states that sea level along the west coast rises approximately 7.9 inches per century, or approximately 0.08 inches per year (BCDC, 2009). However, the rate of sea level rise is increasing. During the period of 1993–2003, the rate was approximately 0.12 inches per year, which could demonstrate the result of human-induced warming on sea level. The BCDC uses the same sea level rise estimates that are used by California Climate Action Team-funded

assessments. These estimates anticipate the sea level in the Bay Area will rise 16 inches by mid-century and 55 inches by the end of the century. This data was used to make maps of projected flood areas but does not take into consideration existing shoreline protections; if an area is below sea level, it is shown as vulnerable on their maps despite any existing projections. By mid-century, approximately 180,000 acres of the Bay Area could be flooded, and 213,000 acres could be flooded by the end of the century. A large amount of development along the shoreline is vulnerable to flooding and erosion. Due to Bay Area topography, 100 percent of the development located in 100-year floodplain areas will likely flood by the year 2050. Also, different parts of the Bay Area are more vulnerable to flooding and erosion than others. In the vulnerable areas are several large commercial and industrial developments, including 93 percent of both the Oakland and the San Francisco airports that may be inundated by 2100. Half of the vulnerable development is residential and approximately 270,000 people would be at risk of flooding and problems with erosion. Approximately 4,300 acres of waterfront parks are expected to flood by 2100 (BCDC, 2009).

The Bay Area currently has approximately 300 miles of public access to and along the San Francisco Bay shoreline. Eighty-seven (87) percent of that access is located in areas vulnerable to flooding and erosion by 2100. It may be very hard to relocate or re-create access opportunities in areas further inland. Jetties and seawalls may have to be raised and strengthened to protect harbors that are used for shipping, recreation, and tourism. As discussed above, by the year 2050, 100 percent of 100-year floodplain areas are expected to be flooded, and by the year 2100 an estimated 213,000 acres of Bay Area land, much of which is in the central Bay Area, could be impacted. The City of Pinole is located in the eastern Bay Area. BCDC has produced a map showing the expected flooding that may occur in this area by the end of the century (see **Figure 4.13-1** for projected future sea level rise for 2050 and 2099). Much of the developed Bay Area shoreline will require enhanced shoreline protection, which will be developed regionally to maximize safety and minimize impacts on sensitive Bay resources including public access, visual resources, and soil stability. Structural shoreline protections common to the Bay Area include seawalls, riprap revetments, and levees. These protections are reliable but expensive to build and maintain and often cause significant impacts to resources. Incorporating ecosystem elements with engineering elements would provide balanced and long-term shoreline protection.

Forests

The California Regional Assessment notes an increase in the number and extent of areas burned by wildfires in recent years, and modeling results under changing climate conditions suggest that fires may be hotter, move faster, and be more difficult to contain under future climate conditions. The factors which contribute to the risk of catastrophic fires (fuel loads, high temperatures, dry conditions, and wind) are typically present already in summer and fall seasons in California, but can exist at other times of the year, especially in drought conditions. Public safety is an issue as home and tourism developments on coastal hills and mountains, and the foothills and higher elevations in the Sierra Nevada are highly susceptible to catastrophic wildfires.

T:_CS\Work\Pinole, City of\GP_SP_ZO_EIR\Figures

SOURCE: Inundation data from Knowles, 2008. Additional salt pond elevation data by Siegel and Bachand, 2002. Aerial imagery is NAIP 2005 data.

DISCLAIMER: Inundation data does not account for existing shoreline protection or wave activity. These maps are for informational purposes only. Users, by their use, agree to hold harmless and blameless the State of California and its representatives and its agents for any liability associated with its use in any form. The maps and data shall not be used to assess actual coastal hazards, insurance requirements, or property values or be used in lieu of Flood Insurance Rate Maps issued by the Federal Emergency Management Agency (FEMA).

Source: San Francisco Bay Conservation and Development Commission (BCDC). 2009. (April) Draft Staff Report. Living with a Rising Bay: Vulnerability and Adaptation in San Francisco Bay and on its Shoreline. http://www.bcdc.ca.gov/planning/climate_change/climate_change.shtml

Not to Scale

N

Figure 4.13-1

Projected Future Sea Level Rise for 2050 and 2099

PMC®

Ecosystems

The current distribution, abundance, and vitality of species and habitats are strongly dependent on climatic (and microclimatic) conditions. Climate change is expected to result in warmer temperatures year-round, accompanied by substantially wetter winters. Rising sea level will significantly affect coastal wetlands because they are mostly within a few feet of sea level. As the sea rises, these wetlands will move inland. The overall acreage of wetlands will be reduced due to constraints by existing urban development and steeper slopes immediately inland of existing wetlands. Tidal rivers, estuaries, and relatively flat shoreline habitats will be more subject to damage by flooding and erosion. More severe storm surges from the ocean, due to higher sea levels, combined with higher river runoff could significantly increase flood levels by more than the rise in sea level alone. Erosion of beaches would decrease habitat for beach-dependent species, such as seals, shorebirds, and endangered species (for example, snowy plover and least tern).

The timing and amounts of water released from reservoirs and diverted from streams are constrained by their effects on various native fish, especially those that are listed under the federal and state endangered species acts as threatened or endangered. Several potential hydrological changes associated with global climate change could influence the ecology of aquatic life in California and have several negative effects on cold-water fish (DWR, 2006). For example, if climate change raises air temperature by just a few degrees Celsius, this change could be enough to raise the water temperatures above the tolerance of salmon and trout in many streams, favoring instead non-native fishes such as sunfish and carp (DWR, 2006). Unsuitable summer temperatures would be particularly problematic for many of the threatened and endangered fish that spend summers in cold-water streams, either as adults or juveniles or both (DWR, 2006). In short, climate change could significantly affect threatened and endangered fish in California. It could also cause non-threatened and non-endangered fish to reach the point where they become designated as such (DWR, 2006).

Changes in temperature and precipitation patterns would also shift California's current climate zones, and thus habitats associated with these zones, northward by approximately 100 to 400 miles, as well as upwards in elevation by 500 to 1,500 feet. Global climate change would alter the composition, structure, and arrangement of the vegetation cover of the state (forest and wildland). Species distribution would move geographically as the climate changes, with forest stands, woodlands, and grassland species predicted to move northward and higher in elevation. The entire vegetative community may be affected if non-native invasive species occupy sites and replace native plants. Outbreaks of insects and diseases could compromise forest health and the capability of the forest stands to reproduce and to store carbon on a landscape basis. Forest fires are likely to become more frequent and severe if soils become drier. Changes in pest populations could further increase the stress on forests.

Wildfire Risk

With climate change, the potential for wildfires may increase due to changes in fuel conditions, such as forests transitioning to chaparral and grasslands; precipitation, including longer dry seasons and higher extreme temperatures; wind, which affects the spread of wildfire; and other variables. Wildfire intensity and frequency have increased in recent years across the western United States, with the total area burned increasing nearly seven times for the period between 1987 and 2003 as compared to the period between 1970 and 1986 (CEC, 2009a). The wildfire season in the western United States has increased by 78 days since 1979 (CEC, 2009a). Land management is often blamed for the increase in wildfire frequency. A century of fire suppression has led to increased forest densities and accumulation of fuel wood that can result in more

severe fires when this excess buildup of fuel is ignited. Yet climate also plays an important role. Warmer temperatures and longer dry seasons are the main reasons for the increasing trend in forest wildfire risk (CEC, 2009a). Reduced winter precipitation and early spring snowmelt deplete the moisture in soils and vegetation, leading to longer growing seasons and drought. These increasingly dry conditions provide more favorable conditions for ignition. In addition, higher temperatures increase evaporative water loss from vegetation, increasing the risk of rapidly spreading and large fires.

Climate change research predicts increased numbers and acres of wildfire. Wildfire occurrence statewide could increase from 57 percent to 169 percent by 2085 and by more than 100 percent in most northern California forests (California Natural Resources Agency, 2009). Fire severity is also predicted to increase as a result of more frequent severe fire weather. The wildfire season already appears to be starting sooner, lasting longer, and increasing in intensity (California Natural Resources Agency, 2009). Burned wildland acreage has increased in the last several decades. Over 48 million acres, or nearly half of the state, is at a high to extreme level of fire threat (California Natural Resources Agency, 2009).

Increases in the frequency and intensity of wildfires will make forests more susceptible to vegetation conversions from trees to brush or grasslands (California Natural Resources Agency, 2009). In order for trees to reestablish after wildfires, patches of living trees must be left to provide seeds for the recruitment of new seedlings. As wildfires increase in size, they can result in "stand-replacing" burns that are too big for natural regeneration. More frequent fires may also result in vegetation conversion by repeatedly killing regeneration. Vegetation conversions of chaparral and forest vegetation will impact biodiversity, habitats, watershed conditions, timber resources, and other goods and services.

On rangelands, climate-change-induced wildfire increases are predicted to increase grassland acreage, while decreasing brush and oak woodlands (California Natural Resources Agency, 2009). Wildfires may increase invasion by annual and brush non-native species, which are generally less palatable to livestock and wildlife than native grass and brush species. Annual grasses also increase fire risk and hazard by producing "flashy fuels" that ignite easily and carry fire quickly across the landscape.

Larger and more frequent wildfires will impact California's economy by increasing fire suppression and emergency response costs, damages to homes and structures, interagency post-fire recovery costs, and damage to timber, water supplies, recreation use, and tourism. The California Department of Forestry and Fire Protection (Cal-Fire) spent over $500 million on fire suppression during fiscal year 2007/2008. As climate change continues, these costs are expected to increase (California Natural Resources Agency, 2009).

Air Quality

Projected climate changes will impact the quality of California's air, public health, and environment. Higher temperatures increase the formation of O_3, PM_{10}, and $PM_{2.5}$, making it more difficult to meet the health-based air quality standards for these pollutants. Air pollution is also made worse by increases in natural hydrocarbon emissions and evaporative emissions of fuels and solvents which lead to higher levels of O_3, PM_{10}, and $PM_{2.5}$ during hot weather. Warmer temperatures that cause increased use of air conditioners can cause increased air pollutants from power plants and from vehicle operation. In addition, warming, drying, and increased winds could mean hotter, harder-to-control wildfires. These wildfires could result in increased levels of fine particulate matter that could also exceed state and federal standards and harm public health.

Water Supply

While most climate model simulations project relatively moderate changes in precipitation over this century, rising global temperatures are expected to result in reductions in snowpack for the Sierra Nevada (i.e., precipitation changing in the form of rain from snow). By the 2035 to 2064 period, the Sierra Nevada snowpack could decrease from 12 percent to 40 percent as compared to historic levels (depending on the climate scenario) (Cal-EPA, 2007). The Sierra Nevada snowpack currently acts as natural water storage by holding winter precipitation and releasing it during the spring and early summer months as the snow melts. According to the California Natural Resources Agency (2009), nearly 75 percent of California's available water supply originates in the northern third of the state (north of Sacramento), mainly from water stored in the Sierra Nevada snowpack. Reduction of this natural water storage during the winter could mean water shortages in the future and would require the alteration of the management of existing reservoirs (while not losing flood control capacity or hydropower generation capacity) and/or the construction of additional human-made reservoirs to compensate for this storage loss.

The state's water supply system already faces challenges to provide water for California's growing population. Climate change is expected to exacerbate these challenges through increased temperatures and possible changes in precipitation patterns. The trends of the last century, especially increases in hydrologic variability, will likely intensify in this century (California Natural Resources Agency, 2009). Californians can expect to experience more frequent and larger floods and deeper droughts. Increasing average temperatures may have several impacts on water supply and demand, affecting California's farms, municipalities, and ecosystems.

Increasing winter and early spring temperatures will cause earlier melting of the Sierra Nevada snowpack, the most important seasonal surface reservoir of water in California. Historically this snowpack has released about 15 million acre-feet of water slowly over the warming spring and summer months (one acre-foot provides the annual water needs of one to two families) (California Natural Resources Agency, 2009). California's water storage and conveyance infrastructure gathers this melting snow in the spring and delivers it for use during the drier summer and fall months. This same infrastructure is also used for flood control in the winter and early spring by keeping lower reservoir levels. With earlier snowmelt and heavy winter/spring rains possibly coinciding, difficult tradeoffs may need to be made between water storage and flood protection.

The East Bay Municipal Utility District (EBMUD) is a public agency that provides drinking water to the City of Pinole. Historically, 90 percent of the water used by EBMUD comes from the 577 square mile protected Mokelumne River watershed located on the western slope of the Sierra Nevada range and the remaining 10 percent originates as runoff from protected watershed lands in the East Bay area (EBMUD, 2005). EBMUD has water rights for up to 325 million gallons per day (mgd) or a total of 364,000 acre-feet per year (af/y) from the Mokelumne River. However, this supply is subject to the availability of Mokelumne River runoff and senior rights of other water users. The availability of water from local runoff is dependent on two factors — hydrologic conditions and storage availability. In dry years, evaporation can exceed runoff, resulting in no net supply. In addition, storage for capturing local runoff is limited. On average, local runoff supply put to beneficial use is 15 to 25 mgd during normal years and close to zero during dry/drought years (EBMUD, 2005). Due to the above conditions, EBMUD relies on the storage capacity of the Pardee and Comanche reservoirs to make the Mokelumne River's yield more dependable.

Concerns over the availability, quality, and distribution of water are not new to California, but these concerns are growing and solutions are becoming more complex as water managers navigate competing interests and regulations to reliably provide quality water to farms, businesses, and homes, while also protecting the environment and complying with legal and regulatory requirements. Water adaptation strategies are primarily driven by the possibility of reduced future water supplies and increased flood threat brought about by climate change.

Increased Flooding

Currently, there is no available information to accurately assess the impact of climate change for flood frequency or severity, because of the absence of detailed regional precipitation information from climate models and because water management choices can substantially influence overall flood risk. However, increased amounts of winter runoff could be accompanied by increases in flood event severity and warrant additional dedication of wet season storage space for flood control as opposed to water supply storage. This need to manage water storage facilities to handle increased runoff could in turn lead to water shortages during high water demand. It is recognized that these impacts would result in increased challenges for reservoir management and balancing the competing concerns of flood protection and water supply.

Sudden Climate Change

Most global climate models project that anthropogenic climate change will be a continuous and fairly gradual process through the end of this century (DWR, 2006). California is expected to be able to adapt to the water supply challenges posed by climate change, even in some of the warmer and drier projections for change. Sudden and unexpected changes in climate, however, could leave water managers unprepared and could, in extreme situations, have significant implications for California and its water supplies. For example, there is speculation that some of the recent droughts that occurred in California and the western United States could have been due, at least in part, to oscillating oceanic conditions resulting from climatic changes. The exact causes of these events are, however, unknown, and evidence suggests such events have occurred during at least the past 2,000 years (DWR, 2006).

Current Greenhouse Gas Emissions

The following is a summary of current estimates of greenhouse gas emissions for the state and the City of Pinole.

California Emissions

The California Energy Commission estimates that California is the second-largest state emitter of GHG emissions in the United States, behind Texas in absolute emissions (CEC, 2006a). However, the state has relatively low carbon intensity when considering GHG emissions per person or GHG emissions per unit gross state product. Worldwide, California is estimated to be the 12th to 16th largest emitter of CO_2 and is responsible for approximately 2 percent of the world's CO_2 emissions (CEC, 2006a). The California Air Resources Board (CARB) released estimates of California's 1990 emissions inventory, which amounted to 433.29 million gross metric tons of carbon dioxide equivalent (MMT CO_2e) (CARB, 2009). CARB has also estimated that 2006 emissions levels were 483.87 MMT CO_2e. Factoring in the reduction in GHG emissions due to the functioning of existing forests and rangeland as carbon sinks, California's GHG emissions in 2006 were 479.80 MMT CO_2e. Greenhouse gas emissions for California were apportioned to the following sectors in 2006: transportation (38.4 percent), electric power (21.9 percent), commercial and residential energy usage (9.2 percent), industrial (19.9 percent), recycling and

waste (1.3 percent), high global warming potential gases (3.1 percent), agriculture (6.2 percent), and forestry (0.04 percent) (CARB, 2009).

City of Pinole Emissions

The City of Pinole has recently completed a draft GHG inventory for baseline calendar year 2005 titled *Community-Wide and Government Operations 2005 Baseline Greenhouse Gas Emissions Inventory*. The inventory calculates GHGs from community-wide activities including City government operations, within the city's jurisdictional boundary in calendar year 2005.

The City of Pinole emitted approximately 157,619 metric tons of carbon dioxide equivalent (CO_2e) in the baseline year 2005 as shown in **Table 4.13-1** (City of Pinole, 2010). The transportation sector was by far the largest contributor to emissions (72 percent), producing approximately 113,452 metric tons of CO_2e in 2005. Emissions from the residential sector were the next largest contributor (16.8 percent), producing approximately 26,447 metric tons of CO_2e. The commercial and industrial sectors accounted for a combined 8.4 percent of the total and emissions from solid waste comprised 2.8 percent of the total. The majority of emissions from the transportation sector were the result of gasoline consumption in private vehicles traveling on local roads and on Interstate 80 (City of Pinole, 2010). The inventory methodology is consistent with the Bay Area Air Quality Management District (BAAQMD) *GHG Plan Level Quantification Guidance* dated April 15, 2010 (BAAQMD, 2010).

TABLE 4.13-1
CITY OF PINOLE 2005 COMMUNITY-WIDE GREENHOUSE GAS EMISSIONS BY SECTOR AND SOURCE

2005 Community-Wide Emissions by Sector and Source	Source	Metric Tons Carbon Dioxide Equivalent ($MTCO_2e$)	Percentage of Total
Residential	Electricity	8,978	5.70%
	Natural Gas	17,469	11.08%
Commercial/Industrial	Electricity	8,488	5.39%
	Natural Gas	4,809	3.05%
Transportation	VMT	113,452	71.98%
Waste	Landfilled Waste	4,423	2.81%
Total		**157,619**	**100.00%**

Source: City of Pinole, 2010

Municipal Operations and Facilities Inventory

City government operations and facilities produced approximately 1,698 metric tons of greenhouse gas emissions in 2005 (City of Pinole, 2010). This quantity represents approximately 1.1 percent of total community-wide emissions in the city. City government emissions result from waste, energy consumption from water and wastewater facilities, buildings, streetlights and other facilities, and fuel consumption by the vehicle fleet and from employee commutes. Energy consumption in City buildings and facilities was the largest contributor to the City's emissions (27.4 percent), producing 465 metric tons of CO_2e. The second largest contributors (20.3 percent and 20.1 percent, respectively) were fuel consumption from employee commute patterns and fuel consumption by the City vehicle fleet (City of Pinole, 2010).

ENERGY CONSUMPTION

Electricity

California

In 2008, California used over 285,574 gigawatts of electricity (CEC, 2009c) statewide.[1] California's electricity generation system currently generates over 290,000 gigawatt hours of electricity each year, which is transported over California's 32,000 miles of transmission lines (CEC, 2007). By 2020, electricity consumption in the state is projected to reach almost 320,000 gigawatts (CEC, 2009c). In 2008, this electricity was produced from power plants fueled by natural gas (45.7 percent), hydrologic sources (11.0 percent), coal (18.2 percent), nuclear (14.4 percent), and renewable methods (10.6 percent). Approximately 68.1 percent of the electricity was generated within California, with the balance imported from other states, such as Canada, and Mexico (CEC, 2009c). Overall electricity use in California is projected to grow by 1.2 percent annually (CEC, 2009c). However, peak demand is growing at a rate of 1.30 percent (850 megawatts) per year (CEC, 2009b). This increase in peak demand is the result of a population that is moving inland to the warmer areas of the state, prompting higher demand for electricity for air conditioning.

Electricity usage varies substantially by the type of uses, type of construction materials used, and the efficiency of all electricity-consuming devices within a building. The average annual usage of electricity is roughly 6,500 kilowatt hours (kWhr) per residence. The average annual usage of electricity is roughly 13 kWhr per square foot for all commercial buildings and roughly 18 kWhr per square foot for office/research and development buildings (CEC, 2007).

Electricity supply in California involves a complex grid of power plants and transmission lines located in the western United States, Canada, and Mexico. Almost 32 percent of the electricity used in California is imported from 11 other western states as well as from Canada and Mexico. The issue is complicated by market forces that have become prominent since 1998, when a new regulatory environment commonly referred to as "deregulation" took effect in California. Supply is further complicated by the fact that the peak demand for electricity is significantly higher than the off-peak demand. For example, in August 2004, peak electric demand — due in large part to hot weather — reached a record high of 44,497 megawatts, which is almost double the lowest demand period.

City of Pinole

Electric service within the city of Pinole is provided by Pacific Gas and Electric (PG&E). PG&E provides electric service to approximately 15 million people throughout a 70,000 square mile service area in northern and central California (PG&E, 2009). Electricity purchased from PG&E by local customers in Contra Costa County, including Pinole, is generated and transmitted to the area by a statewide network of power plants and transmission lines. Various transmission and distribution lines traverse the San Francisco Bay Area, serving to carry electrical power from power plants within and outside the Pinole area to electrical substations where power is converted to voltages suitable for distribution to end users. Please refer to Section 4.12, Public Services and Utilities, for an expanded discussion of electric services in Pinole.

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[1] Energy usage is typically quantified using the British thermal unit (BTU). As points of reference, the approximate amount of energy contained in a gallon of gasoline, a cubic foot of natural gas, and a kilowatt hour (kWhr) of electricity are 124,884 BTUs, 1,000 BTUs, and 3,400 BTUs, respectively.

In 2010, the city of Pinole released the *Community-Wide and Government Operations 2005 Baseline Greenhouse Gas Emissions Inventory,* which provides an estimate of GHG emissions produced within Pinole. Data used to determine the amount of GHG emissions for the residential, commercial, and industrial sectors within Pinole was electrical and natural gas consumption information obtained through PG&E. In 2005, Pinole residential, commercial, and industrial uses consumed a combined 78,153,265 kilowatt hours of electricity (City of Pinole, 2010).

Natural Gas

California

In 2007, California consumed about 12,494 million (MM) therms of natural gas. The California natural gas demand for 2010 is projected to be just slightly less than this (CEC, 2009c). As a state, California is the second largest natural gas consumer in the United States, representing more than 10 percent of national natural gas consumption. Customers in the residential and commercial sectors, referred to as "core" customers, accounted for 29 percent of the state's natural gas demand in 2008 (CEC, 2009c). Large consumers such as electricity generators and the industrial sector, referred to as "noncore" customers, accounted for about 71 percent of demand in the same year. California remains heavily dependent on natural gas to generate electricity, which accounted for more than 40 percent of natural gas demand in 2008 (CEC, 2009c). Approximately 13.5 percent of the natural gas produced in 2006 was within California, with the balance imported via pipeline from other states and Canada (CEC, 2007). California is at the farthest end of those pipelines, forcing it to compete with other states that are located closer to generation plants in Canada for supplies.

As with electricity, natural gas usage in California for different land uses varies substantially by the type of use, type of construction materials, and the efficiency of all gas-consuming devices in a given building. The average annual usage of natural gas is roughly 45,000 cubic feet per residence. The average annual usage of natural gas is roughly 37 cubic feet per square foot for commercial buildings and roughly 29 cubic feet per square foot for office buildings.

According to the California Energy Commission's 2009 Integrated Energy Policy Report, natural gas has become an increasingly important source of energy since more of the state's power plants rely heavily on this fuel. While California's successful efficiency programs and its reliance on renewable sources of electricity should slow the demand of natural gas, competition for the state's imported supply is increasing. This reliance on imported gas leaves the state vulnerable to price shocks and supply disruptions.

The annual forecast of North American natural gas production has decreased each year since 2002, a difference of about eight trillion cubic feet a year (CEC, 2007). PG&E has publicly commented that it believes that western Canadian natural gas production will be less than predicted while another energy company, Sempra/SoCalGas, believes that several supply basins throughout North America will produce less than forecast.

Natural gas is critical in meeting the state's energy demand. California's growing population requires more natural gas for residential heating and cooking, industrial processing, and most importantly, electricity production. Natural gas, like petroleum, has become a global commodity and California competes not just with other U.S. states for access to less abundant natural gas supplies, but also with Western Europe and Asia Pacific consumers in a world market for natural gas. The result is that prices are likely to continue increasing (CEC, 2007).

Peak electricity demand in California is expected to grow at about 1.30 percent each year through 2017 and will be the sector with the largest natural gas increase over the next decade. Before 1997, natural gas consumption for electricity averaged 500 billion cubic feet each year (1,400 million cubic feet per day); however, future demand is anticipated to average 2,500 million cubic feet each day (CEC, 2007).

City of Pinole

Natural gas service in Pinole is also provided by PG&E. Much of PG&E's natural gas supply comes from Canada. Please refer to Section 4.12, Public Services and Utilities, for an expanded discussion of natural gas services in Pinole.

In 2010, the city of Pinole released the *Community-Wide and Government Operations 2005 Baseline Greenhouse Gas Emissions Inventory,* which provides an estimate of GHG emissions produced within Pinole. Data used to determine the amount of GHG emissions for the residential, commercial, and industrial sectors within Pinole was electrical and natural gas consumption information obtained through PG&E. In 2005, Pinole residential, commercial, and industrial uses consumed a combined 122,071,432 kilowatt hours of natural gas (416,525 million BTU) (City of Pinole, 2010).

Vehicle Energy Consumption

California

California's transportation system includes 33.5 million registered vehicles (cars, trucks, trailers, and motorcycles) and almost 170,000 miles of roads maintained by local, state, and federal governments. A total of 2,453 miles are U.S. interstate freeways. The state's motor vehicle fleet includes private passenger cars as well as buses, motorcycles, and light- and heavy-duty trucks, which are used for passenger and freight movement respectively (CEC, 2007). In 2007, taxable gasoline sales (including aviation gasoline) in California accounted for 15,672,334,029 gallons of gasoline (CEC, 2007). For more information regarding state transportation energy, go to the CEC website at http://energyalmanac.ca.gov/transportation/summary.html#fuel

City of Pinole

The City's transportation system is made up of roadways, transit services, bicycle and pedestrian facilities, and related facilities such as parking and freight service.

About 71 percent of the City's residents commute to work by driving alone and another 17.5 percent carpool. Around 6.4 percent of the residents use transit services including bus (2 percent), subway (4 percent), rail (0.09 percent) and ferry (0.05 percent).

The street network is the backbone of the City's transportation system. The street system design and classifications were generally developed to be consistent with the General Plan policies. Major arterials avoid aligning through residential neighborhoods, but provide neighborhood boundaries. Interior street patterns are designed using cul-de-sacs, loop streets, and neighborhood collectors to discourage through traffic. Because the City contains hills and elevated areas, the street system does not conform to a traditional grid pattern. According to the *Community-Wide and Government Operations 2005 Baseline Greenhouse Gas Emissions Inventory*, the City of Pinole consumed 3,335,285 gallons of automotive gasoline and diesel fuel in 2005 (City of Pinole, 2010).

4.13.2 REGULATORY FRAMEWORK

FEDERAL

Greenhouse Gases

The U.S. Environmental Protection Agency (USEPA) is the federal agency responsible for implementing the federal Clean Air Act (CAA). Previous to 2007, the USEPA did not have regulations addressing greenhouse gases. The U.S. Supreme Court ruled on April 2, 2007, that CO_2 is an air pollutant as defined under the CAA and that the USEPA has the authority to regulate emissions of GHGs. However, there are no federal regulations or policies regarding GHG emissions applicable at the time of this writing.

STATE

Assembly Bill 1493

Assembly Bill (AB) 1493 (Pavley) of 2002 requires CARB to develop and adopt the nation's first GHG emission standards for automobiles. These standards are also known as "Pavley I." The California Legislature declared in AB 1493 that global warming is a matter of increasing concern for public health and the environment. It cites several risks that California faces from climate change, including a reduction in the state's water supply, an increase in air pollution caused by higher temperatures, harm to agriculture, an increase in wildfires, damage to the coastline, and economic losses caused by higher food, water, energy, and insurance prices. The bill also states that technological solutions to reduce GHG emissions would stimulate California's economy and provide jobs. In 2004, the State of California submitted a request for a waiver from federal clean air regulations, as the State is authorized to do under the CAA, to allow the State to require reduced tailpipe emissions of CO_2. In late 2007, the USEPA denied California's waiver request and declined to promulgate adequate federal regulations limiting GHG emissions. In early 2008, the State brought suit against the USEPA related to this denial.

In January 2009, President Obama instructed the USEPA to reconsider the Bush Administration's denial of California's and 13 other states' requests to implement global warming pollution standards for cars and trucks. In June 2009, the USEPA granted California's waiver request, enabling the State to enforce its GHG emissions standards for new motor vehicles beginning with the current model year.

Also in 2009, President Obama announced a national policy aimed at both increasing fuel economy and reducing GHG pollution for all new cars and trucks sold in the United States. The new standards would cover model years 2012 to 2016 and would raise passenger vehicle fuel economy to a fleet average of 35.5 miles per gallon (mpg) by 2016. When the national program takes effect, California has committed to allowing automakers who show compliance with the national program to also be deemed in compliance with state requirements. California is committed to further strengthening these standards beginning in 2017 to obtain a 45 percent GHG reduction from the 2020 model year vehicles.

Executive Order S-3-05

Executive Order S-3-05 proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce the Sierra's snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those

concerns, the Executive Order established total greenhouse gas emission targets. Specifically, emissions are to be reduced to the 2000 level by 2010, the 1990 level by 2020, and to 80 percent below the 1990 level by 2050.

The Executive Order directed the Secretary of the California Environmental Protection Agency (Cal-EPA) to coordinate a multi-agency effort to reduce greenhouse gas emissions to the target levels. The Secretary will also submit biannual reports to the governor and state legislature describing (1) progress made toward reaching the emission targets, (2) impacts of global warming on California's resources, and (3) mitigation and adaptation plans to combat these impacts. To comply with the Executive Order, the Secretary of Cal-EPA created a Climate Action Team (CAT) made up of members from various state agencies and commissions. CAT released its first report in March 2006. The report proposed to achieve the targets by building on voluntary actions of California businesses, local government and community actions, as well as through state incentive and regulatory programs.

Assembly Bill 32, the California Global Warming Solutions Act of 2006

Assembly Bill (AB) 32 requires that statewide GHG emissions be reduced to 1990 levels by the year 2020. The gases that are regulated by AB 32 include CO_2, CH_4, N_2O, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. The reduction to 1990 levels will be accomplished through an enforceable statewide cap on GHG emissions that will be phased in starting in 2012. To effectively implement the cap, AB 32 directs CARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources. AB 32 specifies that regulations adopted in response to AB 1493 should be used to address GHG emissions from vehicles. However, AB 32 also includes language stating that if the AB 1493 regulations cannot be implemented, then CARB should develop new regulations to control vehicle GHG emissions under the authorization of AB 32.

AB 32 requires that CARB adopt a quantified cap on GHG emissions representing 1990 emissions levels and disclose how it arrives at the cap, institute a schedule to meet the emissions cap, and develop tracking, reporting, and enforcement mechanisms to ensure that the state achieves reductions in GHG emissions necessary to meet the cap. AB 32 also includes guidance to institute emissions reductions in an economically efficient manner and conditions to ensure that businesses and consumers are not unfairly affected by the reductions.

Climate Change Proposed Scoping Plan

In October of 2008, CARB published its Climate Change Proposed Scoping Plan, which is the State's plan to achieve GHG reductions in California required by AB 32. The scoping plan contains the main strategies California will implement to achieve reduction of 169 million metric tons (MMT) of CO_2e, or approximately 30 percent from the state's projected 2020 emission level of 596 MMT of CO_2e under a business-as-usual scenario (this is a reduction of 42 MMT CO_2e, or almost 10 percent, from 2002–2004 average emissions). The scoping plan also includes CARB-recommended GHG reductions for each emissions sector of the state's GHG inventory. The largest proposed GHG reduction recommendations are from improving emission standards for light-duty vehicles (estimated reductions of 31.7 MMT CO_2e), implementation of the Low-Carbon Fuel Standard (15.0 MMT CO_2e), energy efficiency measures in buildings and appliances and the widespread development of combined heat and power systems (26.3 MMT CO_2e), and a renewable portfolio standard for electricity production (21.3 MMT CO_2e). CARB has not yet determined what amount of GHG reductions it recommends from local government operations; however, the proposed scoping plan does state that land use planning and urban growth decisions will play an important role in the state's GHG reductions because local governments

have primary authority to plan, zone, approve, and permit how land is developed to accommodate population growth and the changing needs of their jurisdictions. (Meanwhile, CARB is also developing an additional protocol for community emissions.) CARB further acknowledges that decisions on how land is used will have large impacts on the GHG emissions that will result from the transportation, housing, industry, forestry, water, agriculture, electricity, and natural gas emission sectors. The proposed scoping plan states that the ultimate GHG reduction assignment to local government operations is to be determined. With regard to land use planning, the proposed scoping plan expects approximately 5.0 MMT CO_2e will be achieved associated with implementation of SB 375, which is discussed further below. The Climate Change Proposed Scoping Plan was approved by CARB on December 11, 2008.

California Climate Action Registry

The California Climate Action Registry (CCAR) was established in 2000 by Senate Bill 1771 and modified in 2001 by Senate Bill 527 as a nonprofit voluntary registry for GHG emissions. The purpose of CCAR is to help companies and organizations with operations in the state to establish GHG emissions baselines against which any future GHG emissions reduction requirements may be applied. CCAR has developed a general protocol and additional industry-specific protocols that provide guidance on how to inventory GHG emissions for participation in the registry. The California Climate Action Registry has now merged its GHG emissions registry with the climate registry and is primarily focused on offset projects and research.

Senate Bill 375

Senate Bill (SB) 375, signed in September 2008, aligns regional transportation planning efforts, regional GHG reduction targets, and land use and housing allocation. SB 375 requires Metropolitan Planning Organizations (MPOs) to adopt a Sustainable Communities Strategy (SCS) or Alternative Planning Strategy (APS), which will prescribe land use allocation in that MPO's Regional Transportation Plan (RTP). CARB, in consultation with MPOs, will provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets will be updated every eight years, but can be updated every four years if advancements in emissions technologies affect the reduction strategies to achieve the targets. CARB is also charged with reviewing each MPO's SCS or APS for consistency with its assigned targets. If MPOs do not meet the GHG reduction targets, transportation projects would not be eligible for funding programmed after January 1, 2012.

This bill also extends the minimum time period for the Regional Housing Needs Allocation (RNHA) cycle from five years to eight years for local governments located within an MPO that meets certain requirements. City or county land use policies (including general plans) are not required to be consistent with the RTP (and associated SCS or APS). However, new provisions of the California Environmental Quality Act (CEQA) would incentivize qualified projects that are consistent with an approved SCS or APS, categorized as "transit priority projects."

Executive Order S-13-08: The Climate Adaptation and Sea Level Rise Planning Directive

On November 14, 2008, Governor Schwarzenegger issued Executive Order S-13-08 in order to reduce and assess California's vulnerability to climate change and sea level rise. The Executive Order initiated four major actions:

1) Initiate California's first statewide climate change adaptation strategy that will assess the state's expected climate change impacts, identify where California is most vulnerable and recommend climate adaptation policies by early 2009;

2) Request the National Academy of Science establish an expert panel to report on sea level rise impacts in California to inform state planning and development efforts;

3) Issue interim guidance to state agencies for how to plan for sea level rise in designated coastal and floodplain areas for new projects; and

4) Initiate a report on critical existing and planned infrastructure projects vulnerable to sea level rise.

The Executive Order will provide consistency and clarify to state agencies on how to address sea level rise in current planning efforts.

California Building Energy Efficiency Standards

Title 24, Part 6 of the California Code of Regulations, known as the Building Energy Efficiency Standards, was established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. The Energy Commission adopted the 2008 Standards on April 23, 2008, and the Building Standards Commission approved them for publication on September 11, 2008. The new standards went into effect on July 1, 2009 (CEC, 2008).

Bay Area Air Quality Management District

The Bay Area Air Quality Management District has developed new CEQA guidelines which provide strong guidance on regulating GHG emissions. These guidelines received final approval by the BAAQMD Board on June 2, 2010. BAAQMD's approach to developing a *Threshold of Significance* for GHG emissions is to identify the emissions level for which a project would not be expected to substantially conflict with existing California legislation adopted to reduce statewide GHG emissions. If a project would generate GHG emissions above the threshold level, it would be considered to contribute substantially to a cumulative impact.

LOCAL

City of Pinole

In 2007, the City Council adopted a resolution to join the Local Governments for Sustainability (ICLEI) and to authorize the preparation of a greenhouse gas (GHG) emissions baseline inventory. In committing to the project, the City of Pinole embarked on an ongoing, coordinated effort to reduce GHG emissions, to improve air quality, and to reduce costs. The City of Pinole recently completed a draft GHG inventory for baseline calendar year 2005 titled *Community-Wide and Government Operations 2005 Baseline Greenhouse Gas Emissions Inventory*. This inventory represents completion of the first step in the city's climate protection process. As advised by ICLEI, quantifying recent-year emissions is essential to establish (1) a baseline against which to measure future emission levels, and (2) an understanding of where the highest percentages of emissions are coming from and therefore the greatest opportunities for emissions reductions. The *Community-Wide and Government Operations 2005 Baseline Greenhouse Gas Emissions Inventory* presents estimates of greenhouse gas emissions in 2005 resulting from the community as a whole. By adopting a resolution to join ICLEI, the City of Pinole is now part of an international movement of local governments. More than 1,000 local governments, including over 500 in the United States, have joined ICLEI's Cities for Climate Protection (CCP) campaign.

4.13.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

Per Appendix G and Appendix F of the California Environmental Quality Act (CEQA) Guidelines and Bay Area Air Quality Management District (BAAQMD) recommendations, the City considers impacts related to energy use and climate change significant if implementation of the proposed project would result in any of the following:

1. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.

2. Conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

3. Inefficient, wasteful, and unnecessary consumption of energy.

METHODOLOGY

The BAAQMD has developed new CEQA guidelines which provide strong guidance on the analysis protocols for the assessment of GHG emissions and climate change. These guidelines are recieved final approval by the BAAQMD Board on June 2, 2010. The BAAQMD guidelines were used as a guide for a significance threshold.

The City of Pinole's greenhouse gas inventory, completed in 2010 using a 2005 baseline year, projected emissions out to 2030 and beyond to 2035. These projected emissions were compared to the BAAQMD threshold guidance. The City chose a baseline year of 2005 in the development of the GHG baseline inventory because of the reliability of data and to maintain consistency with neighboring jurisdictions. It should also be noted that the 2030 buildout forecast is a business-as-usual estimate, meaning it does not take into account state initiatives or currently planned reduction measures of the City.

The Pinole GHG inventory relied upon a 2005 baseline, with the result of 157,619 metric tons (MT) CO_2e being released in 2005 and projected emissions out to 2030, showing 154,374 MT CO_2e. The BAAQMD threshold is 6.6 MT CO_2e per year per service population, which in 2030 equates to 31,435 (23,875 residents + 7,560 jobs). This results in a threshold of 207,471 MT CO_2e per year. With the City's existing sustainability efforts and minimal additional emissions as a result of the proposed project, the City would not need mitigation for the purposes of CEQA since the projected GHG emissions for Pinole in 2020 and 2030 are 157,398 MT CO_2e and 154,374 MT CO_2e, respectively (see **Table 4.13-2** below).

IMPACTS AND MITIGATION MEASURES

Generate Greenhouse Gas Emissions that May Have a Significant Impact on the Environment or Conflict with Applicable Adopted Reduction Measures (Standards of Significance 1 and 2)

Impact 4.13.1 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would result in greenhouse gas emissions that would not be anticipated to conflict with the goals of AB 32 nor result in a significant impact on the environment. This is considered a **less than cumulatively considerable** impact.

Subsequent development activity anticipated with buildout of the proposed project would result in direct emission of GHGs from area and mobile sources and indirect GHG emissions associated with electricity consumption, natural gas consumption, and landfilled waste. As shown in **Table 4.13-1**, under baseline conditions (2005), the City of Pinole generates 157,619 metric tons of CO_2e annually. With buildout of the proposed project, GHG emissions are calculated to be reduced to 154,374 metric tons per year (**Table 4.13-2**).

The data in **Table 4.13-2** is based upon 2020, 2030, and 2035 growth projections for Pinole. The growth projections calculate emissions growth under project buildout consistent with the proposed BAAQMD guidelines for plan-level GHG quantification. Residential, commercial, and waste emissions growth is based on population, job, and household growth rates from Association of Bay Area Governments (ABAG) Projections 2007. Transportation emissions growth is derived from Metropolitan Transportation Commission VMT growth estimates for Contra Costa County (MTC, 2008).

Consistent with BAAQMD guidance, the forecast includes estimated emissions savings from the Pavley I (AB 1493) standards and the Renewable Portfolio Standard (RPS), as described under the Regulatory Framework subsection above. Pavley I savings were calculated based on California Air Resources Board guidance using an EMFAC2007 post-processing tool. RPS savings were calculated from an RPS implementation analysis completed by the California Public Utilities Commission (CPUC, 2009). The analysis takes into consideration the barriers and constraints to California's 33 percent renewable energy goal by 2020 and presents a realistic estimate of California's future renewable mix.

TABLE 4.13-2
CITY OF PINOLE 2020, 2030, AND 2035 GREENHOUSE GAS EMISSIONS UNDER PROJECT BUILDOUT

Sector	Source	2005 (Pre-Project Conditions)	2020 (AB 32 Consistency)	2030 (General Plan Buildout)	2035
Residential ($MTCO_2e$)	Electricity	8,978	8,442	8,160	8,191
	Natural Gas	17,469	19,578	20,900	21,626
Commercial/ Industrial ($MTCO_2e$)	Electricity	8,488	8,353	8,347	8,644
	Natural Gas	4,809	5,641	6,225	6,645
Transportation ($MTCO_2e$)	VMT	113,452	110,234	105,318	102,297
Waste ($MTCO_2e$)	Landfilled Waste	4,423	5,150	5,424	5,573
TOTAL ($MTCO_2e$)		**157,619**	**157,398**	**154,374**	**152,977**
% Change from 2005		0.00%	-0.14%	-2.06%	-2.95%

Source: City of Pinole, 2010

Based on the population and employment figures listed in **Table 4.13-3** below, the 2005 service population was 25,309 and the buildout service population is anticipated to be 31,435 under the proposed project. Dividing the GHG emissions for each time period yields a metric ton per service population ratio of 6.22 and 4.91 for existing conditions and buildout conditions, respectively (see **Table 4.13-3**). Therefore, the proposed project would improve GHG emissions per service population and would not result in a net increase in GHG emissions.

TABLE 4.13-3
CITY OF PINOLE GREENHOUSE GAS EMISSIONS PER SERVICE POPULATION

Per Capita Emissions	Emissions	Jobs	Population	Service Population (SP)	$MTCO_2e/SP$
2005	157,619	5,840	19,469	25,309	6.22
2020	157,398	6,850	22,670	29,520	5.33
2030	154,374	7,560	23,875	31,435	4.91

Source: City of Pinole, 2010

Proposed General Plan Policies and Action Items that Address Greenhouse Gas Emissions

The proposed General Plan Update includes a number of policies and actions designed to reduce GHG emissions. The proposed General Plan Update policies and actions are intended to be consistent with the California Attorney General's Office recommended policies and are intended to be indicative of the proposed General Plan Update's self-mitigating capabilities with respect to GHG emissions. The separate and subsequent development of the *Community-Wide and Government Operations 2005 Baseline Greenhouse Gas Emissions Inventory* by the city would also likely provide for additional city activities designed to reduce GHG emissions. The table also does not take into account other actions by the City to reduce GHG emissions that are not explicitly documented in policies and actions for the proposed General Plan Update.

Action GM.3.2.3 Alternative Modes of Transportation. Work with regional transportation agencies to develop circulation standards that:

1. Emphasize the movement of people, not solely automobiles, as the performance objective.

2. Adjust service standards to include trips accommodated by bicycle routes and facilities, pedestrian connections and transit service.

Policy GM.3.3 Provide Adequate Transportation Facilities and Services. Provide adequate transportation facilities while maintaining neighborhood integrity. The following considerations are aimed at reducing traffic on residential streets and improving available transportation alternatives:

1. Through-traffic should be discouraged as much as possible from residential streets.

2. New commercial development should be focused along arterial corridors.

3. Transit services that are accessible to children, adults, senior citizens and people with disabilities should be located within half a mile of schools, public facilities and shops.

4. Commuters should have easy access to the BART system.

5. A shuttle bus, especially for seniors, at regular intervals throughout the city, as well as hiking and biking trails, is desirable.

6. Maintenance of AC Transit, BART feeder and WestCAT services.

Action GM.3.3.1 Bus Service. Coordinate with WestCAT and AC Transit to strategically expand commute and local bus services in Pinole. Transit service planning should consider the following:

1. Loop service along primary circulation corridors.

2. Enhanced access to major employment centers or transit hubs to minimize the number of transfers associated with trips.

Action GM.3.3.2 Carpools and Transit. The City will develop a plan to make more efficient use of the regional and subregional transportation system that includes the following considerations.

1. Improved access to commuter bus service by enhancing access to nearby park-and-ride facilities or by providing a park-and-ride facility in Pinole to support commuter bus service.

2. Promoting the use of carpools and vanpools.

Action LU.8.1.1 Utilize the Three Corridors Specific Plan to encourage attractive mixed-use development along San Pablo Avenue while retaining Pinole's important view corridors; providing a safe circulation plan that includes traffic calming measures, enhanced transit, bicycle, and pedestrian facilities as well as to encourage sustainable and green building environment.

Action LU.8.3.3 Initiate a transit study to determine how best to maximize potential opportunities to improve transit facilities and options in this area.

Action LU.8.3.4 Require any new development to provide improved pedestrian facilities and to design their development to be as walkable as possible.

Policy CE.1.2 Coordinate development of the circulation system with sustainable land use planning.

Action CE.1.2.1 Give priority to projects that will contribute to a reduction in vehicle miles traveled per capita, while maintaining economic vitality and sustainability.

Action CE.1.2.2 Require development to provide bus, bicycle, pedestrian and alternative fuel vehicle facilities, as appropriate.

Action CE.1.2.3 Provide safe and convenient access for pedestrians and bicyclists, wherever feasible.

Policy CE.1.3 Encourage development that is sensitive to both local and regional transit measures and that promotes the use of alternative modes of transportation.

Action CE.1.3.1 Consult with transit providers during review of development proposals.

Action CE.1.3.2 Include facilities that support alternative modes of transportation (pedestrian, bicycles, public transit, electric vehicles, etc.) where feasible.

Policy CE.1.4	Encourage maximum utilization of the existing public transit system and alternate modes of transportation in Pinole.
Action CE.1.4.1	Study the feasibility of increasing public transit frequency in areas currently served, and continue evaluating the possibility of expanding service to areas currently without service.
Action CE.1.4.2	Include links to public transit resources, bike trails maps, pedestrian trails maps and carpool/van pool information on the City's website.
Action CE.1.4.3	Pursue extension of rapid bus service to Pinole and enhance transit facilities that serve Pinole users.
Action CE.1.5.1	Enhance existing and provide additional bus shelters and other amenities that support transit use, where feasible and appropriate.
Policy CE.4.4	Prioritize transportation funding to support public transit and other non-auto modes of transportation.
Action CE.4.4.1	Before funding transportation improvements that increase roadway capacity and vehicle miles traveled, the City will evaluate the feasibility and effectiveness of funding projects that support alternative modes of transportation and reduced vehicle miles traveled, including transit and bicycle and pedestrian access.
Policy CE.5.1	Provide off-street parking to employees; however preferential parking at several locations in the city shall be made available to vanpools, carpools, alternative fuel vehicles and other transit users, where feasible and appropriate.
Action CE.6.2.6	Establish and apply minimum carpool requirements for all nonresidential developments.
Policy CE.7.1	Enhance the city's bikeway network through the use of Class I, II and III bikeways.
Action CE.7.1.1	Develop street design and bikeway design standards to address all street users, autos, public transit, bicycles and pedestrians of all ages and abilities.
Action CE.7.1.2	Prepare and regularly update a Pinole bikeways map and make it available on the City's website.
Action CE.7.1.3	Provide safe access to public transportation and other non-motorized uses through construction of dedicated bicycle paths.
Policy CE.7.2	Establish standards for new development and redevelopment projects to support bicycle use.
Policy CE.8.1	Require development to provide pedestrian walkways that are safe, interconnected and accessible by all members of the community

Action CE.8.1.1	As feasible, ensure that all intersections in areas with pedestrian usage are signalized with curb ramps, bulbouts, high-contrast crosswalks and pedestrian actuation, and other safety measures.
Action CE.8.1.2	Where feasible, use landscaping or physical barriers on high-capacity arterials to separate vehicles and pedestrians.
Action CS.3.4.2	Future park sites should be planned for neighborhoods that do not currently have a park within walking or bicycling distance.
Action CS.5.2.1	The City shall investigate establishing new guidelines requiring water use restrictions for irrigation systems and use of drought-resistant and native plants in landscaping.
Policy CS.8.1	The City will continue to encourage efforts to reduce, recycle and compost as many materials as possible to minimize demand for future waste disposal facilities.
Action CS.8.1.1	Continue to meet or exceed the waste diversion requirements of 50 percent, and develop and implement a program to reduce waste entering the landfill by attaining a 75 percent diversion rate by January 2020.
Policy CS.10.2	The City will update, where possible, the existing roadway network to enhance pedestrian, bicycle and transit circulation while maintaining safe vehicular circulation.
Action CS.10.2.2	The City will prepare a citywide sidewalk conditions inventory and incorporate necessary improvements in the Capital Improvement Program to ensure safe pedestrian access throughout the community.
Policy HS.5.1	Promote strategic land use patterns for businesses that reduce the number and length of motor vehicle trips and that encourage multiple forms of transportation for employees and patrons.
Action HS.5.1.1	Support the location of ancillary employee services, including child care, restaurants, banking facilities and convenience markets, at major employment centers for the purpose of reducing mid-day vehicle trips.
Policy HS.5.2	Encourage mixed-use developments that put residences in close proximity to services, employment, transit, schools and civic facilities/services.
Action HS.5.2.1	Encourage compact, transit-oriented development within one-quarter to one-half mile of transit stations and transit service stops along transit corridors.
Action HS.5.2.2	Continue to work with transportation and transit agencies and organizations to improve transit service and encourage increased ridership.
Action HS.5.2.3	Adopt and implement the Three Corridors Specific Plan for commercial corridors along San Pablo Avenue, Pinole Valley Road and Appian Way, establishing mixed-use development land use designations and design guidelines that encourage walkable communities, improved bicycle facilities and improved public transit facilities.

Policy HS.6.1 Promote and encourage walking and bicycling as viable forms of transportation to services, shopping and employment.

Action HS.6.1.1 Include street design features that facilitate biking and walking trips in both new and established areas.

Action HS.6.1.2 Require all new development to be designed to enable easy pedestrian and bicycle access and circulation.

Policy HS.6.2 Reduce greenhouse gas emissions.

Action HS.6.2.1 Create partnerships of community groups, businesses and agencies to develop strategies to reduce air and water pollution.

Action HS.6.2.2 The City of Pinole should create a model for other large employers in the city that makes use of programs to reduce single-occupant vehicle trips, support the use of alternative fuels and encourage alternative modes of transportation. Such programs could include:

- Creating rideshare/carpooling incentives for employees who commute together.
- Replacing City-owned vehicles with alternative fuel vehicles.
- Ensuring that necessary infrastructure is in place (e.g., showers, bike racks, shared automobile leasing stations) and available to employees and visitors who rely on such facilities to support alternative modes of transportation.

Action SE.1.1.5 Establish baselines of City operations such as the City's energy use, trash export, recycling, local food production, etc. in order to evaluate the City's progress toward reducing energy consumption and waste and set goals for future waste reduction targets.

Policy SE.1.2 Conduct public outreach to Pinole businesses to inform them about rebates and other financial incentives for using ENERGY STAR® or equivalent energy-efficient appliances, lighting, and heating equipment.

Action SE.1.3.1 Conduct energy audits for all public facilities, as feasible.

Action SE.1.3.2 Retrofit facilities for energy efficiency where feasible. Include items such as increased insulation, green or reflective roofs, and low-emissive window glass.

Action SE.1.3.3 Implement an energy tracking and management system for City departments and public facilities.

Action SE.1.3.4 Work with Public Works to install energy-efficient lighting retrofits and occupancy sensors on public facilities.

Policy SE.1.4 Require all newly constructed, purchased, or leased municipal buildings or facilities meet minimum standards for green building as appropriate.

Policy SE.1.5	Provide adequate resources to all City staff, including appropriate training, education, and support, to implement objectives and policies to reduce GHG emissions from City operations.
Policy SE.1.5.1	Provide energy efficiency training, including opportunities to obtain LEED certification for relevant staff.
Policy SE.1.5.2	Provide information on energy use and management to managers and others making decisions that influence energy use.
Policy SE.1.5.3	Provide energy design review services to departments undertaking new construction or renovation projects to facilitate compliance with LEED standards.
Policy SE.3.1	Reduce greenhouse gas emissions from City operations and community sources by a minimum of 15 percent below current or baseline levels by the year 2020.
Action SE.3.1.1	Complete the in-progress Greenhouse Gas Emissions Inventory for Government Operations and the community (or Planning Area) consistent with State or other accepted protocol. The Inventory shall provide a business-as-usual forecast for GHG emissions for 2020 and 2030.
Policy SE.3.3	Pinole will mitigate climate change by decreasing heat gain from pavement and other hard surfaces associated with infrastructure (i.e., heat island effect).
Action SE.3.3.1	Reduce heating and cooling loads by promoting light-colored roofs and paving materials, planting trees, and increasing vegetative cover.
Action SE.3.3.2	Where possible, use parkway strips to allow shading of streets by trees.
Action SE.3.3.3	Require the use of shade trees on south- and west-facing sides of structures, where possible.
Action SE.3.3.4	Include low-water landscaping in place of hardscaping around transportation infrastructure and in parking areas.
Action SE.3.3.5	Where feasible, require the use of pervious pavement options.
Action SE.3.3.6	Where feasible, require the use of edible landscaping and low-water landscaping.
Policy SE.3.4	Reduce GHG emissions by reducing vehicle miles traveled and by increasing or encouraging the use of alternative fuels and transportation technologies.
Action SE.3.4.1	Over time, replace the City's vehicle fleet with alternative fuel vehicles.
Action SE.3.4.6	The City will give priority to projects that will result in reduction of vehicle miles traveled per capita while maintaining sustainability and economic vitality.

Action SE.4.1.1 Utilize, where feasible, renewable energy and clean generation technologies such as solar, wind, biogas, tidal, cogeneration, and fuel cells to power City facilities using tax-free low-interest loans and other available financial options.

Action SE.4.1.3 Designate suitable sites to prioritize their development for renewable energy generation.

Action SE.4.2.4 Provide technical assistance to builders and developers to encourage sustainable and energy efficient building design.

Policy SE.4.3 Pinole will promote and require renewable energy generation and co-generation where feasible and appropriate.

Action SE. 4.3.1 Require that new office/retail/commercial or industrial development, or major rehabilitation (e.g. additions of 25,000 square feet commercial, or 100,000 square feet industrial) incorporate renewable energy generation either on- or off-site to provide 15% or more of the project's energy needs.

Action SE.4.4.2 Continue to conduct energy audits of Pinole facilities and implement energy efficiency and retrofitting recommendations from those audits. Seek funding from available state sources and grant opportunities, as well as the CIP.

Action SE.4.4.3 Where feasible and appropriate, transition to LED/energy efficient lights in all City facilities and equipment.

Action SE.4.4.4 Set a target to meet a majority of the City's energy needs via renewable energy.

Action SE.4.5.1 Require that, where feasible, all new buildings be constructed for easy, cost-effective installation of solar energy systems. This should include requiring such features as optimal roof orientation, clear access without obstructions, and appropriate roof framing and wiring.

Action SE.4.5.3 Require that any building constructed in whole or in part with City funds incorporate passive solar design features such as daylighting and passive solar heating, where feasible.

Action SE.4.6.2 Pinole will provide, where feasible, creative financing for renewable energy projects, including subsidized or other low-interest loans, and the option to pay for system installation through long-term assessments on individual property tax bills.

Action SE.5.1.6 Develop an ordinance reducing construction-generated waste.

Action SE.5.1.7 Develop and implement a plan for City communications and facilities to eventually become primarily paperless.

Action SE.5.4.1 Pinole will adopt a Construction and Demolition Waste Recovery Ordinance, requiring building projects to recycle or reuse a minimum percentage of unused or leftover building materials.

Action SE.5.4.2 Require all new development and major rehabilitation projects to recycle or salvage a majority of the non-hazardous construction and demolition debris.

Policy SE.6.1 Develop local green building and energy efficiency standards.

Action SE.6.1.3 Develop a Green Streets program to encourage designs that enhance the City's ecological function, reduce stormwater discharge through the use of pervious surfaces where appropriate, add infiltration enhancements (e.g. planters, swales, and channels), and increase sidewalk planting areas to reduce the heat island effect in developed areas and provide room for additional trees and shrubs within public right-of-way areas.

Action SE.6.2.1 Reduce energy consumption in buildings by balancing energy-efficient design with land use compatibility during the design review process.

Policy SE.7.1 Continue working with the Bay Area Air Quality Management District and other regional agencies to:

1. Improve air quality through pollution prevention methods.
2. Ensure enforcement of air emission standards.
3. Reduce local and regional traffic (the single largest source of air pollution in the city) and support public transit improvements.
4. Promote regional air pollution prevention plans for business and industry.
5. Promote strategies to reduce particulate pollution from residential fireplaces and wood-burning stoves.
6. Locate parking appropriately and provide adequate signage to reduce unnecessary "circling" and searching for parking.
7. Promote anti-idling policies and programs.

Action SE.7.2.3 Establish and maintain a Pinole tree planting guide to encourage tree planting, reduce long-term maintenance costs, reduce fire hazards, improve energy efficiency, and enhance the quality of the community over time.

Action SE.7.2.4 Develop landscape standards that require minimum planting and maintenance requirements for new and retrofit development and the use of native or drought-tolerant vegetation.

Action SE.7.3.2 Reduce methane emissions released from waste disposal. Encourage recycling, decrease waste sent to landfills, require landfill methane recovery and promote methane recovery for energy production from other sources.

Policy SE.7.4 In order to reduce vehicle miles traveled and traffic congestion, new development within 1,000 feet of an existing or planned transit stops should be designed to encourage the usage of public transit and minimize the dependence on the automobile through the application of site design guidelines.

Policy SE.8.6	Establish parking policies and requirements that capture the true costs of private vehicle use and support alternative modes of transportation.
Action SE.8.6.5	Require that new and fully renovated commercial and retail development provide preferential parking for electric vehicles and vehicles using alternative fuels.
Policy SE.8.7	Work to improve Pinole's pedestrian and bicycle infrastructure and to meet the needs of all pedestrians and bicyclists.
Action SE.8.7.1	Implement public transit-, bicycle- and pedestrian-oriented land use and design strategies in new development, as described in the Land Use and Circulation Elements of the General Plan to reduce the number of single-occupant trips in fossil-fueled vehicles.
Action SE.8.7.5	Establish and implement standards that meet or exceed state law for "complete streets" that foster equal access by all users in the roadway system. Include standards that address connection of bicycle and pedestrian access to other areas, safe road crossings, adequate and secure bike parking at public and private facilities, and street standards as is feasible for bicycle infrastructure.
Action SE.8.10.1	Develop the necessary infrastructure to encourage the use of zero-emission vehicles and clean alternative fuels, such as development of electric vehicles charging facilities and alternative fueling stations.
Action SE.8.10.3	Establish incentives for use of alternative fuel, electric, or gas-electric hybrid vehicles.
Policy SE.9.1	Encourage policies to prudently manage water resources to sustain plant and animal life, support urban activities and protect public health and safety.
Action SE.9.1.1	Where feasible, institute a water conservation program for City of Pinole facilities; for example, installation of waterless urinals and low-flow sinks and showers.
Action SE.9.1.2	Encourage the use of recycled water and drought-resistant landscaping in Pinole facilities, public roadway landscape, and new development.
Action SE.9.1.3	Establish incentives for development projects that achieve a 20% reduction in water use over baseline of 1995.
Policy SE.9.4	Establish programs and policies to increase water conservation and the use of recycled water.
Policy SE.9.5	Establish new policies that continue to encourage the maintenance and growth of Pinole's urban forest.
Action SE.9.5.1	Minimize removal of mature, healthy trees in conjunction with new development, as required by the tree protection ordinance.

Action SE.9.5.2 Establish programs and policies to ensure landscaping and forests are installed and managed to optimize their climate benefits.

Action SE.9.5.3 Pinole will install water-efficient landscapes and irrigation, including planting drought-tolerant plants and native species, covering exposed dirt with moisture-retaining mulch, using advanced technology such as moisture-sensing irrigation controls, and promoting urban agriculture by installing edible landscapes that provide local food.

In addition, Chapter 7.0, *Private Realm Standards and Design Guidelines*, of the Three Corridors Specific Plan encourages the incorporation of building siting and design techniques that increase energy efficiency including orienting buildings to maximize solar access and the use of solar power systems, green roofs, and green building practices. Chapter 8.0, *Public Realm Standards and Design Guidelines*, encourages energy efficiency in public facilities and public lighting. Furthermore, Chapter 17.94 of the Zoning Code Update allows for the use of wind energy conversion systems in all zoning districts with the issuance of a use permit and provides specific performance standards for such systems. Chapter 5.0, *Circulation*, of the proposed Three Corridor Specific Plan contains goals and policies (Circulation Policies 2, 3, 7, and 8) that support the development and safety of bicycle and pedestrian facilities and Chapter 7.0, *Private Realm Standards and Design Guidelines*, of the Specific Plan encourages numerous site design techniques to create clearly identifiable, well-connected, and safe pedestrian paths as well as easily accessible transit stops that are sited close to commercial uses. Furthermore, Section 17.48.110 of the proposed Zoning Code Update which contains minimum bicycle parking requirements by land use category. These policies, standards and design guidelines help to implement the proposed General Plan policy provisions listed above and would further reduce this impact.

Mitigation Measures

Implementation of relevant policies and actions from the proposed General Plan Update and associated adoption and implementation of the City GHG Inventory is anticipated to mitigate GHG emissions projected for buildout conditions consistent with state efforts to reduce GHG emissions. Furthermore, the proposed project would not surpass the BAAQMD threshold of 6.6 MT CO_2e per year per service population and would not result in a net increase in GHG emissions over existing conditions. As a matter of fact, the metric ton per service population ratio of 4.91 for buildout conditions (see **Table 4.13-3**) would improve GHG emissions per service population over existing conditions. Additionally policies, standards and strategies specified in the Three Corridors Specific Plans and discussed above further address GHG emissions. Therefore this impact is considered to be **less than cumulatively considerable.**

Climate Change Environmental Effects on the City (Standard of Significance 1)

Impact 4.13.2 Environmental effects of climate change are not currently expected to result in adverse impacts to the General Plan Update Planning Area. This impact is considered to be **less than cumulatively considerable.**

As identified in the above discussion, there are many technical studies available regarding the environmental effects of climate change on the earth as a whole as well as in California specifically. However, the extents of these environmental effects are still being defined as climate modeling tools become more refined. Potential environmental effects of climate change that could impact the GPU Planning Area could include the following (which were previously noted above):

- Adverse impacts on water supply availability;
- Increased severity of flooding events;
- Increased fire hazards;
- Alteration of natural habitats for special-status plant and animal species; and
- Air quality impacts.

These potential impacts are real, given the general concurrence in the scientific community about the potential impacts of climate change on the environment. However, the extent and severity of such impacts to the GPU Planning Area specifically is still speculative at this time. Nevertheless, a number of proposed General Plan Update policies are intended to help the City reduce potential exposure of people and projects to future impacts of climate change.

Proposed General Plan Policies and Action Items that Address Environmental Effects of Climate Change

The proposed GPU contains policies and actions that include specific, enforceable requirements and/or restrictions and corresponding performance standards that address this impact:

Policy CS.5.1 The City will make improvements to the water supply system to maintain system capability and reliability.

Policy CS.5.2 The City will continue to promote the conservation of water by all users.

Action CS.5.2.1 The City shall investigate establishing new guidelines requiring water use restrictions for irrigation systems and use of drought-resistant and native plants in landscaping.

Policy CS.7.1 The City will ensure that the storm drain system has adequate capacity to minimize street flooding and, where feasible, shall expand the capacity of the system to control storm flows.

Policy CS.7.2 The City will require new developments to minimize the amount of off-site drainage by retaining stormwater for on-site percolation, provide adequate drainage facilities for remaining off-site flows, maintain natural drainage channels, and avoid alteration of off-site drainage courses.

Policy CS.7.3 The City will work with the East Bay Municipal Utility District to create a flood water diversion area to reduce the potential for downstream flooding.

Policy CS.7.4 The City will continue implementing the Pinole Creek Vision Plan and Pinole Creek Greenway Master Plan to optimize resource protection and recreation opportunities while reducing the potential for flooding.

Action CS.7.4.1 The City will continue to work with the Contra Costa Flood Control District and other regional partners to establish a long-term funding source for Pinole Creek flood control maintenance and habitat restoration efforts.

Action HS.1.1.2 Maintain and implement the Emergency Operations Plan (EOP), including necessary training, emergency preparedness drills and community education.

Action HS.1.1.3 Adopt a Very High Fire Hazard Severity Zone (VHFHSZ) ordinance to implement regulations.

Action HS.2.1.3 Establish land use controls for properties that abut Pinole Creek in order to minimize potential conflicts between flood, resource protection and recreational goals. This action could be accomplished by adopting a creek ordinance.

Policy HS.2.2 Work with the Contra Costa County Flood Control District and other property owners in the Pinole Creek watershed, particularly the East Bay Municipal Utility District (EBMUD), to establish a diversion basin that could reduce stormwater flows during severe storm conditions.

Action HS.2.2.1 Establish a land use designation for land to be set aside for detention basin purposes and seek out opportunities to establish detention basins to better protect the community from flooding hazards.

Policy HS.2.4 Continue to monitor studies that identify anticipated changes in sea level and create appropriate standards and improvements to minimize flood risks.

Action HS.2.4.1 Create a long-range plan to govern the San Pablo Bay waterfront and any other areas that may be impacted by changes in sea level.

Policy HS.4.1 Continue to provide essential emergency public services during natural catastrophes.

Action HS.4.1.1 Maintain and implement the Emergency Operations Plan (EOP), including periodic training exercises.

Action HS.4.1.2 Continue working with Contra Costa County and other concerned agencies to adopt a regional Emergency Response Plan (ERP).

Action HS.4.1.5 Establish an emergency warning/notification system in Pinole to notify the public during a natural or man-made disaster. Provide a public communication system to help advise the public about how best to respond during the recovery phase of a disaster and notify the community when safety has been restored.

Action HS.4.1.6 The City shall increase the number of individuals that receive Citizen Emergency Response Training to increase emergency preparedness within the city and encourage greater self-reliance during and after a natural or man-made hazard event.

Policy HS.4.2 Undertake disaster preparedness planning in cooperation with other public agencies and appropriate public interest organizations.

Policy OS.1.1 Habitat Preservation. The City shall protect and preserve open space and natural areas. Preserve oak/woodland, riparian vegetation, creeks, fisheries, saltwater and freshwater marsh, native bunchgrass grasslands, wildlife corridors and sensitive nesting sites. Loss of these habitats should be fully offset through creation of habitat of equal value. Compensation rate for habitat re-creation shall be determined by a qualified biologist in consultation with resource agencies.

Policy OS.1.7 Transitional Zones. The City will condition or modify development approvals to ensure that natural transitions along the edges of different habitat types are preserved and enhanced because of their importance to wildlife. Maintain proper buffers between sensitive habitat and conflicting land uses. Habitat types of particular concern are those along the margins of riparian corridors, marshlands, and oak woodlands. Preserves and areas with special conservation status must have compatible surrounding land uses.

Policy OS.1.8 Habitat Restoration. The City shall implement a re-vegetation plan which aims to identify and prioritize areas planned for habitat restoration. Areas planned for restoration may provide special-status species habitat, connectivity of wildlife corridors, transitional zones in between natural areas and incompatible land uses, or expansion of ecological functions such as flood management and water quality.

Policy OS.2.1 Protection of Native Vegetation. Protect, preserve and create the conditions that will promote the preservation of significant trees and other vegetation, particularly native to California and the region.

Policy SE.9.1 Encourage policies to prudently manage water resources to sustain plant and animal life, support urban activities and protect public health and safety.

Action SE.9.1.1 Where feasible, institute a water conservation program for City of Pinole facilities; for example, installation of waterless urinals and low-flow sinks and showers.

Action SE.9.1.2 Encourage the use of recycled water and drought-resistant landscaping in Pinole facilities, public roadway landscape, and new development.

Action SE.9.1.3 Establish incentives for development projects that achieve a 20% reduction in water use over baseline of 1995.

Policy SE.9.3 Protect environmentally sensitive habitats, conserve natural habitat lands and preserve habitat connectivity.

Action SE.9.3.1 Designate environmentally sensitive natural resource areas as Open Space, Parks and Recreation, Rural, or San Pablo Bay Conservation Areas appropriate in the City's Land Use Element Map to help ensure long-term protection of natural resources within the City.

Action SE.9.3.2 Require biological studies in conjunction with development proposals within or near natural habitat lands, including land designated as Rural in the General Plan Land Use Map (**Figure 5-5**).

Action SE.9.3.3 Avoid disturbance of sensitive biological resources in conjunction with new development, redevelopment, or other construction activities.

Because considerable uncertainty remains with respect to the overall impact of global climate change on California and the GPU Planning Area, it is unknown whether these impacts would be significant. This also includes the uncertainty surrounding to what degree global climate change may adversely impact future water supply and availability in the GPU Planning Area. However, based on consideration of the recent regional and local climate change studies, and in combination with the City's existing standards and proposed General Plan Update policy

provisions, it is expected that the environmental effects of global climate change on the city of Pinole would be **less than cumulatively considerable**.

Mitigation Measures

None required.

Inefficient, Wasteful, and Unnecessary Consumption of Energy (Standard of Significance 3)

Impact 4.13.3 Development under the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would increase the consumption of energy associated with electrical, natural gas, and vehicle fuel. This is considered to be a **less than cumulatively considerable** impact.

Residential and Nonresidential Energy Use

The proposed General Plan Update policy document and Land Use Map accommodates some modification of existing land uses and encourages infill development that could increase population, housing, and employment in the city. An inventory of vacant lands in Pinole demonstrates that there are an estimated dwelling unit potential of 230 housing units and a potential population of 665 persons outside of the Three Corridors Specific Plan area and an additional 1,076 housing units and 3,110 persons inside the Three Corridors Specific Plan boundaries by 2030. Therefore, the GPU Planning Area could potentially accommodate an additional 1,306 housing units and 3,775 people. As previously mentioned, in 2005, Pinole residential, commercial, and industrial uses consumed a 78,153,265 kilowatt hours of electricity and 122,071,432 kilowatt hours of natural gas (200,224,697 kilowatt hours combined)(City of Pinole, 2010).[2]

The Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24) were established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. The most recent update of these standards is contained in the *2008 Building Energy Efficiency Standards for Residential and Nonresidential Buildings*. According to the U.S. Department of Energy, California's building efficiency standards (along with those for energy-efficient appliances) have saved more than $56 billion in electricity and natural gas costs since 1978. The updated standards contained in these 2008 Building Energy Efficiency Standards are expected to save an additional $23 billion by 2013 (USDE, 2009). These projections are based on the standards' provisions to:

- Respond to Assembly Bill 32, the Global Warming Solutions Act of 2006, which mandates that California must reduce its greenhouse gas emissions to 1990 levels by 2020.
- Pursue California energy policy that energy efficiency is the resource of first choice for meeting California's energy needs.
- Act on the findings of California's Integrated Energy Policy Report (IEPR) that standards are the most cost-effective means to achieve energy efficiency, expects the Building

[2] Natural gas, typically measured in therms or BTUs, has been converted to kilowatt hours in order to achieve consistency between electricity and natural gas units.

Energy Efficiency Standards to continue to be upgraded over time to reduce electricity and peak demand, and recognizes the role of the standards in reducing energy related to meeting California's water needs and in reducing greenhouse gas emissions.

- Meet the West Coast Governors' Global Warming Initiative commitment to include aggressive energy efficiency measures into updates of state building codes.

- Meet the Executive Order in the Green Building Initiative to improve the energy efficiency of nonresidential buildings through aggressive standards (CEC, 2008).

The *2008 Building Energy Efficiency Standards for Residential and Nonresidential Buildings* include code regulations for lighting; windows; roofing; skylights; swimming pool and spa equipment; heating, ventilation, and air conditioning equipment and controls; and the New Solar Homes Partnership (NSHP). Part of the California Solar Initiative, NSHP provides financial incentives and other support to home builders to encourage construction of energy-efficient solar homes. High-performance windows that are more resistant to heat and better insulated will now be required in new homes. Heating, ventilating, and air conditioning systems for homes and businesses must now be more efficient. "Cool roof" standards have also been upgraded to include residential and nonresidential buildings. Cool roofs are made of highly reflective, insulated roofing materials that stay up to 40 degrees cooler than normal roofing materials under a hot summer sun. Cool roof standards are designed to reduce air conditioner demand, save money, and reduce the urban heat island effect. A cool roof can reduce a homeowner's electricity consumption by as much as 20 percent (USDE, 2008).

The new standards also require energy-efficient lighting, including expanded use of skylights in large nonresidential buildings. For example, the old requirement to install skylights in commercial warehouses larger than 25,000 square feet has been changed to include warehouses starting at 8,000 square feet. As a result, businesses will use more natural daylight and save on electricity costs.

Many of the changes in the standards are tailored to help reduce not only overall energy use, but peak energy use (electricity demand on hot summer days when air conditioning loads can nearly double California's need for power). The latest efficiency standards are expected to cut the state's peak energy demand by 129 megawatts the first year the standards are in effect and increase cumulatively in subsequent years (USDE, 2008). By some estimates, the new standards will save as much as 500 megawatts by 2013 (USDE, 2008).

The proposed project would result in an increase of residential and commercial land uses and therefore an increase of energy consumed over existing conditions. However, future residential and nonresidential development under the proposed General Plan Update would be required to adhere to the energy efficiency requirements of the *2008 Building Energy Efficiency Standards for Residential and Nonresidential Buildings.* New development will be more energy efficient per square foot than existing energy use modeling data can quantify.

Transportation Energy Use

An increase in population as anticipated under the proposed project would result in an increase in vehicle trips, these trips would be reduced in length due to the increased density proposed under the proposed General Plan Update, thus reducing the amount of automobile fuel consumed. Strategies in the proposed General Plan Update include promoting compact, walkable, infill, and mixed-use development and focusing redevelopment along the San Pablo Avenue, Pinole Valley Road, and Appian Way corridors.

According to a fuel consumption analysis conducted for the proposed project (**Appendix G**), the city of Pinole consumed approximately 35,464 gallons of automotive fuel (diesel and gasoline) per day in 2010. As a consequence of the fuel efficiency requirements of AB 1493, automobile use in the city of Pinole is projected to result in the consumption of 28,930 gallons of automotive fuel per day at buildout under the proposed project. This is a reduction of 6,534 gallons of automotive fuel used per day over existing conditions (refer to **Appendix G** for detailed assumptions and modeling output files).

Proposed General Plan Update Policies and Actions that Address Energy Consumption

The proposed General Plan Update contains policies and actions that include specific, enforceable requirements and/or restrictions and corresponding performance standards that address this impact.

Action GM.3.2.3 Alternative Modes of Transportation. Work with regional transportation agencies to develop circulation standards that:

1. Emphasize the movement of people, not solely automobiles, as the performance objective.

2. Adjust service standards to include trips accommodated by bicycle routes and facilities, pedestrian connections and transit service.

Action GM.3.3.1 Bus Service. Coordinate with WestCAT and AC Transit to strategically expand commute and local bus services in Pinole. Transit service planning should consider the following:

1. Loop service along primary circulation corridors.

2. Enhanced access to major employment centers or transit hubs to minimize the number of transfers associated with trips.

Action GM.3.3.2 Carpools and Transit. The City will develop a plan to make more efficient use of the regional and subregional transportation system that includes the following considerations.

1. Improved access to commuter bus service by enhancing access to nearby park-and-ride facilities or by providing a park-and-ride facility in Pinole to support commuter bus service.

2. Promoting the use of carpools and vanpools.

Action LU.8.1.1 Utilize the Three Corridors Specific Plan to encourage attractive mixed-use development along San Pablo Avenue while retaining Pinole's important view corridors; providing a safe circulation plan that includes traffic calming measures, enhanced transit, bicycle, and pedestrian facilities as well as to encourage sustainable and green building environment.

Action LU.8.3.3 Initiate a transit study to determine how best to maximize potential opportunities to improve transit facilities and options in this area.

Action LU.8.3.4	Require any new development to provide improved pedestrian facilities and to design their development to be as walkable as possible.
Policy CE.1.2	Coordinate development of the circulation system with sustainable land use planning.
Action CE.1.2.1	Give priority to projects that will contribute to a reduction in vehicle miles traveled per capita, while maintaining economic vitality and sustainability.
Action CE.1.2.2	Require development to provide bus, bicycle, pedestrian and alternative fuel vehicle facilities, as appropriate.
Policy CE.1.3	Encourage development that is sensitive to both local and regional transit measures and that promotes the use of alternative modes of transportation.
Action CE.1.3.2	Include facilities that support alternative modes of transportation (pedestrian, bicycles, public transit, electric vehicles, etc.) where feasible.
Policy CE.1.4	Encourage maximum utilization of the existing public transit system and alternate modes of transportation in Pinole.
Action CE.1.4.1	Study the feasibility of increasing public transit frequency in areas currently served, and continue evaluating the possibility of expanding service to areas currently without service.
Action CE.1.4.2	Include links to public transit resources, bike trails maps, pedestrian trails maps and carpool/van pool information on the City's website.
Action CE.1.4.3	Pursue extension of rapid bus service to Pinole and enhance transit facilities that serve Pinole users.
Policy CE.4.4	Prioritize transportation funding to support public transit and other non-auto modes of transportation.
Action CE.4.4.1	Before funding transportation improvements that increase roadway capacity and vehicle miles traveled, the City will evaluate the feasibility and effectiveness of funding projects that support alternative modes of transportation and reduced vehicle miles traveled, including transit and bicycle and pedestrian access.
Action CE.6.2.6	Establish and apply minimum carpool requirements for all nonresidential developments.
Policy CE.7.1	Enhance the city's bikeway network through the use of Class I, II and III bikeways.
Policy HS.5.1	Promote strategic land use patterns for businesses that reduce the number and length of motor vehicle trips and that encourage multiple forms of transportation for employees and patrons.

Action HS.5.1.1 Support the location of ancillary employee services, including child care, restaurants, banking facilities and convenience markets, at major employment centers for the purpose of reducing mid-day vehicle trips.

Policy HS.5.2 Encourage mixed-use developments that put residences in close proximity to services, employment, transit, schools and civic facilities/services.

Action HS.5.2.1 Encourage compact, transit-oriented development within one-quarter to one-half mile of transit stations and transit service stops along transit corridors.

Action HS.5.2.2 Continue to work with transportation and transit agencies and organizations to improve transit service and encourage increased ridership.

Action HS.5.2.3 Adopt and implement the Three Corridors Specific Plan for commercial corridors along San Pablo Avenue, Pinole Valley Road and Appian Way, establishing mixed-use development land use designations and design guidelines that encourage walkable communities, improved bicycle facilities and improved public transit facilities.

Policy HS.6.1 Promote and encourage walking and bicycling as viable forms of transportation to services, shopping and employment.

Action HS.6.1.2 Require all new development to be designed to enable easy pedestrian and bicycle access and circulation.

Action HS.6.2.2 The City of Pinole should create a model for other large employers in the city that makes use of programs to reduce single-occupant vehicle trips, support the use of alternative fuels and encourage alternative modes of transportation. Such programs could include:

- Creating rideshare/carpooling incentives for employees who commute together.
- Replacing City-owned vehicles with alternative fuel vehicles.
- Ensuring that necessary infrastructure is in place (e.g., showers, bike racks, shared automobile leasing stations) and available to employees and visitors who rely on such facilities to support alternative modes of transportation.

Action SE.1.1.5 Establish baselines of City operations such as the City's energy use, trash export, recycling, local food production, etc. in order to evaluate the City's progress toward reducing energy consumption and waste and set goals for future waste reduction targets.

Policy SE.1.2 Conduct public outreach to Pinole businesses to inform them about rebates and other financial incentives for using ENERGY STAR® or equivalent energy-efficient appliances, lighting, and heating equipment.

Action SE.1.3.1 Conduct energy audits for all public facilities, as feasible.

Action SE.1.3.2 Retrofit facilities for energy efficiency where feasible. Include items such as increased insulation, green or reflective roofs, and low-emissive window glass.

Action SE.1.3.3	Implement an energy tracking and management system for City departments and public facilities.
Action SE.1.3.4	Work with Public Works to install energy-efficient lighting retrofits and occupancy sensors on public facilities.
Policy SE.1.4	Require all newly constructed, purchased, or leased municipal buildings or facilities meet minimum standards for green building as appropriate.
Policy SE.1.5.1	Provide energy efficiency training, including opportunities to obtain LEED certification for relevant staff.
Policy SE.1.5.2	Provide information on energy use and management to managers and others making decisions that influence energy use.
Policy SE.1.5.3	Provide energy design review services to departments undertaking new construction or renovation projects to facilitate compliance with LEED standards.
Action SE.3.4.1	Over time, replace the City's vehicle fleet with alternative fuel vehicles.
Action SE.3.4.6	The City will give priority to projects that will result in reduction of vehicle miles traveled per capita while maintaining sustainability and economic vitality.
Action SE.4.1.1	Utilize, where feasible, renewable energy and clean generation technologies such as solar, wind, biogas, tidal, cogeneration, and fuel cells to power City facilities using tax-free low-interest loans and other available financial options.
Action SE.4.1.3	Designate suitable sites to prioritize their development for renewable energy generation.
Action SE.4.2.4	Provide technical assistance to builders and developers to encourage sustainable and energy efficient building design.
Policy SE.4.3	Pinole will promote and require renewable energy generation and co-generation where feasible and appropriate.
Action SE. 4.3.1	Require that new office/retail/commercial or industrial development, or major rehabilitation (e.g. additions of 25,000 square feet commercial, or 100,000 square feet industrial) incorporate renewable energy generation either on- or off-site to provide 15% or more of the project's energy needs.
Action SE.4.4.2	Continue to conduct energy audits of Pinole facilities and implement energy efficiency and retrofitting recommendations from those audits. Seek funding from available state sources and grant opportunities, as well as the CIP.
Action SE.4.4.3	Where feasible and appropriate, transition to LED/energy efficient lights in all City facilities and equipment.
Action SE.4.4.4	Set a target to meet a majority of the City's energy needs via renewable energy.

Action SE.4.5.1 Require that, where feasible, all new buildings be constructed for easy, cost-effective installation of solar energy systems. This should include requiring such features as optimal roof orientation, clear access without obstructions, and appropriate roof framing and wiring.

Action SE.4.5.3 Require that any building constructed in whole or in part with City funds incorporate passive solar design features such as daylighting and passive solar heating, where feasible.

Action SE.6.1.3 Develop a Green Streets program to encourage designs that enhance the City's ecological function, reduce stormwater discharge through the use of pervious surfaces where appropriate, add infiltration enhancements (e.g. planters, swales, and channels), and increase sidewalk planting areas to reduce the heat island effect in developed areas and provide room for additional trees and shrubs within public right-of-way areas.

Action SE.6.2.1 Reduce energy consumption in buildings by balancing energy-efficient design with land use compatibility during the design review process.

Policy SE.7.4 In order to reduce vehicle miles traveled and traffic congestion, new development within 1,000 feet of an existing or planned transit stops should be designed to encourage the usage of public transit and minimize the dependence on the automobile through the application of site design guidelines.

Action SE.8.6.5 Require that new and fully renovated commercial and retail development provide preferential parking for electric vehicles and vehicles using alternative fuels.

Policy SE.8.7 Work to improve Pinole's pedestrian and bicycle infrastructure and to meet the needs of all pedestrians and bicyclists.

Action SE.8.7.1 Implement public transit-, bicycle- and pedestrian-oriented land use and design strategies in new development, as described in the Land Use and Circulation Elements of the General Plan to reduce the number of single-occupant trips in fossil-fueled vehicles.

Action SE.8.7.5 Establish and implement standards that meet or exceed state law for "complete streets" that foster equal access by all users in the roadway system. Include standards that address connection of bicycle and pedestrian access to other areas, safe road crossings, adequate and secure bike parking at public and private facilities, and street standards as is feasible for bicycle infrastructure.

Action SE.8.10.1 Develop the necessary infrastructure to encourage the use of zero-emission vehicles and clean alternative fuels, such as development of electric vehicles charging facilities and alternative fueling stations.

Action SE.8.10.3 Establish incentives for use of alternative fuel, electric, or gas-electric hybrid vehicles.

In addition, Chapter 7.0, *Private Realm Standards and Design Guidelines*, of the Three Corridors Specific Plan encourages the incorporation of building siting and design techniques that increase energy efficiency including orienting buildings to maximize solar access and the use of solar power systems, green roofs, and green building practices. Chapter 8.0, *Public Realm Standards and Design Guidelines*, encourages energy efficiency in public facilities and public lighting. Furthermore, Chapter 17.94 of the Zoning Code Update allows for the use of wind energy conversion systems in all zoning districts with the issuance of a use permit and provides specific performance standards for such systems.

Implementation of the proposed General Plan Update policies and actions listed above would result in efficient energy usage in both public and private development, while subsequent development would also be required to comply with energy efficiency standards in Title 24 of the California Code of Regulations. Additionally policies, standards and strategies specified in the Three Corridors Specific Plans and discussed above further address energy consumption. In addition, transportation fuel use would be reduced under buildout of the proposed project as a result of implementation of AB 1493. Therefore, impacts would be considered **less than cumulatively considerable.**

Mitigation Measures

None required.

REFERENCES

Bay Area Air Quality Management District (BAAQMD). 2009. *California Environmental Quality Act Guidelines Update: Proposed Thresholds of Significance*. http://www.baaqmd.gov/~/media/Files/Planning%20and%20Research/CEQA/Proposed%20Thresholds%20of%20Significance%20Dec%207%2009.ashx (accessed January 2010).

Bay Area Air Quality Management District (BAAQMD). 2010. *GHG Plan Level Quantification Guidance*. http://www.baaqmd.gov/~/media/Files/Planning%20and%20Research/CEQA/GHG%20Quantification%20Guidance_5_3_10.ashx (accessed May 21, 2010).

Brekke, L. D., N. L. Miller, K. E. Bashford, et al. 2004. Climate change impacts uncertainty for water resources in the San Joaquin River Basin, California. *Journal of the American Water Resources Association* 40 (1):149–164.

California Air Pollution Control Officers Association (CAPCOA). 2008. *CEQA and Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act*.

California Air Pollution Control Officers Association (CAPCOA). 2009. *Model Policies for Greenhouse Gases in General Plans: A Resource for Local Government to Incorporate General Plan Policies to Reduce Greenhouse Gas Emissions*.

California Air Resources Board (CARB). 2009. *California Greenhouse Gas Inventory Data 2000 to 2006*. Last Reviewed on December 10, 2009. http://www.arb.ca.gov/cc/inventory/data/data.htm (accessed April 2010).

California Climate Action Team (CAT). 2009. *Draft Climate Action Team Biennial Report to the Governor and Legislature*.

California Department of Water Resources (DWR). 2006. *Progress on Incorporating Climate Change Into Management of California Water Resources.*

California Energy Commission (CEC). 2006a. *Inventory of California Greenhouse Gas Emissions and Sinks: 1990 to 2004*. Publication CEC-600-2006-013-D. http://www.energy.ca.gov/2006publications/CEC-600-2006-013/CEC-600-2006-013-SF.PDF (accessed March 2010).

California Energy Commission (CEC). 2006b. *Our Changing Climate: Assessing the Risks to California*. Publication CEC-500-2006-077.

California Energy Commission (CEC). 2007. Website: *Energy Almanac*. http://energyalmanac.ca.gov/transportation/summary.html#fuel (accessed April 13, 2010).

California Energy Commission (CEC). 2008. *2008 Building Energy Efficiency Standards for Residential and Nonresidential Buildings*. December 2008. http://www.energy.ca.gov/title24/ (accessed May 2010).

California Energy Commission (CEC). 2009a. *The Future is Now: An Update on Climate Change Science Impacts and Response for California*.

California Energy Commission (CEC). 2009b. *Climate Change Portal*. Last update December 22, 2006. http://www.climatechange.ca.gov (accessed March 2010).

California Energy Commission (CEC). 2009c. *2009 Integrated Energy Policy Report, Final Committee Report*. December 2009.

California Environmental Protection Agency (Cal-EPA). 2007. *FAQS Frequently Asked Questions About Global Climate Change*. http://www.climatechange.ca.gov/publications/faqs.html

California Natural Resources Agency. 2009. *California Adaption Strategy Discussion Draft: A Report to the Governor of the State of California in Response to Executive Order S-13-2008.*

California Public Utilities Commission (CPUC). 2009. *33% Renewables Portfolio Standard: Implementation Analysis Preliminary Results.*

East Bay Municipal Utility District (EBMUD), Water Resources Planning Division. 2005. *Urban Water Management Plan 2005*.

Gleick, Peter. 1997. American Water Works Association (AWWA). Climate change and water resources. *Journal of the American Water Works Association*, Vol. 89, No. 11, pp. 107–110.

Intergovernmental Panel of Climate Change (IPCC). 2007. *National Greenhouse Gas Inventories Programme*. http://www.ipcc-nggip.iges.or.jp (accessed March 2010).

Kiparsky, 2003. op. cit; DWR, 2005. op. cit.; Cayan, D., et al. 2006. *Scenarios of Climate Change in California: An Overview* (White Paper, CEC-500-2005-203-SF), Sacramento, CA. February.

Kiparsky, M. and P. H. Gleick. 2003. *Climate Change and California Water Resources: A Survey and Summary of the Literature.* Oakland, CA: Pacific Institute for Studies in Development.

Metropolitan Transportation Commission (MTC). 2008. *Travel Forecasts Data Summary: Transportation 2035 Plan for the San Francisco Bay Area.*

Miller, Tyler G. 2000. *Living In the Environment.* 11th ed. Thomson Learning.

National Aeronautical and Space Administration (NASA). 2009. *NASA Facts Online*. http://www.gsfc.nasa.gov/gsfc/service/gallery/fact_sheets/earthsci/green.htm (accessed April 2010).

Pacific Gas and Electric (PG&E). 2009. http://www.pge.com/ (accessed May, 2010).

Pinole, City of. 2010. *Community-Wide and Government Operations 2005 Baseline Greenhouse Gas Emissions Inventory* (Administrative Draft).

San Francisco Bay Conservation and Development Commission (BCDC). 2009. (April) Draft Staff Report. *Living with a Rising Bay: Vulnerability and Adaptation in San Francisco Bay and on its Shoreline.* http://www.bcdc.ca.gov/planning/climate_change/climate_change.shtml (accessed April 2010).

Western Region Climate Center (WRCC). 2009. http://www.wrcc.dri.edu.

United States Department of Energy (USDE). 2008. *California Energy Commission Updates Building Energy Standards.* May 2008. http://apps1.eere.energy.gov/state_energy_program/update/project_detail.cfm/pb_id=1285(accessed May 12, 2010).

5.0 Cumulative Impacts Summary

This section of the Draft Environmental Impact Report (Draft EIR; DEIR) summarizes the cumulative impacts associated with the proposed project that are identified in environmental issue areas in Section 4.0. Cumulative impacts are the result of combining the potential effects of the projects with other planned developments, as well as foreseeable development projects. The following discussion considers the cumulative impacts of the relevant environmental issue areas.

5.1 INTRODUCTION

The California Environmental Quality Act (CEQA) requires that an environmental impact report (EIR) contain an assessment of the cumulative impacts that could be associated with the proposed project. According to CEQA Guidelines Section 15130(a), an EIR shall discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects (as defined by Section 15130). As defined in CEQA Guidelines Section 15355, a cumulative impact consists of an impact that is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts. A cumulative impact occurs from:

> . . . the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

In addition, Section 15130(b) identifies that the following three elements are necessary for an adequate cumulative analysis:

1) Either:

    a. A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency.

    b. A summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or area wide conditions contributing to the cumulative impact. Any such planning document shall be referenced and made available to the public at a location specified by the lead agency.

2) A summary of the expected environmental effects to be produced by those projects with specific reference to additional information stating where that information is available; and

3) A reasonable analysis of the cumulative impacts of the relevant projects. An EIR shall examine reasonable, feasible options for mitigating or avoiding the project's contribution to any significant cumulative effects.

Where a lead agency is examining a project with an incremental effect that is not cumulatively considerable, a lead agency need not consider that effect significant, but shall briefly describe its basis for concluding that the incremental effect is not cumulatively considerable.

5.2 CUMULATIVE SETTING

A general description of the cumulative setting is provided in Section 4.0, Introduction to the Environmental Analysis and Assumptions Used, as well as **Table 4.0-1**. In addition, each environmental issue area evaluated in the DEIR identifies its own cumulative setting.

5.3 CUMULATIVE IMPACTS ANALYSIS

Identified below is a compilation of the cumulative impacts that would result from the implementation of the project and future development in the vicinity. As described above, cumulative impacts are two or more effects that, when combined, are considerable or compound other environmental effects. Each cumulative impact is determined to have one of the following levels of significance: less than significant, significant, or significant and unavoidable. The specific cumulative impacts for each environmental issue area are identified in the technical sections of Section 4.0.

SECTION 4.1 LAND USE

Cumulative Land Use Impacts

Impact 4.1.4 When considered with existing, proposed, approved, and reasonably foreseeable development in the region, implementation of the proposed project has the potential to contribute to cumulative land use conditions, resulting in significant impacts to the physical environment. The proposed project would have a **less than cumulatively considerable** contribution to this impact.

SECTION 4.2 POPULATION/HOUSING/EMPLOYMENT

Cumulative Population and Housing Increases

Impact 4.2.3 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would not result in substantial population, housing, and employment increases in Contra Costa County and the Bay Area. This is considered a **less than cumulatively considerable** impact.

SECTION 4.3 AIR QUALITY

Result in a Cumulatively Considerable Net Increase of Nonattainment Criteria Pollutants and Precursors

Impact 4.3.7 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update), in combination with cumulative development in the SFBAAB, would result in a cumulatively considerable net increase of ozone and coarse and fine particulate matter. This is considered a **cumulatively considerable** impact.

SECTION 4.4 TRAFFIC AND CIRCULATION

Cumulative Transportation Impacts

Impact 4.4.7 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would result in cumulative transportation impacts. This impact is considered **cumulatively considerable**.

Cumulative Conflicts with an Applicable Congestion Management Plan

Impact 4.4.8 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would conflict with the multimodal transportation service objectives (MTSOs) identified in the West County Action Plan. This is considered a **cumulatively considerable** impact.

Cumulative Roadway Hazards or Incompatible Uses

Impact 4.4.9 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update), in combination with pending or approved major projects within the city as well as consideration of regional activities, would result in changes to the circulation network. The changes are not anticipated to increase hazards due to a design feature or incompatible uses. Therefore, this impact is considered to be **less than cumulatively considerable**.

Cumulative Emergency Access

Impact 4.4.10 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update), in combination with pending or approved major projects within the city as well as consideration of regional activities, would result in an increase in vehicular traffic and changes to the roadway network, which may potentially increase emergency access conflicts. This is considered a **less than cumulatively considerable** impact.

Cumulative Conflicts with Programs Supporting Alternative Transportation

Impact 4.4.11 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) in combination with pending or approved major projects within the city as well as consideration of regional activities, would support continued and expanded transit use, bicycling, and walking throughout the city, although changes to the roadway network may potentially affect bus operations. This is considered a **less than cumulatively considerable** impact.

SECTION 4.5 NOISE

Cumulative Transportation Noise Impacts

Impact 4.5.7 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update), in combination with other development in nearby areas in Contra Costa County, would increase

transportation noise along area roadways. This would be a **cumulatively considerable** impact.

SECTION 4.6 HUMAN HEALTH/RISK OF UPSET

Cumulative Hazards and Health Risks

Impact 4.6.5 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would not cumulatively contribute to regional hazards. This is considered a **less than cumulatively considerable** impact.

SECTION 4.7 BIOLOGICAL RESOURCES

Cumulative Impacts to Special-Status Species

Impact 4.7.6 Implementation of the proposed General Plan and associated project components (Three Corridors Specific Plan and Zoning Code Update), together with past, present, and probable future projects in the Planning Area and larger regional context, would result in a cumulatively significant loss of biological resources in the region. The project's incremental contribution to this significant cumulative impact is **less than cumulatively considerable**.

SECTION 4.8 GEOLOGY AND SOILS

Cumulative Geologic, Soils, and Seismic Impacts

Impact 4.8.5 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update), in combination with existing, planned, proposed, and reasonably foreseeable development, would not contribute to cumulative geologic, seismic, and soil impacts, as the impacts would be site-specific and not additive in character. Thus, this impact would be **less than cumulatively considerable**.

SECTION 4.9 HYDROLOGY AND WATER QUALITY

Cumulative Water Quality Impacts

Impact 4.9.7 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update), in combination with other development activities within the watershed, would contribute to a cumulative degradation of water quality from construction activities and increased urban runoff. This is considered a **potentially cumulatively considerable** impact.

Cumulative Flooding Impacts

Impact 4.9.8 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could increase impervious surfaces and alter drainage conditions and rates in the Planning Area, which could contribute to cumulative flood conditions in the Pinole Creek

watershed and San Pablo Bay. This impact is considered **cumulatively considerable**.

SECTION 4.10 CULTURAL AND PALEONTOLOGICAL RESOURCES

Cumulative Impacts to Prehistoric Resources, Historic Resources, and Human Remains

Impact 4.10.3 Adoption of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update,) along with foreseeable development in the region, could result in the disturbance of cultural resources (i.e., prehistoric sites, historic sites, and isolated artifacts and features) and human remains. This contribution is considered **cumulatively considerable**.

Cumulative Impacts to Paleontological Resources

Impact 4.10.4 Adoption of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update), along with any foreseeable development in the region, could result in the potential disturbance of paleontological resources (i.e., fossils and fossil formations). This contribution is considered **cumulatively considerable.**

SECTION 4.11 VISUAL RESOURCES/LIGHT AND GLARE

Cumulative Impacts to Visual Resources and Visual Character

Impact 4.11.4 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update), along with foreseeable development in the region, would not result in the significant conversion of the city's visual character. This is considered a **less than cumulatively considerable** impact.

SECTION 4.12 PUBLIC SERVICES AND UTILITIES

Cumulative Fire Protection and Emergency Medical Services

Impact 4.12.1.2 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan and Zoning Code Update), along with other planned development and redevelopment within the GPU Planning Area, would contribute to the cumulative demand for fire protection and emergency medical services. This is considered a **less than cumulatively considerable** impact.

Cumulative Law Enforcement Impacts

Impact 4.12.2.2 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan and Zoning Code Update), along with other planned development and redevelopment within the GPU Planning Area, would contribute to the cumulative demand for law enforcement services. This is considered a **less than cumulatively considerable** impact.

Cumulative Public School Impacts

Impact 4.12.3.2 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update), as well as potential development within the cumulative setting area, would result in cumulative public school impacts. These cumulative public school impacts are considered **less than cumulatively considerable**.

Cumulative Park and Recreation Impacts

Impact 4.12.4.2 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update), in combination with other reasonably foreseeable development, would require additional park and recreation facilities within the GPU Planning Area. This would be a **less than cumulatively considerable** impact.

Cumulative Water Supply and Water Supply Infrastructure Impacts

Impact 4.12.5.2 Implementation of the proposed General Plan Update and its associated project components would contribute to the cumulative demand for water supply and associated infrastructure in EBMUD's service area. This is considered a **cumulatively considerable** impact.

Cumulative Wastewater Service Impacts

Impact 4.12.6.3 Implementation of the General Plan Update, Three Corridor Specific Plan, and Zoning Code Update, as well as existing, planned, proposed, approved, and reasonably foreseeable development in the City of Pinole Public Works Department and West County Wastewater District wastewater service areas, would increase wastewater flows and require additional infrastructure and treatment capacity to accommodate anticipated demands. The proposed project's contribution to this impact is considered to be **less than cumulatively considerable**.

Cumulative Solid Waste Impacts

Impact 4.12.7.2 Implementation of the proposed project (General Plan Update, Three Corridor Specific Plan, and Zoning Code Update), along with other existing, planned, proposed, approved, and reasonably foreseeable development within the West Contra Costa Integrated Waste Management Authority service area, would result in cumulative solid waste impacts. This is considered a **less than cumulatively considerable** impact.

Cumulative Electrical, Natural Gas, and Telephone Service Impacts

Impact 4.12.8.2 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update), as well as potential development in the surrounding areas, would result in an increase in cumulative utility service demands. The proposed project would have a **less than cumulatively considerable** impact on electrical, natural gas, telephone, and cable television services.

SECTION 4.13 CLIMATE CHANGE

Generate Greenhouse Gas Emissions that May Have a Significant Impact on the Environment or Conflict with Applicable Adopted Reduction Measures

Impact 4.13.1 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would result in greenhouse gas emissions that would not be anticipated to conflict with the goals of AB 32 nor result in a significant impact on the environment. This is considered a **less than cumulatively considerable** impact.

Climate Change Environmental Effects on the City

Impact 4.13.2 Environmental effects of climate change are not currently expected to result in adverse impacts to the General Plan Update Planning Area. This impact is considered to be **less than cumulatively considerable.**

Inefficient, Wasteful, and Unnecessary Consumption of Energy

Impact 4.13.3 Development under the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would increase the consumption of energy associated with electrical, natural gas, and vehicle fuel. This is considered to be a **less than cumulatively considerable** impact.

6.0 ALTERNATIVES TO THE PROJECT

6.1 INTRODUCTION

GENERAL CEQA REQUIREMENTS

The purpose of the EIR alternatives analysis is to describe a range of reasonable alternatives to the proposed project that could feasibly obtain most of the basic objectives of the project and to evaluate the comparative merits of the alternatives (State CEQA Guidelines, Section 15126.6[a]). An EIR need not consider every conceivable alternative to a project, nor is it required to consider alternatives that are infeasible. The discussion will focus on those alternatives that are capable of avoiding or substantially lessening any significant effects of the project, even if they impede the attainment of the project objectives to some degree or would be more costly (CEQA Guidelines Section 15126.6[b]).

The California Environmental Quality Act (CEQA) requires an EIR to identify project alternatives and to indicate the manner in which a project's significant effects may be mitigated or avoided. However, CEQA does not mandate that the EIR itself contain an analysis of the feasibility of the various project alternatives or mitigation measures that it identifies (Public Resources Code, Sections 21002.1, subd (a): 21100 and subd (b)4). As the lead agency, the City of Pinole bears the responsibility for the decisions that have to be made before the project can go forward. These decisions include, but are not limited to, the determinations of feasibility and whether the benefits of the project outweigh its significant effects on the environment (Public Resources Code Sections 21002.1, subd (b) and (c); Section 21082).

According to the State CEQA Guidelines, an EIR need only examine in detail those alternatives that could feasibly meet most of the basic objectives of the project. When addressing feasibility, CEQA states that "among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, jurisdictional boundaries, and whether the applicant can reasonably acquire, control or otherwise have access to alternative sites" (State CEQA Guidelines Section 15126.6). The State CEQA Guidelines also specify that the alternatives discussion should not be remote and speculative; however, they need not be presented in the same level of detail as the assessment of the proposed project.

State CEQA Guidelines indicate that several factors need to be considered in determining the range of alternatives to be analyzed in an EIR and the level of analytical detail that should be provided for each alternative. These factors include (1) the nature of the significant impacts of the proposed project, (2) ability of alternatives to avoid or lessen the significant impacts associated with the project, (3) the ability of the alternatives to meet the objectives of the project, and (4) the feasibility of the alternatives. These factors should be unique for each project.

The significant environmental impacts of the proposed project that the alternatives will seek to eliminate or reduce were determined and based upon the findings contained within each technical section evaluated in Sections 4.1 through 4.12 of this DEIR.

6.2 ALTERNATIVES UNDER CONSIDERATION

PROJECT ALTERNATIVES CONSIDERED

In accordance with the provisions of State CEQA Guidelines Section 15126.6, the following alternatives to the proposed project were evaluated. These alternatives were compared to the

proposed project and its significant environmental impacts identified in Sections 4.1 through 4.12.

- Alternative 1 – No Project Alternative
- Alternative 2 – Commercial Focus/Expanded Roadways Alternative
- Alternative 3 – Residential Focus/Expanded Transit

These alternatives constitute an adequate range of reasonable alternatives as required under State CEQA Guidelines Section 15126.6. The significant environmental effects of each of these alternatives were identified and compared with those significant environmental impacts resulting from the proposed project, that were identified in environmental issue areas in Section 4.0. **Table 6.0-4** at the end of this section provides a comparison of the environmental benefits and detriments of each alternative.

ALTERNATIVES CONSIDERED BUT NOT SELECTED FOR ANALYSIS

Off-Site Alternative

Off-site alternatives are generally evaluated in an environmental document to avoid, lessen, or eliminate the significant impacts of a project by considering the proposed development in an entirely different location. To be feasible, development of off-site locations must be able to fulfill the project purpose and meet most of the project's basic objectives. Given the nature of the proposed project (update of Pinole's existing General Plan and Zoning Code and adoption of the Three Corridors Specific Plan), it would not be pertinent or possible to consider an off-site alternative as it includes a long-range plans for an existing city that cannot be relocated and since the city boundaries have been established through incorporation. Further, this alternative would not meet the basic project objectives because consideration of another location would not address issues pertinent to the establishment of land use designations and policies to regulate the orderly development of the city. For this reason, an off-site alternative is considered infeasible pursuant to State CEQA guidelines 15126.6(c) and is being rejected as a feasible project alternative.

6.3 ALTERNATIVE 1 – NO PROJECT ALTERNATIVE

CHARACTERISTICS

CEQA, through case law and statutory language, requires that the "no project" alternative be evaluated; under CEQA Guidelines Section 15126.6(e)(2), "the No Project Alternative shall discuss the existing conditions at the time the notice of preparation is published . . . as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services."

The purpose of the No Project Alternative is to allow the lead agency to compare the impacts of the proposed project with the impacts of not approving it.

According to CEQA Guidelines Section 15126.6(e)(3)(A), "[w]hen the project is the revision of an existing land use or regulatory plan, policy or ongoing operation, the 'no project' alternative will be the continuation of the existing plan, policy or operation into the future." In the case of Alternative 1 or the No Project Alternative, the proposed project would not be approved and the existing (1995) City of Pinole General Plan and Zoning Code would continue as the primary guiding document for growth and development within the city. The existing General Plan

includes 3,488 acres of land within the city limits, 3,948 acres of water within San Pablo Bay, and 1,105 acres in the Sphere of Influence (SOI). Under Alternative 1, the city would build out consistent with the existing General Plan land use designations as shown in **Table 3.0-1** in Section 3.0, Project Description, of this DEIR. The City's existing Zoning Code would remain in place and the proposed Three Corridors Specific Plan would not be implemented. If all remaining vacant parcels within the Planning Area were to develop based on the maximum density allowed by the 1995 General Plan land use designations, buildout of Alternative 1 would result in a total of 7,166 housing units and a total population of 20,710 persons. **Table 6.0-1** compares the residential development and population potential for Alternative 1 to that of the proposed project.

TABLE 6.0-1
RESIDENTIAL DEVELOPMENT/POPULATION POTENTIAL
NO PROJECT ALTERNATIVE VS. PROPOSED PROJECT[1]

	Development Potential	
	Housing Units[2]	**Population[3]**
San Pablo Avenue Corridor	905	2,615
Pinole Valley Road Corridor	141	407
Appian Way Corridor	245	708
GPU Planning Area Outside of Specific Plan Area	5,875	16,979
Total No Project Alternative	**7,166**	**20,710**
Proposed Project	8,261	23,875
Difference	**--1,095**	**-3,165**

[1] Numbers rounded.
[2] In order to present a "worst-case scenario," development potential is expressed as the total number of housing units and people that could be accommodated if the existing vacant land were developed to the maximum potential allowed by land use designations. As each land use designation allows for a range of densities, the actual development density will likely be less than shown here.
[3] Based on ABAG's 2007 estimate of 2.89 persons per household.

COMPARATIVE ANALYSIS

4.1 Land Use

Land Use Incompatibilities (Impact 4.1.3)

Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could create **potentially significant** incompatibilities between existing and future land uses within the City of Pinole. Particularly, the proposed General Plan reduces the acreage designated for open space and conservation areas in comparison to the existing General Plan and designates land uses that would concentrate new and intensified development on Pinole's primary commercial corridors by replacing commercial zoning with various mixed-use zones and through the densification of existing residential uses throughout the three commercial corridors of San Pablo Avenue, Pinole Valley Road, and Appian Way.

Alternative 1 would result in the development of fewer housing units within the Planning Area than the proposed project and would not develop land currently designated as open space and conservation areas. Therefore, Alternative 1 would result in fewer potential land use conflicts than the proposed project. In addition, under Alternative 1 the Three Corridors Specific Plan

would not be adopted and development on Pinole's primary commercial corridors would not significantly increase in density or intensity as it would under the proposed project. This too would reduce the potential for land use conflicts in comparison to the proposed project. Therefore, impacts associated with land use incompatibilities would be better under Alternative 1 than under the proposed project.

4.2 Population/Housing/Employment

No significant impacts.

4.3 Air Quality and Climate Change

Conflict with the BAAQMD 2010 Clean Air Plan (Impact 4.3.1)

Subsequent land use activities associated with implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would result in increased population and VMT that would conflict with the BAAQMD 2010 Clean Air Plan and result in a **potentially significant** impact.

Buildout of Alternative 1 would result in 1,095 fewer housing units and 3,165 fewer persons in the Planning Area than the proposed project. Therefore, in comparison to the proposed project, Alternative 1 would result in reduced vehicle trip generation that would reduce PM_{10} emissions and conflicts with the BAAQMD 2010 Clean Air Plan. Conflicts with the BAAQMD 2010 Clean Air Plan would be better under Alternative 1 than under the proposed project.

Violate Air Quality Standard or Contribute Substantially to an Air Quality Violation: Short-Term, Construction Emissions (Impact 4.3.2)

Subsequent land use activities associated with implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could result in **potentially significant** short-term construction emissions from construction activities associated with subsequent development, including site grading, asphalt paving, building construction, and architectural coating, that could violate or substantially contribute to violations of federal and state ambient air quality standards.

Buildout of Alternative 1 would also result in short-term construction emissions from construction activities. However, the amount of emissions generated by construction activities varies by project and is dependent on the size of the development and construction activities required. Therefore, as Alternative 1 has less development potential than the proposed project, impacts would be better under Alternative 1 than under the proposed project.

Violate Air Quality Standard or Contribute Substantially to an Air Quality Violation: Long-Term, Operational Emissions (Impact 4.3.3)

Subsequent land use activities associated with implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could result in long-term, operational emissions that could violate or substantially contribute to violations of federal and state ambient air quality standards. This is a **significant** impact.

As shown in **Table 4.3-6** in Section 4.3, Air Quality and Climate Change, the proposed project would result in net increases of approximately 15.71 tons per year of ROG, 20.92 tons per year of NO_X, 24.71 tons per year of PM_{10}, and 4.74 tons per year of $PM_{2.5}$ over emissions projected for

buildout of the Planning Area without implementation of the proposed project (No Project Alternative). Therefore, impacts associated with long-term operational emissions would be better under Alternative 1 than under the proposed project.

Exposure of Sensitive Receptors to Substantial Concentrations of Mobile-Source Carbon Monoxide (Impact 4.3.4)

Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would result in increased population and employment that would increase traffic volumes on area roadways. This could result in elevated carbon monoxide emissions from motor vehicle congestion that could expose sensitive receptors to elevated carbon monoxide concentrations. As a result, this is considered to be a **significant** impact.

Buildout of Alternative 1 would result in 1,095 fewer housing units and 3,165 fewer persons in the Planning Area than the proposed project. Therefore, in comparison to the proposed project, Alternative 1 would result in reduced traffic volumes and thus reduced concentration of carbon monoxide emissions from motor vehicle congestion. Impacts would be better under Alternative 1 than under the proposed project.

Create Objectionable Odors Affecting a Substantial Number of People (Impact 4.3.6)

Subsequent land use activities associated with implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could include sources that could create **potentially significant** objectionable odors affecting a substantial number of people or expose new residents to existing sources of odor.

Implementation of Alternative 1 could also expose people to odor sources. However, Alternative 1 would result in reduced development potential and a reduced population that could be exposed to odors in comparison to the proposed project. Therefore, this impact would be better under Alternative 1 than under the proposed project.

Result in a Cumulatively Considerable Net Increase of Nonattainment Criteria Pollutants and Precursors (Impact 4.3.7)

Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update), in combination with cumulative development in the SFBAAB, would result in a **cumulatively considerable** net increase of VMT and thus ozone and coarse and fine particulate matter.

As discussed above, Alternative 1 would result in reduced traffic volumes and thus reduced emissions of ozone and coarse and fine particulate matter in comparison to the proposed project. Alternative 1 would contribute to cumulative impacts to a lesser degree than the proposed project, and impacts would be better under Alternative 1 than under the proposed project.

4.4 Traffic and Circulation

Impacts to Freeway Mainline (Impact 4.4.1)

Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would result in a **significant** increase in freeway mainline volumes during the AM and PM peak hours.

As discussed under Impact 4.4.1 in Section 4.4, Traffic and Circulation, the study freeway segments would operate at substandard LOS F conditions under buildout of the Planning Area without implementation of the proposed project (No Project Alternative). Therefore, impacts to freeway mainlines would be significant under both alternatives. However, Alternative 1 would result in reduced development potential and population in comparison to the proposed project. Therefore, Alternative 1 would result in reduced traffic volumes and overall impacts to freeway mainlines would be better under Alternative 1 than under the proposed project.

Conflicts with Acceptable v/c Ratios (Impact 4.4.2)

Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would result in a **significant** increase in v/c and decrease in LOS on study intersections during the AM and PM peak hours.

The forecasted intersection traffic volume for buildout of the Planning Area without implementation of the proposed project (No Project Alternative) are shown **Table 4.4-10** in Section 4.4, Traffic and Circulation. As shown, buildout of Alternative 1 would result in four intersections operating at an LOS that does not meet current standards. However, the proposed project would result in increased traffic volumes in comparison to Alternative 1 and would result in five intersections operating at an LOS that does not meet current standards at buildout. Therefore, impacts would be better under Alternative 1 than under the proposed project.

Project and Cumulative Conflicts with an Applicable Congestion Management Plan (Impacts 4.4.3 and 4.4.8)

Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would conflict with the multimodal transportation service objectives (MTSOs) identified in the West County Action Plan. This is considered a **significant** and **cumulatively considerable** impact.

As discussed under Impact 4.4.3 in Section 4.4, Traffic and Circulation, the West County Action Plan dictates that all signalized intersections along San Pablo Avenue shall maintain LOS E or better. Likewise the West County Action Plan calls for maintaining LOS D or better along Appian Way. As shown in **Table 4.4-10**, buildout of Alternative 1 would also result in intersection LOS exceeding the MTSOs. Therefore, both Alternative 1 and the proposed project would conflict with the MTSOs established by the West County Action Plan, and impacts would be similar under both alternatives.

Cumulative Transportation Impacts (Impact 4.4.7)

Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would have **cumulatively considerable** contributions to cumulative impacts to local and regional transportation facilities.

Alternative 1 would result in reduced development potential and population in comparison to the proposed project. Therefore, Alternative 1 would result in reduced traffic volumes, and cumulative impacts to local and regional transportation facilities would be better under Alternative 1 than under the proposed project.

4.5 Noise

Exposure to Construction Noise (Impact 4.5.2)

Construction activities associated with the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could result in a **potentially significant** substantial temporary or periodic increase in ambient noise levels during construction activities and could result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance or of applicable standards of other agencies.

Future development under Alternative 1 would also result in temporary and/or periodic increases in ambient noise levels during construction activities. However, as Alternative 1 would result in 1,095 fewer housing units and 3,165 fewer persons in the Planning Area than the proposed project, construction noise impacts would be better under Alternative 1 than under the proposed project.

Project and Cumulative Exposure to Surface Transportation Noise (Impacts 4.5.3 and 4.5.7)

The proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could result in a **potentially significant** and **cumulatively considerable** permanent increase in ambient noise levels in the project vicinity above levels existing without the project and could result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan, as a result of increased traffic on the roadway network. In addition, future development of noise-sensitive land uses could be exposed to roadway and/or railroad noise levels in excess of the City's noise standards.

Alternative 1 would result in reduced development potential and population in comparison to the proposed project. Therefore, Alternative 1 would result in reduced traffic volumes, and project and cumulative impacts associated with transportation noise impacts would be better under Alternative 1 than under the proposed project.

Exposure to Stationary Noise (Impact 4.5.5)

Subsequent development associated with the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could result in new noise-sensitive land uses encroaching upon existing or proposed stationary noise sources or new stationary noise sources encroaching upon existing or proposed noise-sensitive land uses. This could result in a substantial permanent increase in ambient noise levels in the project vicinity above existing levels or could result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance or of applicable standards of other agencies. As a result, this impact is considered **potentially significant**.

Alternative 1 would result in 1,095 fewer housing units and 3,165 fewer persons in the Planning Area than the proposed project and would preserve more land designated as open space and conservation areas. Therefore, impacts associated with stationary noise would be better under Alternative 1 than under the proposed project.

Exposure to Groundborne Vibration (Impact 4.5.6)

The proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could result in exposure of persons to or generation of excessive groundborne vibration

levels from railroad operations and/or construction activities. In particular, development of future land uses could occur within the projected 60 dBA CNEL noise contours of San Pablo Avenue, Pinole Valley Road, and Appian Way, resulting in **potentially significant** exposure of persons to railroad vibration or noise levels in excess of standards established in the local general plan.

Under Alternative 1, the Three Corridors Specific Plan would not be adopted and development on the city's primary commercial corridors would not significantly increase in density or intensity as it would under the proposed project. This would reduce the potential exposure of persons to railroad vibration and noise levels in comparison to the proposed project. Therefore, impacts would be better under Alternative 1 than under the proposed project.

4.6 Human Health/Risk of Upset

No significant impacts.

4.7 Biological Resources

Impacts to Sensitive Biological Communities (Impact 4.7.2)

Implementation of the proposed project would result in **potentially significant** disturbance, degradation, and removal of riparian habitat, coastal oak woodland, and wetland habitats.

As discussed above, the proposed project would result in more population, as well as denser neighborhoods and greater intensity of nonresidential uses than Alternative 1, which preserves more land for open space or conservation areas than the proposed project. Therefore, impacts to sensitive biological communities would be better under Alternative 1 than under the proposed project.

Impacts to Migratory Corridors (Impact 4.7.4)

Implementation of the proposed project could interfere substantially with the movement of native resident or migratory fish or wildlife species via habitat degradation due to additional traffic, increased human presence, and degradation of the water quality. This would be a **potentially significant** impact.

Alternative 1 would result less human presence and less traffic than the proposed project, as well as better impacts associated with water quality (see 4.9, Hydrology and Water Quality, below). Therefore impacts would be better under Alternative 1 than under the proposed project.

Cumulative Impacts to Special-Status Species (Impact 4.7.6)

Implementation of the proposed General Plan and associated project components (Three Corridors Specific Plan and Zoning Code Update), together with past, present, and probable future projects in the Planning Area and larger regional context, would result in a **cumulatively considerable** loss of biological resources in the region.

Although buildout of Alternative 1 would contribute to direct and indirect loss of biological resources via development of the remaining vacant parcels in the city, the proposed project would result in more population, as well as denser neighborhoods and greater intensity of nonresidential uses, than Alternative 1. In addition, Alternative 1 preserves more land for open space or conservation areas than the proposed project. Therefore, cumulative impacts to special-status species would be better under Alternative 1 than under the proposed project.

4.8 Geology and Soils

Seismic Hazards (Impact 4.8.1)

Damage to buildings and utilities in Pinole resulting from a seismic event is likely to be greatest on those sites underlain by deep, loose, compressible deposits of bay mud, non-engineered fill, and marginally stable hillside areas. Areas within the GPU Planning Area that are highly susceptible to damages resulting from ground shaking are located between San Pablo Avenue and the San Pablo Bay shoreline, in the western portions of the city, especially in the Tara Hills Mobile Home Park. This impact is **potentially significant**.

Both Alternative 1 and the proposed project would result in development in these areas as several of the city's currently undeveloped parcels are located in the western portion of the city. Furthermore, the City has adopted the CBC into its building standards for all development within the city limits. Future development under both Alternative 1 and the proposed project would be subject to CBC standards that address foundation design, shear wall strength, and other structural-related conditions. Compliance with CBC regulations would ensure the adequate design and construction of building foundations to resist soil movement under both alternatives, and impacts would therefore be similar under both alternatives.

Landslide/Slope Instability (Impact 4.8.3)

Potentially significant seismically induced landslides are likely to occur along the steep to intermediate hillside areas of the Planning Area. Additionally, areas within the Planning Area prone to slope instability include areas with pronounced and steeper slopes located along the East Bay Hills, areas where previous land sliding or soil creeping has occurred, areas where non-engineered grading and uncontrolled drainage on slopes has occurred, and areas with deep colluvial deposits.

As mentioned above, future development under both Alternative 1 and the proposed project would be subject to CBC standards, which would require all new development projects to conduct a seismic evaluation and to incorporate particular seismic design criteria to reduce ground shaking effects. Impacts would therefore be similar under both alternatives.

Location on Expansive and Unstable Soils (Impact 4.8.4)

Implementation of the proposed (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would expose buildings, pavements, and utilities to significant damage as a result of underlying expansive or unstable soil properties. This is considered a **potentially significant** impact.

Future development under Alternative 1 would also expose buildings, pavements, and utilities to significant damage as a result of underlying expansive or unstable soil properties. However, Alternative 1 has less development and population potential and would therefore expose fewer buildings and persons to such hazards. Impacts would therefore be better under Alternative 1.

4.9 Hydrology and Water Quality

Degrade Surface Water Quality (Impact 4.9.1)

Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could result in the discharge of polluted runoff during construction

and operation of future urban development, potentially violating water quality standards or otherwise substantially degrading surface water quality. This impact is **potentially significant**.

Future development under Alternative 1 also has the potential to discharge polluted runoff during construction and operation of future urban development. However, the proposed project would result in denser neighborhoods and greater intensity of nonresidential uses than Alternative 1. Also, Alternative 1 preserves more land for open space or conservation areas than the proposed project. As Alternative 1 would include less impervious surface and fewer sources of polluted runoff, impacts under Alternative 1 would be better than under the proposed project.

Project and Cumulative Flooding Hazards (Impacts 4.9.6 and 4.9.8)

Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could expose additional people and/or structures to flooding, dam failure inundation, and/or sea level rise. This impact is considered to be **potentially significant**. In addition, the proposed project could increase impervious surfaces and alter drainage conditions and rates in the Planning Area, which could contribute to cumulative flood conditions in the Pinole Creek watershed and San Pablo Bay. This impact is considered **cumulatively considerable**.

Buildout of Alternative 1 would result in 1,095 fewer housing units and 3,165 fewer persons in the Planning Area than the proposed project and would thus expose fewer people and/or structures to flooding, dam failure inundation, and/or sea level rise. In addition, Alternative 1 would include less impervious surface than the proposed project. Therefore, impacts under Alternative 1 would be better than under the proposed project.

Cumulative Water Quality Impacts (Impact 4.9.7)

Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update), in combination with other development activities within the watershed, would contribute to a **potentially cumulatively considerable** degradation of water quality from construction activities and increased urban runoff.

As discussed above, the proposed project would result in denser neighborhoods and greater intensity of nonresidential uses than Alternative 1 and Alternative 1 preserves more land for open space or conservation areas than the proposed project. Therefore, cumulative impacts under Alternative 1 would be better than under the proposed project.

4.10 Cultural Resources

Project and Cumulative Impacts to Prehistoric Resources, Historic Resources, and Human Remains (Impacts 4.10.1 and 4.10.3)

Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update), along with foreseeable development in the region, could result in the potential disturbance of cultural resources (i.e., prehistoric sites, historic sites, and isolated artifacts and features) and human remains. This would be a **potentially significant** project-level impact and a **cumulatively considerable** cumulative impact.

Future development under Alternative 1 also has the potential to disturb cultural resources. However, the City currently does not require cultural resources studies (i.e., archaeological and

historical investigations) for all discretionary projects. The proposed General Plan Update includes new policies to require such studies, which would protect currently unknown cultural resources from development activities. As the existing General Plan, which would apply under Alternative 1, contains no such policy, impacts under Alternative 1 would be worse than under the proposed project.

Undiscovered Paleontological Resources (Impacts 4.10.2 and 4.10.4)

Adoption of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could result in the potential damage or destruction of undiscovered paleontological resources. This is considered a **potentially significant** impact.

Future development under Alternative 1 also has the potential to damage or destroy undiscovered paleontological resources. The proposed General Plan includes a new policy that requires project proponents to implement any mitigation necessary for the protection of paleontological resources discovered during construction activities. As the existing General Plan, which would apply under Alternative 1, contains no such policy, impacts under Alternative 1 would be worse than under the proposed project.

4.11 Visual Resources/Light and Glare

Daytime Glare and Nighttime Illumination (Impact 4.11.3)

Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would result in the intensification of land uses within the GPU Planning Area, which could create **potentially significant** new sources of daytime glare and nighttime illumination.

Buildout of Alternative 1 would result in 1,095 fewer housing units and 3,165 fewer persons in the Planning Area than the proposed project. Therefore, as Alternative 1 would result in less intense land uses, new sources of daytime glare and nighttime illumination would be reduced in comparison to the proposed project. Impacts would be better under Alternative 1 than under the proposed project.

4.12 Public Services and Utilities

Cumulative Water Supply and Water Supply Infrastructure Impacts (Impact 4.12.6.2)

Implementation of the proposed General Plan Update and its associated project components would result in a **cumulatively considerable** contribution to the cumulative demand for water supply and associated infrastructure in EBMUD's service area.

Buildout of Alternative 1 would result in 1,095 fewer housing units and 3,165 fewer persons in the Planning Area than the proposed project. Therefore, Alternative 1 would have a lesser contribution to the cumulative demand for water supply and would have better impacts in comparison to the proposed project.

Increased Demand for Wastewater Service (Impact 4.12.7.1)

Implementation of the General Plan Update, Three Corridors Specific Plan, and Zoning Code Update would increase wastewater flows and demand for sanitary sewer facilities. Increased flows could exceed the capacity of the wastewater conveyance, treatment, and disposal

systems of the City of Pinole Public Works Department and the West County Wastewater District. This is a **significant** impact.

Buildout of Alternative 1 would result in 1,095 fewer housing units and 3,165 fewer persons in the Planning Area than the proposed project. Therefore, Alternative 1 would have a lesser impact on the demand for wastewater service and would have better impacts in comparison to the proposed project.

6.4 ALTERNATIVE 2 – COMMERCIAL FOCUS/EXPANDED ROADWAYS

CHARACTERISTICS

The Commercial Focus/Expanded Roadways Alternative would replace proposed residential and industrial land uses with commercial land uses on the San Pablo Avenue, Pinole Valley Road, and Appian Way corridors (see **Figure 6.0-1**). This redistribution would result in the residential development and population potential shown in **Table 6.0-2**. This alternative would reduce the amount of land available for industrial use and would increase the commercial development potential along all three Specific Plan corridors. Residential development potential would decrease by 1,077 housing units in comparison to the proposed project. This increased residential development potential would occur outside of the Specific Plan areas because residential development within the Specific Plan areas would not change from existing conditions under Alternative 2.

In addition, the circulation plan for this alternative would expand San Pablo Avenue and Appian Way to six travel lanes, except in Old Town where the roadways would remain four-lane arterials. To accommodate the additional travel lanes, no bicycle lanes would be installed in these corridors.

TABLE 6.0-2
RESIDENTIAL DEVELOPMENT/POPULATION POTENTIAL
ALTERNATIVE 2 VS. PROPOSED PROJECT[1]

	Development Potential	
	Housing Units	**Population[2]**
San Pablo Avenue Corridor	885	2,558
Pinole Valley Road Corridor	141	407
Appian Way Corridor	244	705
GPU Planning Area Outside of Specific Plan Area	5,914	17,091
Total Alternative 2	**7,184**	**20,762**
Proposed Project	8,261	23,875
Difference	**-1,077**	**-3,113**

[1] *Numbers rounded.*
[2] *BASED ON ABAG'S 2007 ESTIMATE OF 2.89 PERSONS PER HOUSEHOLD.*

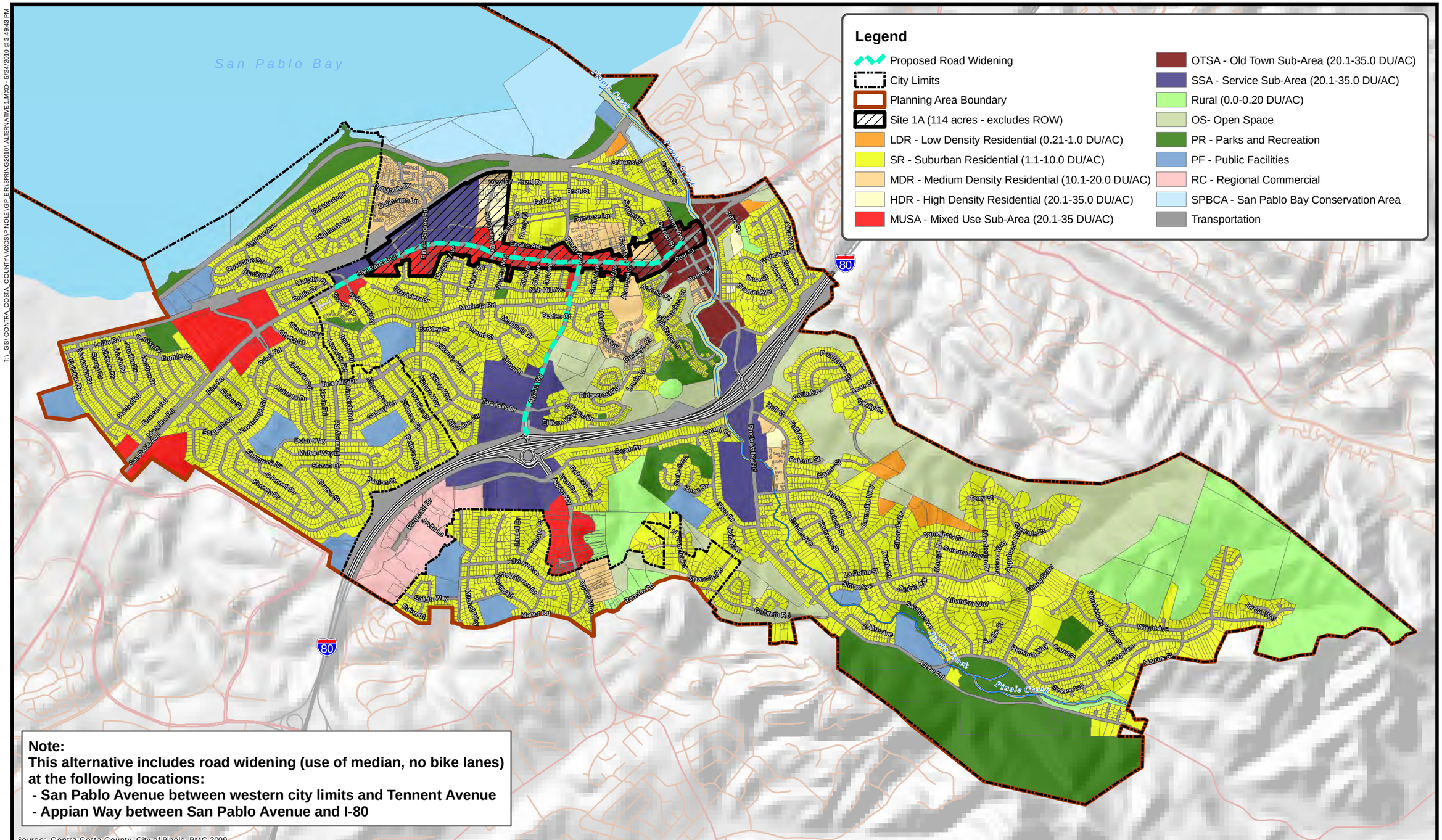


Figure 6.0-1
Commercial Focus/Expanded Roadways Alternative

PMC

COMPARATIVE ANALYSIS

4.1 Land Use

Land Use Incompatibilities (Impact 4.1.3)

Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could create **potentially significant** incompatibilities between existing and future land uses within the City of Pinole. Particularly, the proposed General Plan reduces the acreage designated for open space and conservation areas in comparison to the existing General Plan and designates land uses that would concentrate new and intensified development on Pinole's primary commercial corridors by replacing commercial zoning with various mixed-use zones and through the densification of existing neighborhoods throughout the three commercial corridors of San Pablo Avenue, Pinole Valley Road, and Appian Way.

Alternative 2 would result in the development of 1,077 fewer housing units within the Planning Area than the proposed project. And while Alternative 2 would increase the commercial development potential along all three Specific Plan corridors, it would not result in the densification of existing neighborhoods throughout these commercial corridors. Therefore, Alternative 2 would result in fewer potential land use conflicts than the proposed project, and impacts associated with land use incompatibilities would be better under Alternative 2 than under the proposed project.

4.2 Population/Housing/Employment

No significant impacts.

4.3 Air Quality and Climate Change

Conflict with the BAAQMD 2010 Clean Air Plan (Impact 4.3.1)

Subsequent land use activities associated with implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would result in increased population and VMT that would conflict with the BAAQMD 2010 Clean Air Plan and result in a **potentially significant** impact.

Buildout of the Alternative 2 would result in 1,077 fewer housing units and 3,113 fewer persons in the Planning Area than the proposed project. Therefore, in comparison to the proposed project, Alternative 2 would result in reduced vehicle trip generation that would reduce PM_{10} emissions and conflicts with the BAAQMD 2010 Clean Air Plan. Conflicts with the BAAQMD 2010 Clean Air Plan would be better under Alternative 2 than under the proposed project.

Violate Air Quality Standard or Contribute Substantially to an Air Quality Violation: Short-Term, Construction Emissions (Impact 4.3.2)

Subsequent land use activities associated with implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could result in **potentially significant** short-term construction emissions from construction activities associated with subsequent development, including site grading, asphalt paving, building construction, and architectural coating, that could violate or substantially contribute to violations of federal and state ambient air quality standards.

Buildout of Alternative 2 would also result in short-term construction emissions from construction activities. Even though Alternative 2 has less residential development potential than the proposed project, commercial development potential would be increased. Therefore, Alternative 2 would result in similar impacts associated with construction emissions.

Violate Air Quality Standard or Contribute Substantially to an Air Quality Violation: Long-Term, Operational Emissions (Impact 4.3.3)

Subsequent land use activities associated with implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could result in long-term, operational emissions that could violate or substantially contribute to violations of federal and state ambient air quality standards. This is a **significant** impact.

Buildout of Alternative 2 would also result long-term, operational emissions that could violate or substantially contribute to violations of federal and state ambient air quality standards. Even though Alternative 2 has less residential development potential than the proposed project, commercial development potential would be increased. Therefore, impacts associated with long-term operational emissions would be similar to the proposed project under Alternative 2.

Exposure of Sensitive Receptors to Substantial Concentrations of Mobile-Source Carbon Monoxide (Impact 4.3.4)

Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would result in increased population and employment that would increase traffic volumes on area roadways. This could result in elevated carbon monoxide emissions from motor vehicle congestion that could expose sensitive receptors to elevated carbon monoxide concentrations. As a result, this is considered to be a **significant** impact.

Buildout of Alternative 2 would result in 1,077 fewer housing units and 3,113 fewer persons in the Planning Area than the proposed project. Therefore, in comparison to the proposed project, Alternative 2 would result in reduced traffic volumes and thus reduced concentration of carbon monoxide emissions from motor vehicle congestion. Impacts would be better under Alternative 2 than under the proposed project.

Create Objectionable Odors Affecting a Substantial Number of People (Impact 4.3.6)

Subsequent land use activities associated with implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could include sources that could create **potentially significant** objectionable odors affecting a substantial number of people or expose new residents to existing sources of odor.

Implementation of Alternative 2 could also expose people to objectionable odors. However, Alternative 2 would result in reduced development potential and a reduced population that could be exposed to odors in comparison to the proposed project. Therefore this impact would be better under Alternative 2 than under the proposed project.

Result in a Cumulatively Considerable Net Increase of Nonattainment Criteria Pollutants and Precursors (Impact 4.3.7)

Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update), in combination with cumulative development in the SFBAAB, would

result in a **cumulatively considerable** net increase of VMT and thus ozone and coarse and fine particulate matter.

As discussed above, Alternative 2 would result in reduced traffic volumes and thus reduced emissions of ozone and coarse and fine particulate matter in comparison to the proposed project. Alternative 2 would contribute to cumulative impacts to a lesser degree than the proposed project, and impacts would be better under Alternative 2 than under the proposed project.

4.4 Traffic and Circulation

Impacts to Freeway Mainline (Impact 4.4.1)

Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would result in a **significant** increase in freeway mainline volumes during the AM and PM peak hours.

Alternative 2 would result in reduced residential development potential and population in comparison to the proposed project. Therefore, Alternative 2 would result in reduced traffic volumes and overall impacts to freeway mainlines would be better under Alternative 2 than under the proposed project.

Conflicts with Acceptable v/c Ratios (Impact 4.4.2)

Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would result in a **significant** increase in v/c and decrease in LOS on study intersections during the AM and PM peak hours.

As discussed above, Alternative 2 would result in reduced residential development potential and population in comparison to the proposed project. Therefore, Alternative 2 would result in reduced traffic volumes and impacts would be better under Alternative 2 than under the proposed project.

Project and Cumulative Conflicts with an Applicable Congestion Management Plan (Impacts 4.4.3 and 4.4.8)

Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would conflict with the multimodal transportation service objectives (MTSOs) identified in the West County Action Plan. This is considered a **significant** and **cumulatively considerable** impact.

As discussed under **Impact 4.4.3** in Section 4.4, Traffic and Circulation, the West County Action Plan dictates that all signalized intersections along San Pablo Avenue shall maintain LOS E or better. Likewise the West County Action Plan calls for maintaining LOS D or better along Appian Way. It is anticipated that, buildout of Alternative 2 would also result in intersection LOS exceeding the MTSOs. Therefore, both Alternative 2 and the proposed project would conflicts with the MTSOs established by the West County Action Plan and impacts would be similar under both alternatives.

Cumulative Transportation Impacts (Impact 4.4.7)

Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would have **cumulatively considerable** contributions to cumulative impacts to local and regional transportation facilities.

Alternative 2 would result in reduced residential development potential and population in comparison to the proposed project. Therefore, Alternative 2 would result in reduced traffic volumes and cumulative impacts to local and regional transportation facilities would be better under Alternative 2 than under the proposed project.

4.5 Noise

Exposure to Construction Noise (Impact 4.5.2)

Construction activities associated with the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could result in a **potentially significant** substantial temporary or periodic increase in ambient noise levels during construction activities and could result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance or of applicable standards of other agencies.

Future development under Alternative 2 would also result in generation of noise levels in excess of standards during construction activities. Although Alternative 2 would result in fewer housing units and persons in the Planning Area than the proposed project, commercial development potential would be increased in comparison to the proposed project. Therefore, construction noise impacts would be similar under Alternative 2 and the proposed project.

Project and Cumulative Exposure to Surface Transportation Noise (Impacts 4.5.3 and 4.5.7)

The proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could result in a **potentially significant** and **cumulatively considerable** permanent increase in ambient noise levels in the project vicinity above levels existing without the project and could result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan, as a result of increased traffic on the roadway network. In addition, future development of noise-sensitive land uses could be exposed to roadway and/or railroad noise levels in excess of the City's noise standards.

Alternative 2 would result in reduced residential development potential and population in comparison to the proposed project. Therefore, Alternative 2 would result in reduced traffic volumes, and project and cumulative impacts associated with transportation noise impacts would be better under Alternative 2 than under the proposed project.

Exposure to Stationary Noise (Impact 4.5.5)

Subsequent development associated with the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could result in new noise-sensitive land uses encroaching upon existing or proposed stationary noise sources or new stationary noise sources encroaching upon existing or proposed noise-sensitive land uses. This could result in a substantial permanent increase in ambient noise levels in the project vicinity above existing levels or could result in exposure of persons to or generation of noise levels in excess of standards established in

the local general plan or noise ordinance or of applicable standards of other agencies. As a result, this impact is considered **potentially significant**.

Although Alternative 2 would result in fewer housing units and persons in the Planning Area than the proposed project, commercial development potential would be increased in comparison to the proposed project. Therefore, stationary noise impacts would be similar under Alternative 2 and the proposed project.

Exposure to Groundborne Vibration (Impact 4.5.6)

The proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could result in exposure of persons to or generation of excessive groundborne vibration levels from railroad operations and/or construction activities. In particular, development of future land uses could occur within the projected 60 dBA CNEL noise contours of San Pablo Avenue, Pinole Valley Road, and Appian Way, resulting in potentially **significant** exposure of persons to railroad vibration or noise levels in excess of standards established in the local general plan.

Under Alternative 2, residential density in the Three Corridors Specific Plan would not be increased, thus reducing the potential exposure of persons to railroad vibration and noise levels in comparison to the proposed project. Therefore, impacts would be better under Alternative 2 than under the proposed project.

4.6 Human Health/Risk of Upset

No significant impacts.

4.7 Biological Resources

Impacts to Sensitive Biological Communities (Impact 4.7.2)

Implementation of the proposed project would result in **potentially significant** disturbance, degradation, and removal of riparian habitat, coastal oak woodland, and wetland habitats.

Although Alternative 2 would result in fewer housing units and persons in the Planning Area than the proposed project, commercial development potential would be increased in comparison to the proposed project. Therefore, buildout of Alternative 2 would result in impacts to riparian habitat, coastal oak woodland, and wetland habitats similar to the proposed project.

Impacts to Migratory Corridors (Impact 4.7.4)

Implementation of the proposed project could interfere substantially with the movement of native resident or migratory fish or wildlife species via habitat degradation due to additional traffic, increased human presence, and degradation of the water quality. This would be a **potentially significant** impact.

Alternative 2 would result less human presence and less traffic than the proposed project, as well as similar impacts associated with water quality (see 4.9, Hydrology and Water Quality, below). Overall, impacts would be better under Alternative 2 than under the proposed project.

Cumulative Impacts to Special-Status Species (Impact 4.7.6)

Implementation of the proposed General Plan and associated project components (Three Corridors Specific Plan and Zoning Code Update), together with past, present, and probable future projects in the Planning Area and larger regional context, would result in a **cumulatively considerable** loss of biological resources in the region.

Although Alternative 2 would result in fewer housing units and persons in the Planning Area than the proposed project, commercial development potential would be increased in comparison to the proposed project. Therefore, buildout of Alternative 2 would contribute to cumulative direct and indirect loss of biological resources similar to the proposed project.

4.8 Geology and Soils

Seismic Hazards (Impact 4.8.1)

Damage to buildings and utilities in Pinole resulting from a seismic event is likely to be greatest on those sites underlain by deep, loose, compressible deposits of bay mud, non-engineered fill, and marginally stable hillside areas. Areas within the GPU Planning Area that are highly susceptible to damages resulting from ground shaking are located between San Pablo Avenue and the San Pablo Bay shoreline, in the western portions of the city, especially in the Tara Hills Mobile Home Park. This impact is **potentially significant**.

Both Alternative 2 and the proposed project would result in development in these areas. Furthermore, the City has adopted the CBC into its building standards for all development within the city limits. Future development under both Alternative 2 and the proposed project would be subject to CBC standards that address foundation design, shear wall strength, and other structural-related conditions. Compliance with CBC regulations would ensure the adequate design and construction of building foundations to resist soil movement under both alternatives, and impacts would therefore be similar under both alternatives.

Landslide/Slope Instability (Impact 4.8.3)

Potentially significant seismically induced landslides are likely to occur along the steep to intermediate hillside areas of the Planning Area. Additionally, areas within the Planning Area prone to slope instability include areas with pronounced and steeper slopes located along the East Bay Hills, areas where previous land sliding or soil creeping has occurred, areas where non-engineered grading and uncontrolled drainage on slopes has occurred, and areas with deep colluvial deposits.

As mentioned above, future development under both Alternative 2 and the proposed project would be subject to CBC standards, which would require all new development projects to conduct a seismic evaluation and to incorporate particular seismic design criteria to reduce ground shaking effects. Impacts would therefore be similar under both alternatives.

Location on Expansive and Unstable Soils (Impact 4.8.4)

Implementation of the proposed (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would expose buildings, pavements, and utilities to significant damage as a result of underlying expansive or unstable soil properties. This is considered a **potentially significant** impact.

Future development under Alternative 2 would also expose buildings, pavements, and utilities to significant damage as a result of underlying expansive or unstable soil properties. Although Alternative 2 would result in fewer housing units and persons in the Planning Area than the proposed project, commercial development potential would be increased in comparison to the proposed project. Therefore, impacts would be similar under Alternative 2 and the proposed project.

4.9 Hydrology and Water Quality

Degrade Surface Water Quality (Impact 4.9.1)

Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could result in the discharge of polluted runoff during construction and operation of future urban development potentially violating water quality standards or otherwise substantially degrading surface water quality. This impact is **potentially significant**.

Future development under Alternative 2 also has the potential to discharge polluted runoff during construction and operation of future urban development. As Alternative 2 would result in fewer housing units and persons in the Planning Area but more commercial development, Alternative 2 would include similar amounts of impervious surface and sources of polluted runoff to the proposed project. Impacts under Alternative 2 would be similar to those under the proposed project.

Project and Cumulative Flooding Hazards (Impacts 4.9.6 and 4.9.8)

Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could expose additional people and/or structures to flooding, dam failure inundation, and/or sea level rise. This impact is considered to be **potentially significant**. In addition, the proposed project could increase impervious surfaces and alter drainage conditions and rates in the Planning Area, which could contribute to cumulative flood conditions in the Pinole Creek watershed and San Pablo Bay. This impact is considered **cumulatively considerable**.

Buildout of Alternative 2 would result in 1,077 fewer housing units and 3,113 fewer persons in the Planning Area than the proposed project and would thus expose fewer people to flooding, dam failure inundation, and/or sea level rise. Therefore, impacts under Alternative 2 would be better than under the proposed project.

Cumulative Water Quality Impacts (Impact 4.9.7)

Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update), in combination with other development activities within the watershed, would contribute to a **potentially cumulatively considerable** degradation of water quality from construction activities and increased urban runoff.

As discussed above, Alternative 2 would result in fewer housing units and persons in the Planning Area but more commercial development, thus resulting in similar amounts of impervious surface and sources of polluted runoff to the proposed project. Therefore, cumulative impacts under Alternative 2 would be similar to those under the proposed project.

4.10 Cultural Resources

Project and Cumulative Impacts to Prehistoric Resources, Historic Resources, and Human Remains (Impacts 4.10.1 and 4.10.3)

Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update), along with foreseeable development in the region, could result in the potential disturbance of cultural resources (i.e., prehistoric sites, historic sites, and isolated artifacts and features) and human remains. This would be a **potentially significant** project-level impact and a **cumulatively considerable** cumulative impact.

Future development under Alternative 2 also has the potential to disturb cultural resources and would be subject to the proposed General Plan policy that requires cultural resources studies (i.e., archaeological and historical investigations) for all discretionary projects. Therefore, impacts under Alternative 2 would be similar to those under the proposed project.

Undiscovered Paleontological Resources (Impacts 4.10.2 and 4.10.4)

Adoption of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could result in the potential damage or destruction of undiscovered paleontological resources. This is considered a **potentially significant** impact.

Future development under Alternative 2 also has the potential to damage or destroy undiscovered paleontological resources and would be subject to the proposed General Plan policy that requires project proponents to implement any mitigation necessary for the protection of paleontological resources discovered during construction activities. Therefore, impacts under Alternative 2 would be similar to those under the proposed project.

4.11 Visual Resources/Light and Glare

Daytime Glare and Nighttime Illumination (Impact 4.11.3)

Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would result in the intensification of land uses within the GPU Planning Area, which could create **potentially significant** new sources of daytime glare and nighttime illumination.

Buildout of Alternative 2 would result in 1,077 fewer housing units and 3,113 fewer persons in the Planning Area than the proposed project. However, commercial development potential would be increased under Alternative 2. Therefore, new sources of daytime glare and nighttime illumination would be similar in comparison to the proposed project.

4.12 Public Services and Utilities

Cumulative Water Supply and Water Supply Infrastructure Impacts (Impact 4.12.6.2)

Implementation of the proposed General Plan Update and its associated project components would result in a **cumulatively considerable** contribution to the cumulative demand for water supply and associated infrastructure in EBMUD's service area.

Buildout of Alternative 2 would result in 1,077 fewer housing units and 3,113 fewer persons in the Planning Area than the proposed project. Therefore, Alternative 2 would have a lesser

contribution to the cumulative demand for water supply and would have better impacts in comparison to the proposed project.

Increased Demand for Wastewater Service (Impact 4.12.7.1)

Implementation of the General Plan Update, Three Corridors Specific Plan, and Zoning Code Update would increase wastewater flows and demand for sanitary sewer facilities. Increased flows could exceed the capacity of the wastewater conveyance, treatment, and disposal systems of the City of Pinole Public Works Department and the West County Wastewater District. This is a **significant** impact.

Buildout of Alternative 2 would result in 1,077 fewer housing units and 3,113 fewer persons in the Planning Area than the proposed project. Therefore, Alternative 2 would have a lesser impact on the demand for wastewater service and would have better impacts in comparison to the proposed project.

6.5 ALTERNATIVE 3 – RESIDENTIAL FOCUS/EXPANDED TRANSIT

CHARACTERISTICS

The Residential Focus/Expanded Transit Alternative would increase residential development at primary intersections on the San Pablo Avenue, Appian Way, and Pinole Valley Road corridors to create high-density nodes that could be served by transit (see **Figure 6.0-2**). This increase in residential development would result in the residential development and population potential shown in **Table 6.0-3**. In addition, the circulation plan for this alternative would be enhanced by a transit loop connecting higher-density residential nodes on the Specific Plan corridors. This alternative would include bicycle lanes on all corridors and pedestrian enhancements. At buildout, this alternative would result in less commercial growth in comparison to the proposed project; however, residential development and population potential would exceed that of the proposed project by 675 housing units and 1,950 persons.

TABLE 6.0-3
RESIDENTIAL DEVELOPMENT/POPULATION POTENTIAL
ALTERNATIVE 3 VS. PROPOSED PROJECT[1]

	Development Potential	
	Housing Units	Population[2]
San Pablo Avenue Corridor	2,277	2,558
Pinole Valley Road Corridor	141	407
Appian Way Corridor	603	705
GPU Planning Area Outside of Specific Plan Area	5915	17,091
Total Alternative 3	**8,936**	**25,825**
Proposed Project	8,261	23,875
Difference	**675**	**1,950**

1 Numbers rounded.
2 Based on ABAG's 2007 estimate of 2.89 persons per household.

COMPARATIVE ANALYSIS

4.1 Land Use

Land Use Incompatibilities (Impact 4.1.3)

Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could create **potentially significant** incompatibilities between existing and future land uses within the City of Pinole. Particularly, the proposed General Plan reduces the acreage designated for Open Space and conservation areas in comparison to the existing General Plan and designates land uses that would concentrate new and intensified development on Pinole's primary commercial corridors by replacing commercial zoning with various mixed-use zones and through the densification of existing neighborhoods throughout the three commercial corridors of San Pablo Avenue, Pinole Valley Road, and Appian Way.

Alternative 3 would result in the development of 675 more housing units within the Planning Area than the proposed project. This densification would occur throughout the three commercial corridors in the city. Therefore, Alternative 3 would result in more potential land use conflicts than the proposed project, and impacts associated with land use incompatibilities would be worse under Alternative 3 than under the proposed project.

4.2 Population/Housing/Employment

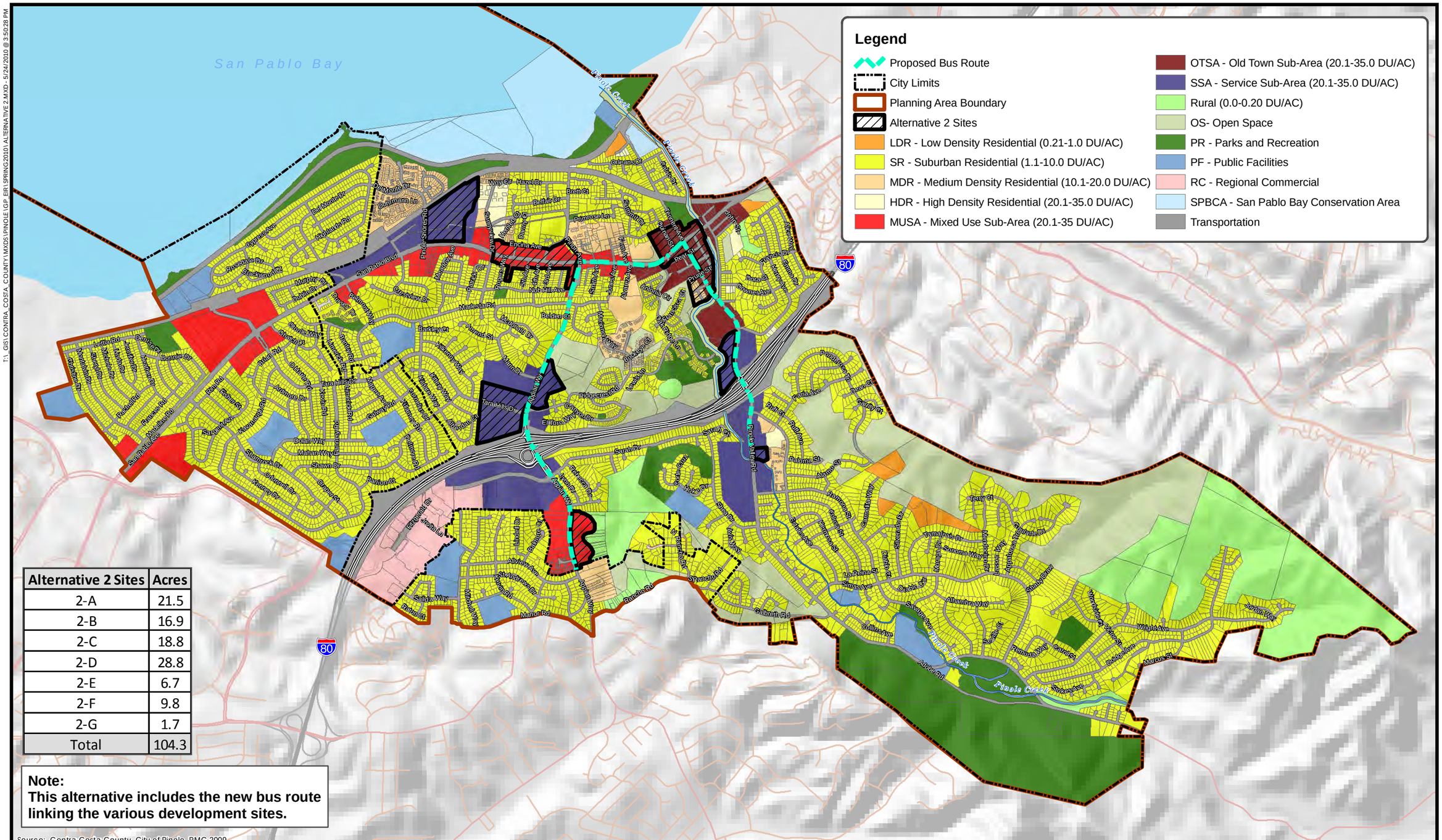
No significant impacts.

4.3 Air Quality and Climate Change

Conflict with the BAAQMD 2010 Clean Air Plan (Impact 4.3.1)

Subsequent land use activities associated with implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would result in increased population and VMT that would conflict with the BAAQMD 2010 Clean Air Plan and result in a **potentially significant** impact.

Buildout of Alternative 3 would result in 675 more housing units and 1,950 more persons in the Planning Area than the proposed project. Therefore, in comparison to the proposed project, Alternative 3 would result in increased vehicle trip generation that would increase PM_{10} emissions and conflicts with the BAAQMD 2010 Clean Air Plan. Conflicts with the BAAQMD 2010 Clean Air Plan would be worse under Alternative 3 than under the proposed project.



Alternative 2 Sites	Acres
2-A	21.5
2-B	16.9
2-C	18.8
2-D	28.8
2-E	6.7
2-F	9.8
2-G	1.7
Total	104.3

Figure 6.0-2
Commercial Focus/Expanded Roadways Alternative

PMC

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Violate Air Quality Standard or Contribute Substantially to an Air Quality Violation: Short-Term, Construction Emissions (Impact 4.3.2)

Subsequent land use activities associated with implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update), could result in **potentially significant** short-term construction emissions from construction activities associated with subsequent development, including site grading, asphalt paving, building construction, and architectural coating, that could violate or substantially contribute to violations of federal and state ambient air quality standards.

Buildout of Alternative 3 would also result in short-term construction emissions from construction activities. Even though Alternative 3 has more residential development potential than the proposed project, commercial development potential would be decreased. Therefore, Alternative 3 would result in similar impacts associated with construction emissions.

Violate Air Quality Standard or Contribute Substantially to an Air Quality Violation: Long-Term, Operational Emissions (Impact 4.3.3)

Subsequent land use activities associated with implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could result in long-term, operational emissions that could violate or substantially contribute to violations of federal and state ambient air quality standards. This is a **significant** impact.

Buildout of Alternative 3 would also result long-term, operational emissions that could violate or substantially contribute to violations of federal and state ambient air quality standards. Even though Alternative 3 has more residential development potential than the proposed project, commercial development potential would be decreased. Therefore, impacts associated with long-term operational emissions would be similar to the proposed project under Alternative 3.

Exposure of Sensitive Receptors to Substantial Concentrations of Mobile-Source Carbon Monoxide (Impact 4.3.4)

Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would result in increased population and employment that would increase traffic volumes on area roadways. This could result in elevated carbon monoxide emissions from motor vehicle congestion that could expose sensitive receptors to elevated carbon monoxide concentrations. As a result, this is considered to be a **significant** impact.

Buildout of Alternative 3 would result in 675 more housing units and 1,950 more persons in the Planning Area than the proposed project. Therefore, in comparison to the proposed project, Alternative 3 would result in increased traffic volumes and thus increased concentration of carbon monoxide emissions from motor vehicle congestion. Impacts would be worse under Alternative 3 than under the proposed project.

Create Objectionable Odors Affecting a Substantial Number of People (Impact 4.3.6)

Subsequent land use activities associated with implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could include sources that could create **potentially significant** objectionable odors affecting a substantial number of people or expose new residents to existing sources of odor.

Implementation of Alternative 3 could also expose people to objectionable odors. Alternative 3 would result in increased residential development potential and increased population that could be exposed to odors. Therefore this impact would be worse under Alternative 3 than under the proposed project.

Result in a Cumulatively Considerable Net Increase of Nonattainment Criteria Pollutants and Precursors (Impact 4.3.7)

Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update), in combination with cumulative development in the SFBAAB, would result in a **cumulatively considerable** net increase of VMT and thus ozone and coarse and fine particulate matter.

As discussed above, Alternative 3 would result in increased traffic volumes and thus increased emissions of ozone and coarse and fine particulate matter in comparison to the proposed project. Alternative 3 would contribute to cumulative impacts to a greater degree than the proposed project, and impacts would be worse under Alternative 3 than under the proposed project.

4.4 Traffic and Circulation

Impacts to Freeway Mainline (Impact 4.4.1)

Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would result in a **significant** increase in freeway mainline volumes during the AM and PM peak hours.

As discussed above, Alternative 3 would result in increased residential development potential and population in comparison to the proposed project. Therefore, Alternative 3 would result in increased traffic volumes and overall impacts to freeway mainlines would be worse under Alternative 3 than under the proposed project.

Conflicts with Acceptable v/c Ratios (Impact 4.4.2)

Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would result in a significant increase in v/c and decrease in LOS on study intersections during the AM and PM peak hours.

As discussed above, Alternative 3 would result in increased residential development potential and population in comparison to the proposed project. Therefore, Alternative 3 would result in increased traffic volumes and impacts would be worse under Alternative 3 than under the proposed project.

Project and Cumulative Conflicts with an Applicable Congestion Management Plan (Impacts 4.4.3 and 4.4.8)

Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would conflict with the multimodal transportation service objectives (MTSOs) identified in the West County Action Plan. This is considered a **significant** and **cumulatively considerable** impact.

As discussed under **Impact 4.4.3** in Section 4.4, Traffic and Circulation, the West County Action Plan dictates that all signalized intersections along San Pablo Avenue shall maintain LOS E or better. Likewise the West County Action Plan calls for maintaining LOS D or better along Appian Way. It is anticipated that buildout of Alternative 3 would also result in intersection LOS exceeding the MTSOs. Therefore, both Alternative 3 and the proposed project would conflicts with the MTSOs established by the West County Action Plan and impacts would be similar under both alternatives.

Cumulative Transportation Impacts (Impact 4.4.7)

Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would have **cumulatively considerable** contributions to cumulative impacts to local and regional transportation facilities.

Alternative 3 would result in increased residential development potential and population in comparison to the proposed project. Therefore, Alternative 3 would result in increased traffic volumes and cumulative impacts to local and regional transportation facilities would be worse under Alternative 3 than under the proposed project.

4.5 Noise

Exposure to Construction Noise (Impact 4.5.2)

Construction activities associated with the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could result in a **potentially significant** substantial temporary or periodic increase in ambient noise levels during construction activities and could result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance or of applicable standards of other agencies.

Future development under Alternative 3 would also result in generation of noise levels in excess of standards during construction activities. Although Alternative 3 would result in more housing units and persons in the Planning Area than the proposed project, commercial development potential would be decreased in comparison to the proposed project. Therefore, construction noise impacts would be similar under Alternative 3 and the proposed project.

Project and Cumulative Exposure to Surface Transportation Noise (Impacts 4.5.3 and 4.5.7)

The proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could result in a **potentially significant** and **cumulatively considerable** permanent increase in ambient noise levels in the project vicinity above levels existing without the project and could result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan, as a result of increased traffic on the roadway network. In addition, future development of noise-sensitive land uses could be exposed to roadway and/or railroad noise levels in excess of the City's noise standards.

Alternative 3 would result in more housing units and persons in the Planning Area than the proposed project. Therefore, Alternative 3 would result in increased traffic volumes, and project and cumulative impacts associated with transportation noise impacts would be worse under Alternative 3 than under the proposed project.

Exposure to Stationary Noise (Impact 4.5.5)

Subsequent development associated with the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could result in new noise-sensitive land uses encroaching upon existing or proposed stationary noise sources or new stationary noise sources encroaching upon existing or proposed noise-sensitive land uses. This could result in a substantial permanent increase in ambient noise levels in the project vicinity above existing levels or could result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance or of applicable standards of other agencies. As a result, this impact is considered **potentially significant**.

Although Alternative 3 would result in more housing units and persons in the Planning Area than the proposed project, commercial development potential would be decreased in comparison to the proposed project. Therefore, stationary noise impacts would be similar under Alternative 3 and the proposed project.

Exposure to Groundborne Vibration (Impact 4.5.6)

The proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could result in exposure of persons to or generation of excessive groundborne vibration levels from railroad operations and/or construction activities. In particular, development of future land uses could occur within the projected 60 dBA CNEL noise contours of San Pablo Avenue, Pinole Valley Road, and Appian Way, resulting in potentially **significant** exposure of persons to railroad vibration or noise levels in excess of standards established in the local general plan.

Under Alternative 3, residential density in the Three Corridors Specific Plan would be increased in comparison to the proposed project. This would increase the potential exposure of persons to railroad vibration and noise levels in comparison to the proposed project. Therefore, impacts would be worse under Alternative 3 than under the proposed project.

4.6 Human Health/Risk of Upset

No significant impacts.

4.7 Biological Resources

Impacts to Sensitive Biological Communities (Impact 4.7.2)

Implementation of the proposed project would result in **potentially significant** disturbance, degradation, and removal of riparian habitat, coastal oak woodland, and wetland habitats.

Although Alternative 3 would result in more housing units and persons in the Planning Area than the proposed project, commercial development potential would be decreased in comparison to the proposed project. Therefore, buildout of Alternative 3 would result in impacts to riparian habitat, coastal oak woodland, and wetland habitats similar to the proposed project.

Impacts to Migratory Corridors (Impact 4.7.4)

Implementation of the proposed project could interfere substantially with the movement of native resident or migratory fish or wildlife species via habitat degradation due to additional traffic, increased human presence, and degradation of the water quality. This would be a **potentially significant** impact.

Alternative 3 would result more human presence and traffic than the proposed project, as well as similar impacts associated with water quality (see 4.9, Hydrology and Water Quality, below). Overall, impacts would be worse under Alternative 3 than under the proposed project.

Cumulative Impacts to Special-Status Species (Impact 4.7.6)

Implementation of the proposed General Plan and associated project components (Three Corridors Specific Plan and Zoning Code Update), together with past, present, and probable future projects in the Planning Area and larger regional context, would result in a **cumulatively considerable** loss of biological resources in the region.

Although Alternative 3 would result in more housing units and persons in the Planning Area than the proposed project, commercial development potential would be decreased in comparison to the proposed project. Therefore, buildout of Alternative 3 would result in contributions to direct and indirect loss of biological resources similar to the proposed project.

4.8 Geology and Soils

Seismic Hazards (Impact 4.8.1)

Damage to buildings and utilities in Pinole resulting from a seismic event is likely to be greatest on those sites underlain by deep, loose, compressible deposits of bay mud, non-engineered fill, and marginally stable hillside areas. Areas within the GPU Planning Area that are highly susceptible to damages resulting from ground shaking are located between San Pablo Avenue and the San Pablo Bay shoreline, in the western portions of the city, especially in the Tara Hills Mobile Home Park. This impact is **potentially significant**.

Both Alternative 3 and the proposed project would result in development in these areas. Furthermore, the City has adopted the CBC into its building standards for all development within the city limits. Future development under both Alternative 3 and the proposed project would be subject to CBC standards that address foundation design, shear wall strength, and other structural-related conditions. Compliance with CBC regulations would ensure the adequate design and construction of building foundations to resist soil movement under both alternatives, and impacts would therefore be similar under both alternatives.

Landslide/Slope Instability (Impact 4.8.3)

Potentially significant seismically induced landslides are likely to occur along the steep to intermediate hillside areas of the Planning Area. Additionally, areas within the Planning Area prone to slope instability include areas with pronounced and steeper slopes located along the East Bay Hills, areas where previous land sliding or soil creeping has occurred, areas where non-engineered grading and uncontrolled drainage on slopes has occurred, and areas with deep colluvial deposits.

As mentioned above, future development under both Alternative 3 and the proposed project would be subject to CBC standards, which would require all new development projects to conduct a seismic evaluation and to incorporate particular seismic design criteria to reduce ground shaking effects. Impacts would therefore be similar under both alternatives.

Location on Expansive and Unstable Soils (Impact 4.8.4)

Implementation of the proposed (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would expose buildings, pavements, and utilities to significant damage as a result of underlying expansive or unstable soil properties. This is considered a **potentially significant** impact.

Future development under Alternative 3 would also expose buildings, pavements, and utilities to significant damage as a result of underlying expansive or unstable soil properties. Although Alternative 3 would result in more housing units and persons in the Planning Area than the proposed project, commercial development potential would be decreased in comparison to the proposed project. Therefore, impacts would be similar under Alternative 3 and the proposed project.

4.9 Hydrology and Water Quality

Degrade Surface Water Quality (Impact 4.9.1)

Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could result in the discharge of polluted runoff during construction and operation of future urban development potentially violating water quality standards or otherwise substantially degrading surface water quality. This impact is **potentially significant**.

Future development under Alternative 3 also has the potential to discharge polluted runoff during construction and operation of future urban development. As Alternative 3 would result in more housing units and persons in the Planning Area but less commercial development, Alternative 3 would include similar amounts of impervious surface and sources of polluted runoff to the proposed project. Impacts under Alternative 3 would be similar to those under the proposed project.

Project and Cumulative Flooding Hazards (Impacts 4.9.6 and 4.9.8)

Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could expose additional people and/or structures to flooding, dam failure inundation, and/or sea level rise. This impact is considered to be **potentially significant**. In addition, the proposed project could increase impervious surfaces and alter drainage conditions and rates in the Planning Area, which could contribute to cumulative flood conditions in the Pinole Creek watershed and San Pablo Bay. This impact is considered **cumulatively considerable**.

Buildout of Alternative 3 would result in 675 more housing units and 1,950 more persons in the Planning Area than the proposed project and would thus expose more people to flooding, dam failure inundation, and/or sea level rise. Therefore, impacts under Alternative 3 would be worse than under the proposed project.

Cumulative Water Quality Impacts (Impact 4.9.7)

Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update), in combination with other development activities within the watershed, would contribute to a **potentially cumulatively considerable** degradation of water quality from construction activities and increased urban runoff.

As discussed above, Alternative 3 would result in more housing units and persons in the Planning Area but less commercial development, thus resulting in similar amounts of impervious surface and sources of polluted runoff to the proposed project. Therefore, cumulative impacts under Alternative 3 would be similar to those under the proposed project.

4.10 Cultural Resources

Project and Cumulative Impacts to Prehistoric Resources, Historic Resources, and Human Remains (Impacts 4.10.1 and 4.10.3)

Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update), along with foreseeable development in the region, could result in the potential disturbance of cultural resources (i.e., prehistoric sites, historic sites, and isolated artifacts and features) and human remains. This would be a **potentially significant** project-level impact and a **cumulatively considerable** cumulative impact.

Future development under Alternative 3 also has the potential to disturb cultural resources and would be subject to the proposed General Plan policy that requires cultural resources studies (i.e., archaeological and historical investigations) for all discretionary projects. Therefore, impacts under Alternative 3 would be similar to those under the proposed project.

Undiscovered Paleontological Resources (Impacts 4.10.2 and 4.10.4)

Adoption of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could result in the potential damage or destruction of undiscovered paleontological resources. This is considered a **potentially significant** impact.

Future development under Alternative 3 also has the potential to damage or destroy undiscovered paleontological resources and would be subject to the proposed General Plan policy that requires project proponents to implement any mitigation necessary for the protection of paleontological resources discovered during construction activities. Therefore, impacts under Alternative 3 would be similar to those under the proposed project.

4.11 Visual Resources/Light and Glare

Daytime Glare and Nighttime Illumination (Impact 4.11.3)

Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would result in the intensification of land uses within the GPU Planning Area, which could create **potentially significant** new sources of daytime glare and nighttime illumination.

Buildout of Alternative 3 would result in 675 more housing units and 1,950 more persons in the Planning Area than the proposed project. However, commercial development potential would be decreased under Alternative 3. Therefore, new sources of daytime glare and nighttime illumination would be similar in comparison to the proposed project.

4.12 Public Services and Utilities

Cumulative Water Supply and Water Supply Infrastructure Impacts (Impact 4.12.6.2)

Implementation of the proposed General Plan Update and its associated project components would result in a **cumulatively considerable** contribution to the cumulative demand for water supply and associated infrastructure in EBMUD's service area.

Buildout of Alternative 3 would result in 675 more housing units and 1,950 more persons in the Planning Area than the proposed project. Therefore, Alternative 3 would have a greater contribution to the cumulative demand for water supply and would have worse impacts than the proposed project.

Increased Demand for Wastewater Service (Impact 4.12.7.1)

Implementation of the General Plan Update, Three Corridors Specific Plan, and Zoning Code Update would increase wastewater flows and demand for sanitary sewer facilities. Increased flows could exceed the capacity of the wastewater conveyance, treatment, and disposal systems of the City of Pinole Public Works Department and the West County Wastewater District. This is a **significant** impact.

Buildout of Alternative 3 would result in 675 more housing units and 1,950 more persons in the Planning Area than the proposed project. Therefore, Alternative 3 would have a greater impact on the demand for wastewater service and would have worse impacts than the proposed project.

6.6 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

An EIR is required to identify the environmentally superior alternative from among the range of reasonable alternatives that are evaluated. State CEQA Guidelines Section 15126(d)(2) states that if the environmentally superior alternative is the no project alternative, the EIR shall also identify an environmentally superior alternative from among the other alternatives.

Table 6.0-4 provides a summary of the potential impacts of the alternatives evaluated in this section, as compared with the potential impacts of the proposed project. The impact significance is identified for each alternative as well as the ranking of the impact as compared to the proposed project. A "B" ranking means that the alternative would either avoid or lessen the identified environmental impacts of the proposed project, while a "W" ranking means the alternative would result in a greater impact. The "S" ranking identifies where the alternative has a similar impact as the proposed project. Based upon the evaluation described in this section, Alternative 1 would be the environmentally superior alternative. As stated above, if the environmentally superior alternative is the No Project Alternative, the EIR must also identify an environmentally superior alternative from among the other alternatives. After the No Project Alternative (Alternative 1), Alternative 2 would be the next environmentally superior alternative.

TABLE 6.0-4
SUMMARY COMPARISON OF ALTERNATIVES

Impact	Alternatives		
	Alternative 1 No Project Alternative	Alternative 2 Commercial Focus/Expanded Roadways Alternative	Alternative 3 Residential Focus/Expanded Transit
Land Use			
Land Use Incompatibilities (Impact 4.1.3)	B	B	W
Air Quality			
Conflict with the BAAQMD 2010 Clean Air Plan (Impact 4.3.1)	B	B	W
Violate Air Quality Standard or Contribute Substantially to an Air Quality Violation: Short-Term, Construction Emissions (Impact 4.3.2)	B	S	S
Violate Air Quality Standard or Contribute Substantially to an Air Quality Violation: Long-Term, Operational Emissions (Impact 4.3.3)	B	S	S
Exposure of Sensitive Receptors to Substantial Concentrations of Mobile-Source Carbon Monoxide (Impact 4.3.4)	B	B	W
Create Objectionable Odors Affecting a Substantial Number of People (Impact 4.3.6)	B	B	W
Result in a Cumulatively Considerable Net Increase of Nonattainment Criteria Pollutants and Precursors (Impact 4.3.7)	B	B	W
Traffic and Circulation			
Impacts to Freeway Mainline (Impact 4.4.1)	B	B	W
Conflicts with Acceptable v/c Ratios (Impact 4.4.2)	B	B	W
Project and Cumulative Conflicts with an Applicable Congestion Management Plan (Impacts 4.4.3 and 4.4.8)	S	S	S
Cumulative Transportation Impacts (Impact 4.4.7)	B	B	W
Noise			
Exposure to Construction Noise (Impact 4.5.2)	B	S	S
Project and Cumulative Exposure to Surface Transportation Noise (Impacts 4.5.3	B	B	W

Impact	Alternatives		
	Alternative 1 No Project Alternative	Alternative 2 Commercial Focus/Expanded Roadways Alternative	Alternative 3 Residential Focus/Expanded Transit
and 4.5.7)			
Exposure to Stationary Noise (Impact 4.5.5)	B	S	S
Exposure to Groundborne Vibration (Impact 4.5.6)	B	B	W
Biological Resources			
Impacts to Sensitive Biological Communities (Impact 4.7.2)	B	S	S
Impacts to Migratory Corridors (Impact 4.7.4)	B	B	W
Cumulative Impacts to Special-Status Species (Impact 4.7.6)	B	S	S
Geology and Soils			
Seismic Hazards (Impact 4.8.1)	S	S	S
Landslide/Slope Instability (Impact 4.8.3)	S	S	S
Location on Expansive and Unstable Soils (Impact 4.8.4)	B	S	S
Hydrology and Water Quality			
Degrade Surface Water Quality (Impact 4.9.1)	B	S	S
Project and Cumulative Flooding Hazards (Impacts 4.9.6 and 4.9.8)	B	B	W
Cumulative Water Quality Impacts (Impact 4.9.7)	B	S	S
Cultural Resources			
Project and Cumulative Impacts to Prehistoric Resources, Historic Resources, and Human Remains (Impacts 4.10.1 and 4.10.3)	W	S	S
Undiscovered Paleontological Resources (Impacts 4.10.2 and 4.10.4)	W	S	S
Visual Resources/Light and Glare			
Daytime Glare and Nighttime Illumination (Impact 4.11.3)	B	S	S
Public Services and Utilities			
Cumulative Water Supply and Water Supply Infrastructure Impacts (Impact	B	B	W

Impact	Alternatives		
	Alternative 1 No Project Alternative	Alternative 2 Commercial Focus/Expanded Roadways Alternative	Alternative 3 Residential Focus/Expanded Transit
4.12.6.2)			
Increased Demand for Wastewater Service (Impact 4.12.7.1)	B	B	W

Notes:
B: Alternative would result in better conditions than the proposed project.
S: Alternative would result in similar conditions as the proposed project.
W: Alternative would result in worse impacts than the proposed project.

7.0 Long-Term Implications

This section discusses the additional topics statutorily required by the California Environmental Quality Act (CEQA). The topics discussed include significant irreversible environmental changes/irretrievable commitment of resources, significant and unavoidable environmental impacts, and growth-inducing impacts.

7.1 GROWTH-INDUCING IMPACTS

INTRODUCTION

The CEQA Guidelines Section 15126.2(d) requires that an environmental impact report (EIR) evaluate the growth-inducing impacts of a proposed action. A growth-inducing impact is defined by the CEQA Guidelines as:

> *The way in which a proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth . . . It is not assumed that growth in an area is necessarily beneficial, detrimental, or of little significance to the environment.*

A project can have direct and/or indirect growth-inducing potential. Direct growth inducement would result if a project, for example, involved construction of new housing. New housing and development in an area has the potential to increase the population and its need for services in that area. Alternatively, a project providing an increased water supply in an area where water service historically limited growth could be considered growth-inducing.

A project would have indirect growth inducement potential if it established substantial new permanent employment opportunities (e.g., commercial, industrial, or governmental enterprises) or if it involved a construction effort with substantial short-term employment opportunities that would indirectly stimulate the need for additional housing and services to support the new employment demand. Similarly, a project would indirectly induce growth if it removed an obstacle to additional growth and development, such as removing a constraint on a required public service. The CEQA Guidelines further explain that the environmental effects of induced growth are considered indirect impacts of the proposed action. These indirect impacts or secondary effects of growth may result in significant, adverse environmental impacts. Potential secondary effects of growth include increased demand on other community and public services and infrastructure, increased traffic and noise, and adverse environmental impacts such as degradation of air and water quality, degradation or loss of plant and animal habitat, and conversion of agricultural and open space land to developed uses.

Growth inducement may constitute an adverse impact if the growth is not consistent with or accommodated by the land use plans and growth management plans and policies for the area affected. Local land use plans provide for land use development patterns and growth policies that allow for the orderly expansion of urban development supported by adequate urban public services, such as water supply, roadway infrastructure, sewer service, and solid waste service.

COMPONENTS OF GROWTH

The timing, magnitude, and location of land development and population growth in a community or region are based on various interrelated land use and economic variables. Key variables include regional economic trends, market demand for residential and nonresidential uses, land availability and cost, the availability and quality of transportation facilities and public

services, proximity to employment centers, the supply and cost of housing, and regulatory policies or conditions. Since the general plan of a community defines the location, type, and intensity of growth, it is the primary means of regulating development and growth in California.

GROWTH EFFECTS OF THE PROJECT

Based on Government Code Section 65300, the proposed City of Pinole General Plan Update, including other project components such as the Three Corridors Specific Plan and the update to the City's Zoning Code (proposed project), is intended to serve as the overall plan for the physical development of the City of Pinole. While the General Plan Update does not specifically propose any development projects, it does regulate future population and economic growth of the city that could result in indirect growth-inducing effects. Implementation of the proposed project would refine existing land use designations in the city and establish new policies, actions, and design guidelines to direct and manage future development and land uses in Pinole. This management would also include policy direction on roadway facility improvements, public service improvements, and the extension and expansion of utilities. Similarly, the Three Corridors Specific Plan, which includes the transportation corridors of San Pablo Avenue, Pinole Valley Road, and Appian Way, also incorporates specific land uses, policies, and directives for each of the three corridors. The last component of the proposed project involves updates to the City's Zoning Code (Title 17 of the City's Municipal Code). Key issues to be addressed by this update include administration and permit procedures, land use districts and corresponding uses and standards, general site planning and development regulations, special use regulations, definitions, and legal issues.

Although the city has only a few individual parcels left undeveloped that are not classified as open space or designated for some form of preserve, the proposed project allows for some additional growth within the General Plan Update Planning Area, which also includes each of the three transportation corridors. The General Plan Update and associated project components would also encourage the development of infrastructure, including extension of infrastructure into currently unserved areas, to support the projected development. As of January 2010, the city's population was estimated at 20,100 persons (ABAG 2007). The proposed project would result in approximately 2,576 residential units and a population of approximately 23,875 for the city by 2030, while jobs are projected to number 7,560. The reader is referred to Section 4.2, Population/Housing/Employment, for a discussion of impacts associated with increases in population and housing under the proposed General Plan Update.

The City's existing 1995 General Plan allows Level of Service (LOS) D for urban roadways (San Pablo Avenue [Oak Ridge Road to west city limits]; Appian Way [San Pablo Avenue to south city limits]; Pinole Valley Road [San Pablo Avenue to city limits]; Tennent Avenue [Pinole Valley Road to Railroad Avenue]; Fitzgerald Drive [Appian Way to 1,000 feet west of Appian Way]; Tara Hills Drive [Appian Way to 1,000 feet west of Appian Way]). The proposed General Plan Update allows the same LOS on these roadway segments.

For the Central Business District, the 1995 General Plan allows LOS E for San Pablo Avenue (Oak Ridge Road to western city limits). In contrast, the proposed General Plan Update allows LOS E for the entirety of San Pablo Avenue. The proposed project requires that LOS E or better be maintained at all signalized intersections along San Pablo Avenue and LOS D or better be maintained at all signalized intersections on Appian Way.

The proposed project does not include any provisions requiring the oversizing of roadway facilities to serve growth not anticipated under the General Plan Land Use Map. The reader is

referred to Section 4.4, Traffic and Circulation, for a discussion of impacts associated with increases in traffic and circulation under the proposed General Plan Update.

Infrastructure improvements could require the expansion and development of new water infrastructure facilities, including water supply conveyance pipelines and treatment facilities. The East Bay Municipal Utility District (EBMUD) has indicated that projects developed under the General Plan Update would more than likely be served from existing water treatment plant capacity (Rehnstrom, 2009). However, future development could require water main extensions in order to ensure adequate water supplies, fire flows, and system redundancy. The reader is referred to Section 4.12, Public Services and Utilities, for a discussion of impacts associated with increased utility infrastructure needs under the proposed project.

It is anticipated that most of the future growth under the General Plan Update would primarily occur in the City's Sphere of Influence (SOI), which includes lands just beyond the southwestern city limits near the City of San Pablo and bordered to the south by Richmond Parkway, and lands just south of the city limits near the unincorporated area of El Sobrante. The City would continue to control land use and growth within Pinole through its General Plan, Three Corridors Specific Plan, and zoning provisions.

The specific environmental effects resulting from the proposed land use patterns and associated extension of public services are discussed in the environmental issue areas in Sections 4.1 through 4.13, and the project's cumulative impacts (Section 5.0, Cumulative Impacts) would be in addition to the following additional environmental effects of growth in the region:

- **Air Quality** – Increases in air pollutant emissions potentially conflicting with air quality attainment efforts under state and federal Clean Air Acts and increased potential for the exposure of sensitive receptors to toxic air contaminants.

- **Hydrology and Water Quality** – Additional sources of discharge of polluted runoff during construction and operation of future urban development potentially violating water quality standards.

- **Noise** – Increased transportation noise levels from increased traffic volumes. Increased stationary noise levels from commercial, industrial, institutional (public schools), and recreational uses as well as new noise-sensitive land uses potentially located in areas of existing stationary noise sources.

- **Public Services and Utilities** – Increased demand for the development and expansion of water supply and associated infrastructure.

- **Transportation and Circulation** – Increased traffic volumes on the region's highways and regional roadways contributing to declining levels of service.

- **Visual Resources** – New sources of light and glare.

7.2 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL EFFECTS

CEQA Sections 21100(b)(2) and 21100.1(a) require that EIRs prepared for the adoption of a plan, policy, or ordinance of a public agency must include a discussion of significant irreversible environmental changes of project implementation. In addition, CEQA Guidelines Section 15126.2(c) describes irreversible environmental changes as:

> *Uses of nonrenewable resources during the initial and continued phases of the project may be irreversible since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and, particularly, secondary impacts (such as highway improvement which provides access to a previously inaccessible area) generally commit future generations to similar uses. Also irreversible damage can result from environmental accidents associated with the project. Irretrievable commitments of resources should be evaluated to assure that such current consumption is justified.*

Implementation of the proposed City of Pinole General Plan Update and associated project components would result in development of infill housing and commercial uses. Development of the Planning Area would constitute a long-term commitment to residential and commercial uses. It is unlikely that circumstances would arise that would justify the return of the land to its original condition.

Development of the Planning Area would irretrievably commit building materials and energy to the construction and maintenance of buildings and infrastructure proposed. Renewable, nonrenewable, and limited resources that would likely be consumed as part of the development of the proposed project would include, but are not limited to, oil, gasoline, lumber, sand and gravel, asphalt, water, steel, and similar materials. In addition, development of the project would result in an increased demand on public services and utilities (see Section 4.12, Public Services and Utilities).

7.3 SIGNIFICANT AND UNAVOIDABLE ENVIRONMENTAL EFFECTS

CEQA Guidelines Section 15126.2(b) requires an EIR to discuss unavoidable significant environmental effects, including those that can be mitigated but not reduced to a level of insignificance. In addition, Section 15093(a) of the CEQA Guidelines allows the decision-making agency to determine whether the benefits of a proposed project outweigh the unavoidable adverse environmental impacts of implementing the project. The City can approve a project with unavoidable adverse impacts if it prepares a "Statement of Overriding Considerations" setting forth the specific reasons for making such a judgment.

The following significant and unavoidable impacts are specifically identified in Sections 4.1 through 4.12 of this DEIR. The reader is referred to these sections for further details and analysis of the significant and unavoidable impacts identified below.

SECTION 4.3 AIR QUALITY

Conflict with the BAAQMD 2010 Clean Air Plan

Impact 4.3.1 Subsequent land use activities associated with implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would result in increased population and vehicle miles traveled that would exceed assumptions used to create the BAAQMD's Clean Air Plan. This impact is considered to be **potentially significant.**

Violate Air Quality Standard or Contribute Substantially to an Air Quality Violation: Long-Term, Operational Emissions

Impact 4.3.3 Subsequent land use activities associated with implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could result in long-term, operational emissions that

could violate or substantially contribute to violations of federal and state ambient air quality standards. This impact is considered to be **potentially significant**.

Exposure of Sensitive Receptors to Substantial Concentrations of Toxic Air Contaminant and/or Fine Particulate Matter

Impact 4.3.5 Subsequent land use activities associated with implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could result in projects that would include sources of toxic air contaminants which could affect surrounding land use. Subsequent land use activities could also place sensitive land uses near existing sources of toxic air contaminants. These factors could result in the exposure of sensitive receptors to substantial concentrations of toxic air contaminants and/or fine particulate matter. This is considered a **potentially significant** impact.

Result in a Cumulatively Considerable Net Increase of Nonattainment Criteria Pollutants and Precursors

Impact 4.3.7 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update), in combination with cumulative development in the SFBAAB, would result in a cumulatively considerable net increase of ozone and coarse and fine particulate matter. This is considered a **cumulatively considerable** impact.

SECTION 4.4 TRAFFIC AND CIRCULATION

Impacts to Freeway Mainline

Impact 4.4.1 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would result in an increase in freeway mainline volumes during the AM and PM peak hours. This is considered a **significant** impact.

Conflict with an Applicable Congestion Management Plan

Impact 4.4.3 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would conflict with the multimodal transportation service objectives (MTSOs) identified in the West County Action Plan. This is considered a **significant** impact.

Cumulative Conflicts with an Applicable Congestion Management Plan

Impact 4.4.8 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) would conflict with the multimodal transportation service objectives (MTSOs) identified in the West County Action Plan. This is considered a **cumulatively considerable** impact.

SECTION 4.5 NOISE

Exposure to Surface Transportation Noise

Impact 4.5.3 The proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update) could result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project and could result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan, as a result of increased traffic on the roadway network. In addition, future development of noise-sensitive land uses could be exposed to roadway and/or railroad noise levels in excess of the City's noise standards. This impact would be considered **potentially significant**.

Cumulative Transportation Noise Impacts

Impact 4.5.7 Implementation of the proposed project (General Plan Update, Three Corridors Specific Plan, and Zoning Code Update), in combination with other development in nearby areas in Contra Costa County, would increase transportation noise along area roadways. This would be a **cumulatively considerable** impact.

REFERENCES

Association of Bay Area Governments (ABAG). 2007. *ABAG Projections 2007*. Oakland, California.

Rehnstrom, David. 2009. Senior Civil Engineer, Water Service Planning, East Bay Municipal Utilities District. Personal Communication (Letter), February 25.

8.0 REPORT PREPARERS

8.1 PREPARERS OF THE ENVIRONMENTAL IMPACT REPORT

CITY OF PINOLE

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PMC

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SUBCONSULTANTS

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Transportation and Circulation	Dowling Associates, Inc. – Alice Chen

Appendices

Appendix A NOP

CITY *of* PINOLE

DEVELOPMENT SERVICES DEPARTMENT

General Plan Update
Steering Committee

Steering Committee Members:

Timothy J. Banuelos

Thomas Brooks

John Chapin

Debbie Long

Steven McFarland

Paul Sekins

Maureen Toms

December 18, 2006

Notice of Preparation Of a Draft Environmental Impact Report regarding the City of Pinole General Plan, Zoning Ordinance and Fee Studies

The City of Pinole is undertaking the first comprehensive update of the Pinole General Plan since 1995, and will be the lead agency for preparation of a program-level Environmental Impact Report (EIR) on the General Plan Update.

We need to know your views regarding the scope and content of the environmental information to be included in the EIR. If you work for a public agency, your comments should address the scope and content of environmental information that is germane to the agency's statutory responsibilities, as required by Section 15082(b) of the State Guidelines for the California Environmental Quality Act (CEQA). A summary of the project and potential environmental effects proposed for analysis is provided below.

Written comments can be submitted at any time during the notice period which begins December 18 and ends at 5:30 PM on January 16, 2007. Letters should be directed to:

City of Pinole General Plan Update
Attn: Elizabeth Dunn, EIR Task Manager
2131 Pear Street
Pinole, CA 94564
(or e-mail to info@pinolegeneralplan.com)

In addition, oral comments will be accepted at two public/agency meetings:

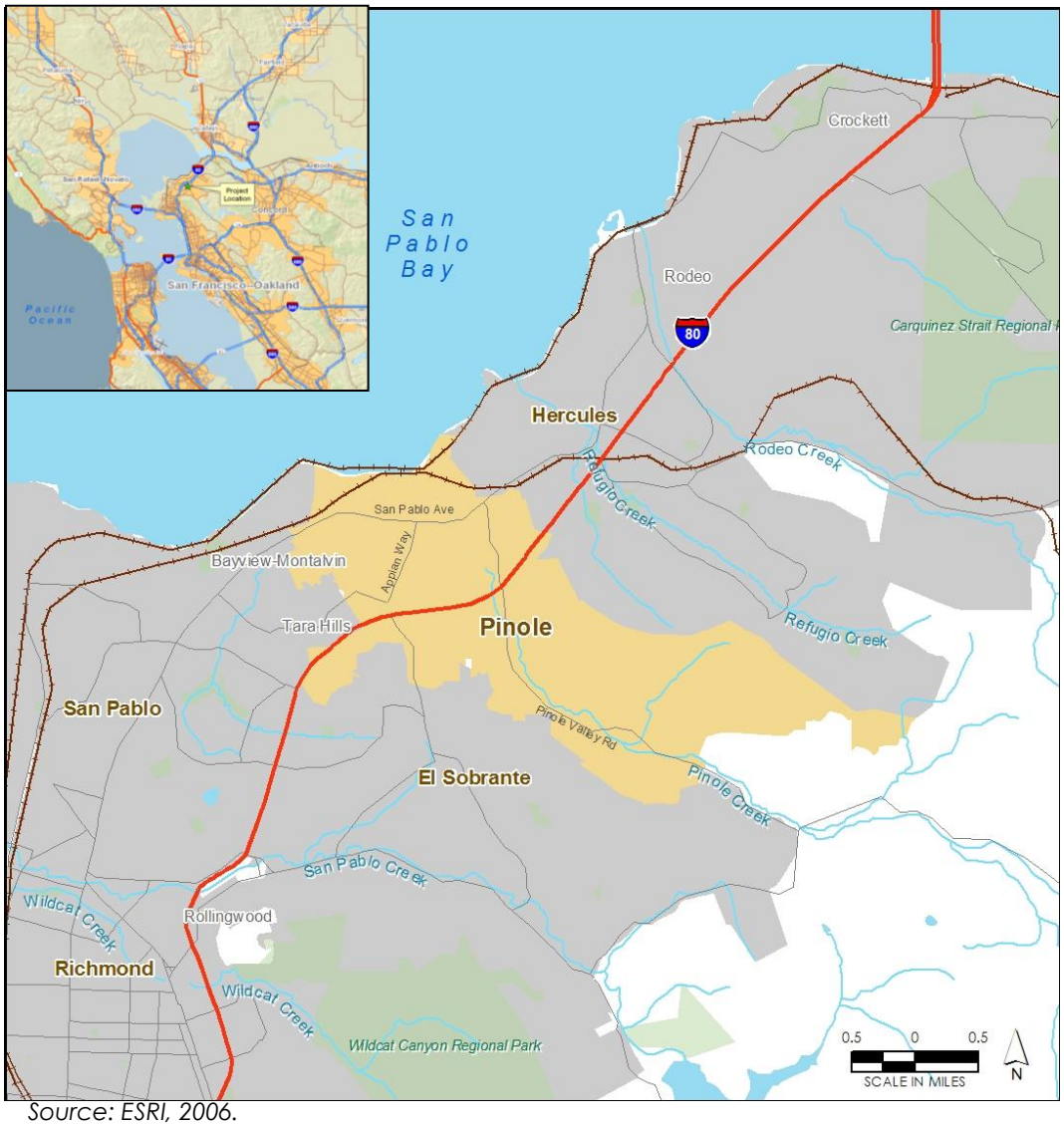
- Daytime Meeting: 2:00 PM on January 10, 2007 at Pinole City Hall Council Chambers, 2131 Pear Street, Pinole (Targeted for Public Agency Staff)

- Nighttime Meeting: 6:00 PM on January 10, 2007 at Pinole City Hall Council Chambers, 2131 Pear Street, Pinole

It is not necessary to comment more than once. All comments will be considered during preparation of the EIR and the General Plan update. Please call the City of Pinole Planning Department at (510) 724-9014 and ask for Elizabeth Dunn if you have questions.

Project Name: City of Pinole General Plan Update

Project Location: The City of Pinole General Plan addresses the incorporated area of Pinole, California.



Source: ESRI, 2006.

Project Description:

The proposed project consists of the adoption of an updated General Plan as well as an update to the Zoning Ordinance for the City of Pinole. California law requires all local jurisdictions in the State to maintain a current general plan with goals and policies to guide land use and development. The current version of the Pinole General Plan was adopted in 1995, although some sections (known as elements) have been updated since then. (A copy can be found on the City's website at www.ci.pinole.ca.us.)

In 2006, the Pinole City Council stated its desire to undertake a comprehensive update of the Plan and Zoning Ordinance and in mid-2006 determined that a Steering Committee, comprised of the members of the Planning Commission, would prepare the Plan and build public support. Concurrently, City staff and consultants have been charged with preparing an EIR.

It is anticipated that the revision process now underway will result in adoption of a new General Plan in mid-2008 to provide policy guidance related to land use, transportation, public services, and related issues such as noise, air quality, biological resources, cultural resources, and housing over the next twenty years. The General Plan Update will reflect the changing conditions in the City since the various Elements were first prepared, and integrate the elements into a coordinated whole. The General Plan Update is expected to reflect existing land use designations and development policy, with an emphasis being on the effective implementation of the existing goals of the City. These may include mechanisms to encourage higher intensity use of vacant and underutilized land near transit, and in the City's redevelopment areas. Design considerations, economic development, growth management, conservation, and public utilities and services also will be integrated into the overall planning framework update. The City's intent is to incorporate environmental factors into the Plan.

A Zoning Ordinance Update and a Review of Grading and Subdivision Ordinance are also underway by City staff and consultants. The Zoning Code amendments will address the following:

- Ensure zoning provisions are consistent with the current and planned amendments to the General Plan.
- Update zoning district allowed use provisions and development standards as necessary and appropriate.
- Incorporate permit processing information consistent with law and current practices.
- Create a Form Based Code for San Pablo Avenue, Appian Way, and a portion of Pinole Valley Road.
- Reorganize zoning regulations to be more user friendly, and consistent with other Municipal Code Sections.
- Ensure that zoning provisions are in compliance with applicable provisions of State and Federal laws.

In addition to a Plan Update and an update to the Zoning Ordinance, the City will conduct the following studies to evaluate modifications in the current fee structures:

- Development Impact Fees
- User Fees
- Low-Income Housing Fees

The following General Plan Elements would be updated or modified to develop a preferred General Plan Update:

- Land Use and Economic Development Element
- Housing Element
- Transportation and Circulation Element
- Open Space and Environmental Protection Element
- Health and Safety Element (including Air and Noise)
- Growth Management Element
- Community Services and Facilities Element (including water)
- Community Character Element (Green Building and Design provisions proposed)

Potential Environmental Effects:

The proposed project may have environmental impacts, and the EIR will assess the project's potential direct, indirect, and cumulative effects on the following:

- Aesthetics, including visual character, scenic views, light and glare;
- Air Quality, including the regional air quality plan, violations of existing air quality standards, air pollutants, and odors;
- Biological Resources, including special status (e.g. rare and endangered) plant and animal species, riparian habitats and other sensitive natural communities, wetlands, wildlife movement and nursery sites, related local policies or ordinances, and adopted plans;
- Cultural Resources, including historic, archaeological and paleontological resources;
- Geology, Soils & Mineral Resources, including potential risks associated with earthquakes and landslides, soil erosion, issues associated with unstable sites, expansive soils, or septic systems, and conflicts with mineral resource recovery;
- Hazards & Hazardous Materials, including potential safety hazards, exposure to hazardous materials, emergency response plans, safety hazards with public or private airports, and risks involving wildland fires;
- Hydrology & Water Quality, including water quality and runoff, waste discharge requirements, groundwater quality/recharge, drainage, flooding and inundation;
- Land Use & Planning, including existing plans and policies in effect within the City's incorporated and the adjacent unincorporated areas that provide environmental protection measures;
- Noise, including vibration and exposure of people to excessive noise levels;
- Population & Housing, including growth inducement, employment-generated housing demand, affordable and workforce housing, and displacement of existing housing;
- Public Services, including, but not limited to, fire, sheriff, schools, and open space;
- Recreation, including existing and future parks and recreational facilities;
- Transportation, including local, commuter, and tourist traffic, parking, safety and emergency access, alternative modes of transportation (transit, air, water, pedestrian, bicycle); and
- Utilities & Service Systems, including Regional Water Quality Control Board requirements, water, wastewater and reclaimed water, drainage facilities, and solid waste facilities and regulations.

Agency representatives, members of the public, and other interested parties are encouraged to provide comments on these and any other environmental issues that should be explored in the draft EIR.

CITY *of* PINOLE

COMMUNITY DEVELOPMENT DEPARTMENT

General Plan Update
Steering Committee

Steering Committee Members:

Timothy J. Banuelos

Thomas Brooks

John Bender

Dave Kurrent

Patty McGoldrick

Paul Sekins

Maureen Toms

February 17, 2009

Notice of Preparation of a Draft Environmental Impact Report for the City of Pinole General Plan Update, Specific Plan, and Zoning Ordinance Update

The City of Pinole is undertaking the first comprehensive update of the Pinole General Plan since 1995. The City will be the lead agency for the preparation of a program-level Environmental Impact Report (EIR) for the proposed project, which includes updates to and the adoption of the General Plan, Specific Plan for San Pablo Avenue, Appian Way, and Pinole Valley Road corridors, and a Zoning Ordinance Update. A previous Notice of Preparation (NOP) was published on December 18, 2006 with a comment period that was extended to February 2, 2007 for the General Plan and Zoning Ordinance Update. Two scoping sessions were also held during that time period. Since that time, the City has published a Draft Specific Plan for the three corridors noted and begun preparation of an update to the General Plan and Zoning Ordinance. Therefore, the City is re-issuing this NOP to cover the additional items to be analyzed as part of the EIR.

We need to know your views regarding the scope and content of the environmental information to be included in the EIR. If you work for a public agency, your comments should address the scope and content of environmental information that is germane to your agency's statutory responsibilities, as required by Section 15082(b) of the State Guidelines for the California Environmental Quality Act (CEQA). A summary of the project and the potential environmental effects proposed for analysis are provided below.

Written comments can be submitted at any time during the notice period, which begins February 17, 2009 and ends at 5:30 PM on March 18, 2009.

Letters should be directed to:

City of Pinole General Plan Update
Attn: Winston Rhodes, Planning Manager
2131 Pear Street
Pinole, CA 94564
(or e-mail to wrhodes@ci.pinole.ca.us)

In addition, oral comments will be accepted at the following Planning Commission meetings:

Scoping Sessions: **Monday February 23, 2009 and March 9, 2009, 7:00PM at Pinole City Hall Council Chambers, 2131 Pear Street, Pinole, CA 94564.**

It is not necessary to comment more than once. All comments will be considered during preparation of the EIR and the General Plan. Please call the City of Pinole Planning Division at (510) 724-8912 and ask for Winston Rhodes if you have questions.

Project Name: **City of Pinole General Plan Update, Specific Plan, Zoning Ordinance Update**

Project Location: **The project includes the incorporated area of Pinole, California and areas included within the City's Sphere of Influence (see map below).**

Project Description:

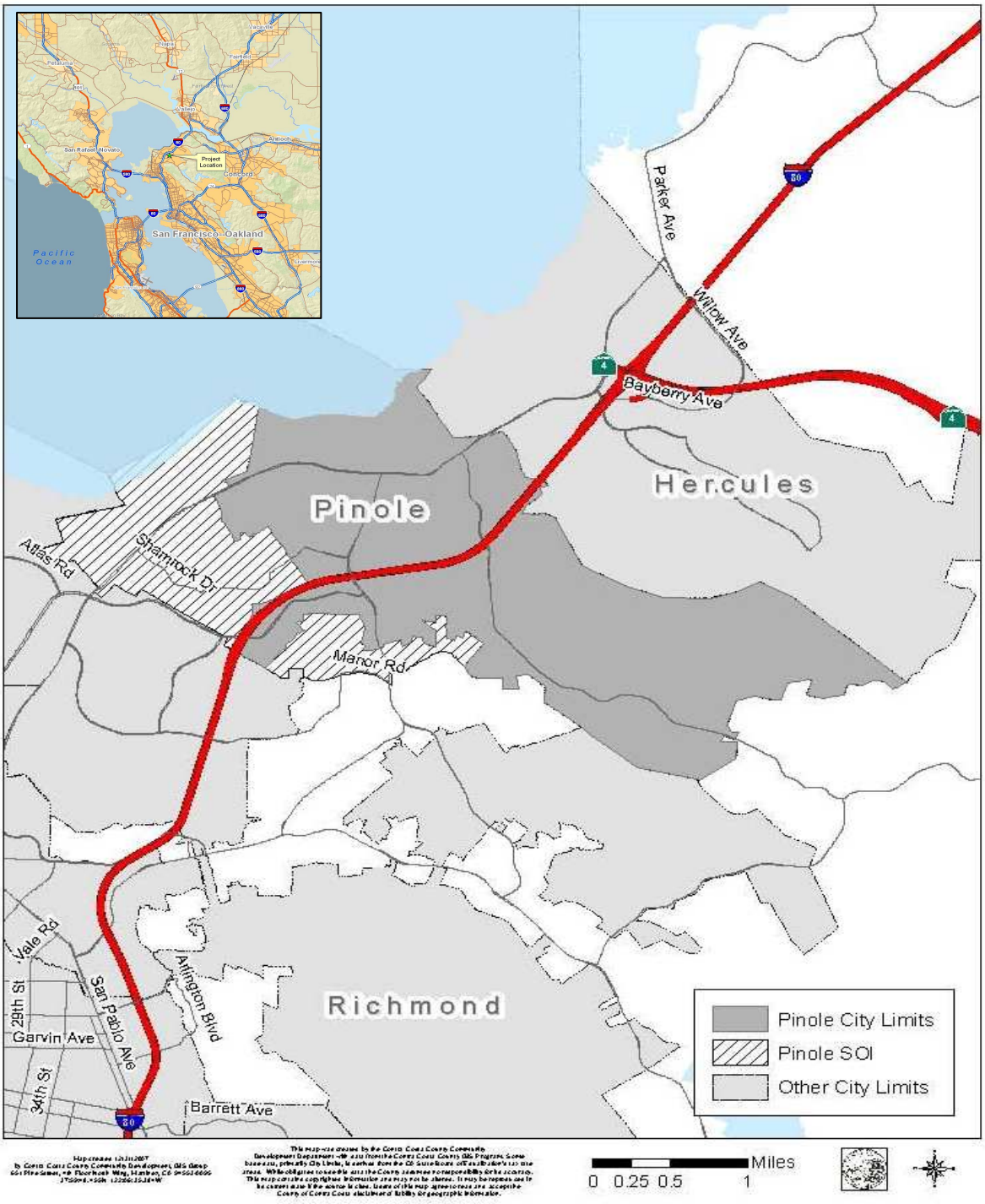
The proposed project consists of the adoption of the General Plan Update, Specific Plan for San Pablo Avenue, Appian Way, and Pinole Valley Road corridors, and Zoning Ordinance Update. California law requires all local jurisdictions in the State to maintain a current general plan with goals and policies to guide land use and development. The current version of the Pinole General Plan was comprehensively updated in 1995, although some sections (known as elements) have been updated since then. (A copy can be found on the City's website at http://www.ci.pinole.ca.us).

In 2006, the Pinole City Council stated its desire to undertake a comprehensive update of the General Plan and Zoning Ordinance. In mid-2006, the City Council determined that a Steering Committee, comprised of the members of the Planning Commission, would oversee preparation of the General Plan Update and Zoning Ordinance Update. Concurrently, City staff and consultants were charged with preparing the associated EIR. In September 2007, the City decided to prepare a Specific Plan for the San Pablo Avenue, Appian Way, and Pinole Valley Road corridors, and the General Plan and Zoning Ordinance Update process was temporarily suspended until the present time. In September 2008, the City initiated work on the Climate Action Plan in conjunction with the General Plan Update.

It is anticipated that the update and preparation process will result in adoption of a General Plan at the beginning of 2010 that would provide policy guidance related to land use, transportation, public services, and related issues such as noise, air quality, biological resources, cultural resources, and housing over the next twenty years. The General Plan would reflect the changing conditions in the City since the various Elements were last updated. It would also integrate the elements into a coordinated whole. The General Plan is expected to reflect existing land use designations and development policy, with emphasis on the effective implementation of the existing goals of the City. These may include mechanisms to encourage higher intensity use of vacant and underutilized land near transit and in the City's redevelopment areas. Design

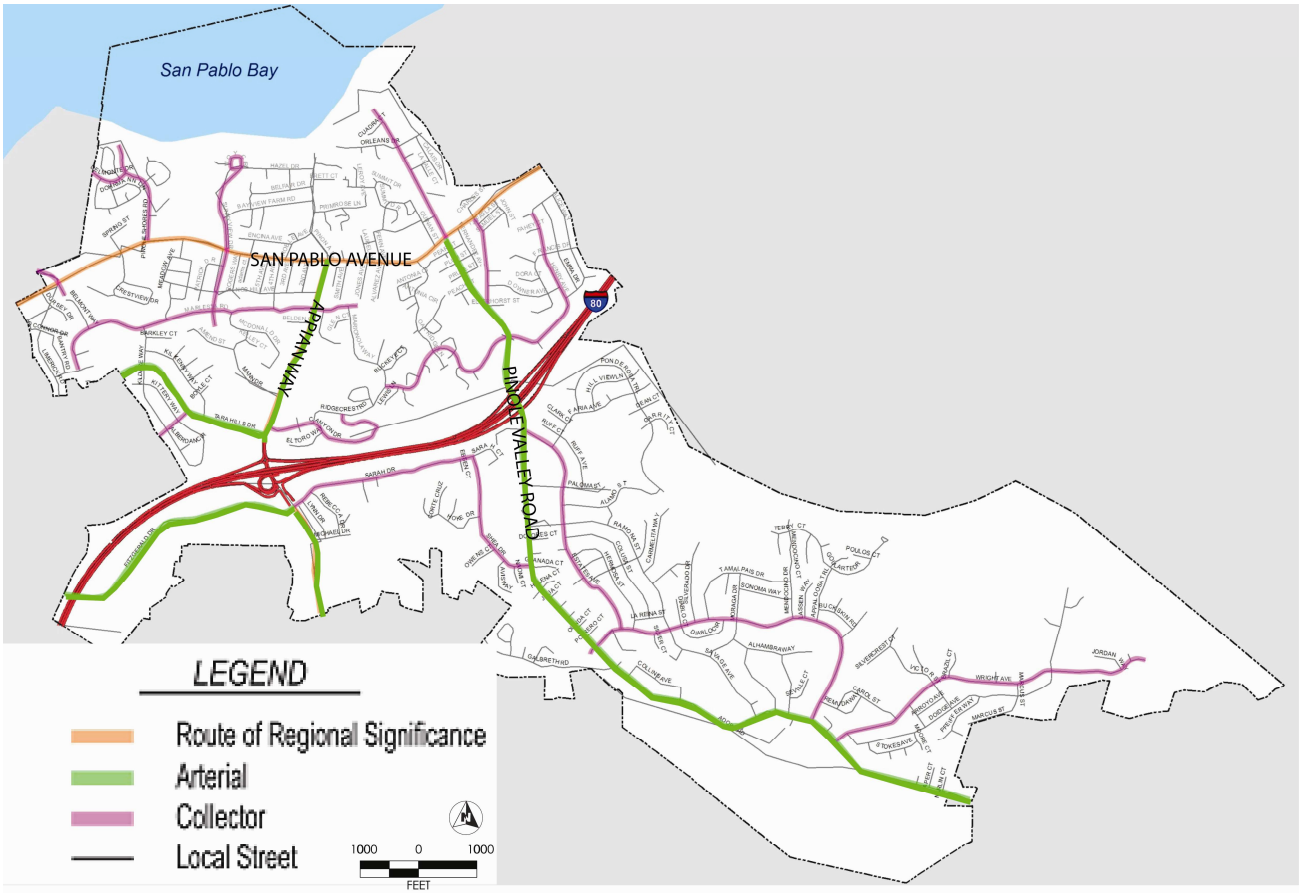
considerations, economic development, growth management, conservation, and public utilities and services would also be integrated into the overall update.

City of Pinole Boundary and Sphere of Influence



Source: Contra Costa County LAFCO, 2008

Major Roadways in Pinole – Specific Plan Corridors



Source: City of Pinole, Draft Specific Plan for San Pablo Avenue, Pinole Valley Road, and Appian Way, January 27, 2008

The General Plan is the overarching vision and policy document for the City. The nine General Plan Elements are:

- Land Use and Economic Development
- Community Services and Facilities
- Traffic and Circulation
- Housing
- Natural Resources and Open Space
- Health & Safety
- Growth Management
- Sustainability
- Community Character

The Specific Plan will guide development on the three major corridors of the City, in conformance with the policies contained in the General Plan. The Specific Plan is both a policy document and a regulatory framework that enables the City to provide a detailed

guide to encourage future development within these mixed use corridors. Several major issues are addressed within the three corridors:

- Circulation Improvements including; potential narrowing of San Pablo Avenue, addition of bicycle lanes, pedestrian amenities, and landscape buffer areas.
- Land Use and Development Standards including; creation of nine land use districts, replacement of one commercial zone with various mixed use zones, design guideline changes to allow for higher density and elimination of maximum Floor Area Ratio requirements to provide more development flexibility, simplify or reduce parking standards, and identify development opportunity sites to encourage investment and revitalization within the City's Redevelopment Project Areas.

The Zoning Ordinance is a document containing the detailed regulations by which many of the policies and goals contained in the General Plan are implemented and refers to portions of the Specific Plan information to ensure consistency between the Specific Plan and Zoning Ordinance. The Zoning Ordinance amendments will address the following:

- Rezone property and ensure zoning provisions are consistent with the current and planned amendments to the General Plan.
- Update zoning district allowed use provisions and development standards as necessary and appropriate.
- Incorporate permit processing information consistent with legal requirements and desired community practices.
- Add Form-Based regulations for San Pablo Avenue, Appian Way, and a portion of Pinole Valley Road.
- Reorganize zoning regulations to be more user-friendly, and consistent with other Municipal Code Sections.
- Ensure that zoning provisions are in compliance with applicable provisions of State and Federal laws.

The program-level EIR will provide the legally required California Environmental Quality Act review for all of the aforementioned documents. All of these documents work together in concert to help guide future development with in the City.

A Climate Action Plan (CAP) will be incorporated into the General Plan and EIR. The State Attorney General has been clear that emission reduction policies and implementation must be a part of a legally defensible General Plan and EIR, and a CAP which articulates the City's emission reduction efforts will be prepared to accomplish this.

Potential Environmental Effects:

The proposed project may have environmental impacts, and the EIR will assess the project's potential direct, indirect, and cumulative effects on the following:

- Aesthetics, including visual character, scenic views, light and glare;
- Air Quality, including the regional air quality plan, violations of existing air quality standards, air pollutants, and odors;
- Biological Resources, including special status (e.g. rare and endangered) plant and animal species, riparian habitats and other sensitive natural communities, wetlands, wildlife movement and nursery sites, buffer areas, related local policies or ordinances, and adopted plans;
- Cultural Resources, including historic, archaeological and paleontological resources;
- Geology, Soils & Mineral Resources, including potential risks associated with earthquakes and landslides, soil erosion, issues associated with unstable sites, expansive soils, or septic systems, and conflicts with mineral resource recovery;
- Hazards & Hazardous Materials, including potential safety hazards, exposure to hazardous materials, emergency response plans, and risks involving wildland fires;
- Hydrology & Water Quality, including water quality and runoff, waste discharge requirements, groundwater quality/recharge, drainage, flooding and inundation;
- Land Use & Planning, including existing plans and policies in effect within the City's incorporated and the adjacent unincorporated areas that provide environmental protection measures;
- Noise, including vibration and exposure of people to excessive noise levels;
- Population & Housing, including growth inducement, employment-generated housing demand, affordable and workforce housing, and displacement of existing housing;
- Public Services, including, but not limited to, fire, police, schools, library, and water, wastewater, and solid waste;
- Recreation, including existing and future parks and recreational facilities;
- Transportation, including local, commuter, and tourist traffic, parking, safety and emergency access, alternative modes of transportation (transit, air, water, pedestrian, bicycle);
- Utilities & Service Systems, including Regional Water Quality Control Board requirements, water, wastewater and reclaimed water, drainage facilities, and solid waste facilities and regulations; and
- Energy efficiency.

Agency representatives, members of the public, and other interested parties are encouraged to provide comments on these and any other environmental issues that should be explored in the EIR.

STATE OF CALIFORNIA ARNOLD SCHWARZENEGGER, Governor

CALIFORNIA EMERGENCY MANAGEMENT AGENCY
DISASTER ASSISTANCE PROGRAMS BRANCH
3650 SCHRIEVER AVENUE
MATHER, CALIFORNIA 95655
PHONE (916) 845-8101 FAX (916) 845-8381

RECEIVED
MAR 4 2009
CITY OF PINOLE

March 2, 2009

Winston Rhodes
City of Pinole
2131 Pear Street
Pinole, CA 94564

RE: Notice of Preparation for a Draft Environmental Impact Report for the City of Pinole's General Plan Update, SCH# 2009022057

Dear Mr. Rhodes:

Thank you for the opportunity to comment on your Notice of Preparation for a Draft Environmental Impact Report (DEIR) for the city's general plan update. In preparing the general plan and accompanying DEIR, the city should examine the sections of state planning law that involve potential hazards the city may face. For your information, I have underlined specific sections of state planning law where identification and analysis of hazards are discussed (see Attachment A).

Prior to the release of the draft general plan or within the DEIR, city staff or your consultants should examine each of the requirements in state planning law and determine if there are hazard issues within the community which the general plan should address. A table in the DEIR (or general plan) which identifies these specific issues and where they are addressed in the general plan would be helpful in demonstrating the city has complied with these requirements. If the DEIR determines that state planning law requirements have not been met, it should recommend that these issues be addressed in the general plan as a mitigation measure.

We note that state planning law includes a requirement for consultations with state agencies in regard to information related to hazards. OES would be happy to share all available information at our disposal to facilitate the city's ability to comply with state planning and environmental laws.

If you have any questions about these comments, please contact Andrew Rush at (916) 845-8269 or andrew.rush@OES.ca.gov.

Sincerely,

Dennis Castrillo
Environmental Officer

cc: State Clearinghouse

Attachment A
Hazards and State Planning Law Requirements

General Plan Consistency

65300.5. In construing the provisions of this article, the Legislature intends that the general plan and elements and parts thereof comprise an integrated, internally consistent and compatible statement of policies for the adopting agency.

Seven Mandated Elements

65302. The general plan shall consist of a statement of development policies and shall include a diagram or diagrams and text setting forth objectives, principles, standards, and plan proposals. The plan shall include the following elements:

(a) A land use element that designates the proposed general distribution and general location and extent of the uses of the land for housing, business, industry, open space, including agriculture, natural resources, recreation, and enjoyment of scenic beauty, education, public buildings and grounds, solid and liquid waste disposal facilities, and other categories of public and private uses of land. The location and designation of the extent of the uses of the land for public and private uses shall consider the identification of land and natural resources pursuant to paragraph (3) of subdivision (d). The land use element shall include a statement of the standards of population density and building intensity recommended for the various districts and other territory covered by the plan. The land use element shall identify and annually review those areas covered by the plan that are subject to flooding identified by flood plain mapping prepared by the Federal Emergency Management Agency (FEMA) or the Department of Water Resources. The land use element shall also do both of the following:

(1) Designate in a land use category that provides for timber production those parcels of real property zoned for timberland production pursuant to the California Timberland Productivity Act of 1982, Chapter 6.7 (commencing with Section 51100) of Part 1 of Division 1 of Title 5.

(2) Consider the impact of new growth on military readiness activities carried out on military bases, installations, and operating and training areas, when proposing zoning ordinances or designating land uses covered by the general plan for land, or other territory adjacent to military facilities, or underlying designated military aviation routes and airspace.

(A) In determining the impact of new growth on military readiness activities, information provided by military facilities shall be considered. Cities and counties shall address military impacts based on information from the military and other sources.

(B) The following definitions govern this paragraph:

(i) "Military readiness activities" mean all of the following:

(I) Training, support, and operations that prepare the men and women of the military for combat.

(II) Operation, maintenance, and security of any military installation.

(III) Testing of military equipment, vehicles, weapons, and sensors for proper operation or suitability for combat use.

(ii) "Military installation" means a base, camp, post, station, yard, center, homeport facility for any ship, or other activity under the jurisdiction of the United States Department of Defense as defined in paragraph (1) of subsection (e) of Section 2687 of Title 10 of the United States Code.

(b) A circulation element consisting of the general location and extent of existing and proposed major thoroughfares, transportation routes, terminals, any military airports and ports, and other local public utilities and facilities, all correlated with the land use element of the plan.

(c) A housing element as provided in Article 10.6 (commencing with Section 65580).

(d) (1) A conservation element for the conservation, development, and utilization of natural resources including water and its hydraulic force, forests, soils, rivers and other waters, harbors, fisheries, wildlife, minerals, and other natural resources. The conservation element shall consider the effect of development within the jurisdiction, as described in the land use element, on natural resources located on public lands, including military installations. That portion of the conservation element including waters shall be developed in coordination with any countywide water agency and with all district and city agencies, including flood management, water conservation, or groundwater agencies that have developed, served, controlled, managed, or conserved water of any type for any purpose in the county or city for which the plan is prepared. Coordination shall include the discussion and evaluation of any water supply and demand information described in Section 65352.5, if that information has been submitted by the water agency to the city or county.

(2) The conservation element may also cover all of the following:

(A) The reclamation of land and waters.

(B) Prevention and control of the pollution of streams and other waters.

(C) Regulation of the use of land in stream channels and other areas required for the accomplishment of the conservation plan.

(D) Prevention, control, and correction of the erosion of soils, beaches, and shores.

(E) Protection of watersheds.

(F) The location, quantity and quality of the rock, sand and gravel resources.

(3) Upon the next revision of the housing element on or after January 1, 2009, the conservation element shall identify rivers, creeks, streams, flood corridors, riparian habitats, and land that may accommodate floodwater for purposes of groundwater recharge and stormwater management.

(e) An open-space element as provided in Article 10.5 (commencing with Section 65560).

(f) (1) A noise element which shall identify and appraise noise problems in the community. The noise element shall recognize the guidelines established by the Office of Noise Control in the State Department of Health Care Services and shall analyze and quantify, to the extent practicable, as determined by the legislative body, current and projected noise levels for all of the following sources:

(A) Highways and freeways.

(B) Primary arterials and major local streets.

(C) Passenger and freight on-line railroad operations and ground rapid transit systems.

(D) Commercial, general aviation, heliport, helistop, and military airport operations, aircraft overflights, jet engine test stands, and all other ground facilities and maintenance functions related to airport operation.

(E) Local industrial plants, including, but not limited to, railroad classification yards.

(F) Other ground stationary noise sources, including, but not limited to, military installations, identified by local agencies as contributing to the community noise environment.

(2) Noise contours shall be shown for all of these sources and stated in terms of community noise equivalent level (CNEL) or day-night average level (Ldn). The noise contours shall be prepared on the basis of noise monitoring or following generally accepted noise modeling techniques for the various sources identified in paragraphs (1) to (6), inclusive.

(3) The noise contours shall be used as a guide for establishing a pattern of land uses in the land use element that minimizes the exposure of community residents to excessive noise.

(4) The noise element shall include implementation measures and possible solutions that address existing and foreseeable noise problems, if any. The adopted noise element shall serve as a guideline for compliance with the state's noise insulation standards.

(g) (1) A safety element for the protection of the community from any unreasonable risks associated with the effects of seismically induced surface rupture, ground shaking, ground failure, tsunami, seiche, and dam failure; slope instability leading to mudslides and landslides; subsidence, liquefaction, and other seismic hazards identified pursuant to Chapter 7.8 (commencing with Section 2690) of Division 2 of the Public Resources Code, and other geologic hazards known to the legislative body; flooding; and wild land and urban fires. The safety element shall include mapping of known seismic and other geologic hazards. It shall also address evacuation routes, military installations, peakload water supply requirements, and minimum road widths and clearances around structures, as those items relate to identified fire and geologic hazards.

(2) The safety element, upon the next revision of the housing element on or after January 1, 2009, shall also do the following:

(A) Identify information regarding flood hazards, including, but not limited to, the following:

(i) Flood hazard zones. As used in this subdivision, "flood hazard zone" means an area subject to flooding that is delineated as either a special hazard area or an area of moderate or minimal hazard on an official flood insurance rate map issued by the Federal Emergency Management Agency. The identification of a flood hazard zone does not imply that areas outside the flood hazard zones or uses permitted within flood hazard zones will be free from flooding or flood damage.

(ii) National Flood Insurance Program maps published by FEMA.

(iii) Information about flood hazards that is available from the United States Army Corps of Engineers.

(iv) Designated floodway maps that are available from the Central Valley Flood Protection Board.

(v) Dam failure inundation maps prepared pursuant to Section 8589.5 that are available from the Office of Emergency Services.

(vi) Awareness Floodplain Mapping Program maps and 200-year flood plain maps that are or may be available from, or accepted by, the Department of Water Resources.

(vii) Maps of levee protection zones.

(viii) Areas subject to inundation in the event of the failure of project or nonproject levees or floodwalls.

(ix) Historical data on flooding, including locally prepared maps of areas that are subject to flooding, areas that are vulnerable to flooding after wildfires, and sites that have been repeatedly damaged by flooding.

(x) Existing and planned development in flood hazard zones, including structures, roads, utilities, and essential public facilities.

(xi) Local, state, and federal agencies with responsibility for flood protection, including special districts and local offices of emergency services.

(B) Establish a set of comprehensive goals, policies, and objectives based on the information identified pursuant to subparagraph (A), for the protection of the community from the unreasonable risks of flooding, including, but not limited to:

(i) Avoiding or minimizing the risks of flooding to new development.

(ii) Evaluating whether new development should be located in flood hazard zones, and identifying construction methods or other methods to minimize damage if new development is located in flood hazard zones.

(iii) Maintaining the structural and operational integrity of essential public facilities during flooding.

(iv) Locating, when feasible, new essential public facilities outside of flood hazard zones, including hospitals and health care facilities, emergency shelters, fire stations, emergency command centers, and emergency communications facilities or identifying construction methods or other methods to minimize damage if these facilities are located in flood hazard zones.

(v) Establishing cooperative working relationships among public agencies with responsibility for flood protection.

(C) Establish a set of feasible implementation measures designed to carry out the goals, policies, and objectives established pursuant to subparagraph (B).

(3) After the initial revision of the safety element pursuant to paragraph (2), upon each revision of the housing element, the planning agency shall review and, if necessary, revise the safety element to identify new information that was not available during the previous revision of the safety element.

(4) Cities and counties that have flood plain management ordinances that have been approved by FEMA that substantially comply with this section, or have substantially equivalent provisions to this subdivision in their general plans, may use that information in the safety element to comply with this subdivision, and shall summarize and incorporate by reference into the safety element the other general plan provisions or the flood plain ordinance, specifically showing how each requirement of this subdivision has been met.

(5) Prior to the periodic review of its general plan and prior to preparing or revising its safety element, each city and county shall consult the California Geological Survey of the Department of Conservation, the Central Valley Flood Protection Board, if the city or county is located within the boundaries of the Sacramento and San Joaquin Drainage District, as set forth in Section 8501 of the Water Code, and the Office of Emergency Services for the purpose of including information known by and available to the department, the office, and the board required by this subdivision.

(6) To the extent that a county's safety element is sufficiently detailed and contains appropriate policies and programs for adoption by a city, a city may adopt that portion of the county's safety element that pertains to the city's planning area in satisfaction of the requirement imposed by this subdivision.

Consistency with Airport Land Use Plans

65302.3. (a) The general plan, and any applicable specific plan prepared pursuant to Article 8 (commencing with Section 65450), shall be consistent with the plan adopted or amended pursuant to Section 21675 of the Public Utilities Code.

Review of Safety Element

65302.5. (a) At least 45 days prior to adoption or amendment of the safety element, each county and city shall submit to the Division of Mines and Geology of the Department of Conservation

one copy of a draft of the safety element or amendment and any technical studies used for developing the safety element. The division may review drafts submitted to it to determine whether they incorporate known seismic and other geologic hazard information, and report its findings to the planning agency within 30 days of receipt of the draft of the safety element or amendment pursuant to this subdivision. The legislative body shall consider the division's findings prior to final adoption of the safety element or amendment unless the division's findings are not available within the above prescribed time limits or unless the division has indicated to the city or county that the division will not review the safety element. If the division's findings are not available within those prescribed time limits, the legislative body may take the division's findings into consideration at the time it considers future amendments to the safety element. Each county and city shall provide the division with a copy of its adopted safety element or amendments. The division may review adopted safety elements or amendments and report its findings. All findings made by the division shall be advisory to the planning agency and legislative body.

(1) The draft element of or draft amendment to the safety element of a county or a city's general plan shall be submitted to the State Board of Forestry and Fire Protection and to every local agency that provides fire protection to territory in the city or county at least 90 days prior to either of the following:

(A) The adoption or amendment to the safety element of its general plan for each county that contains state responsibility areas.

(B) The adoption or amendment to the safety element of its general plan for each city or county that contains a very high fire hazard severity zone as defined pursuant to subdivision (b) of Section 51177.

(2) A county that contains state responsibility areas and a city or county that contains a very high fire hazard severity zone as defined pursuant to subdivision (b) of Section 51177, shall submit for review the safety element of its general plan to the State Board of Forestry and Fire Protection and to every local agency that provides fire protection to territory in the city or county in accordance with the following dates as specified, unless the local government submitted the element within five years prior to that date:

(A) Local governments within the regional jurisdiction of the San Diego Association of Governments: December 31, 2010.

(B) Local governments within the regional jurisdiction of the Southern California Association of Governments: December 31, 2011.

(C) Local governments within the regional jurisdiction of the Association of Bay Area Governments: December 31, 2012.

(D) Local governments within the regional jurisdiction of the Council of Fresno County Governments, the Kern County Council of Governments, and the Sacramento Area Council of Governments: June 30, 2013.

(E) Local governments within the regional jurisdiction of the Association of Monterey Bay Area Governments: December 31, 2014.

(F) All other local governments: December 31, 2015.

(3) The State Board of Forestry and Fire Protection shall, and a local agency may, review the draft or an existing safety element and report its written recommendations to the planning agency within 60 days of its receipt of the draft or existing safety element. The State Board of Forestry and Fire Protection and local agency shall review the draft or existing safety element and may

offer written recommendations for changes to the draft or existing safety element regarding both of the following:
(A) Uses of land and policies in state responsibility areas and very high fire hazard severity zones that will protect life, property, and natural resources from unreasonable risks associated with wildland fires.
(B) Methods and strategies for wildland fire risk reduction and prevention within state responsibility areas and very high hazard severity zones.
(b) Prior to the adoption of its draft element or draft amendment, the board of supervisors of the county or the city council of a city shall consider the recommendations made by the State Board of Forestry and Fire Protection and any local agency that provides fire protection to territory in the city or county. If the board of supervisors or city council determines not to accept all or some of the recommendations, if any, made by the State Board of Forestry and Fire Protection or local agency, the board of supervisors or city council shall communicate in writing to the State Board of Forestry and Fire Protection or to the local agency, its reasons for not accepting the recommendations.

Open Space Plans

65560. (a) "Local open-space plan" is the open-space element of a county or city general plan adopted by the board or council, either as the local open-space plan or as the interim local open-space plan adopted pursuant to Section 65563.
(b) "Open-space land" is any parcel or area of land or water that is essentially unimproved and devoted to an open-space use as defined in this section, and that is designated on a local, regional or state open-space plan as any of the following:
(1) Open space for the preservation of natural resources including, but not limited to, areas required for the preservation of plant and animal life, including habitat for fish and wildlife species; areas required for ecologic and other scientific study purposes; rivers, streams, bays and estuaries; and coastal beaches, lakeshores, banks of rivers and streams, and watershed lands.
(2) Open space used for the managed production of resources, including but not limited to, forest lands, rangeland, agricultural lands and areas of economic importance for the production of food or fiber; areas required for recharge of groundwater basins; bays, estuaries, marshes, rivers and streams which are important for the management of commercial fisheries; and areas containing major mineral deposits, including those in short supply.
(3) Open space for outdoor recreation, including but not limited to, areas of outstanding scenic, historic and cultural value; areas particularly suited for park and recreation purposes, including access to lakeshores, beaches, and rivers and streams; and areas which serve as links between major recreation and open-space reservations, including utility easements, banks of rivers and streams, trails, and scenic highway corridors.
(4) Open space for public health and safety, including, but not limited to, areas which require special management or regulation because of hazardous or special conditions such as earthquake fault zones, unstable soil areas, flood plains, watersheds, areas presenting high fire risks, areas required for the protection of water quality and water reservoirs and areas required for the protection and enhancement of air quality.

DEPARTMENT OF TRANSPORTATION
111 GRAND AVENUE
P. O. BOX 23660
OAKLAND, CA 94623-0660
PHONE (510) 622-5491
FAX (510) 286-5559
TTY 711

Flex your power!
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MAR 9 2009
CITY OF PINOLE

March 4, 2009

CC080374
SCH#2009022057

Mr. Winston Rhodes
City of Pinole
2131 Pear Street
Pinole, CA 94564

Dear Mr. Rhodes:

City of Pinole General Plan Update, Specific Plan, Zoning Ordinance Update and EIR Project – Notice of Preparation

Thank you for including the California Department of Transportation (Department) in the early stages of the environmental review process for the City of Pinole General Plan Update, Specific Plan, Zoning Ordinance Update and EIR project. The following comments are based on the Notice of Preparation (NOP). As the lead agency, the City of Pinole is responsible for all project mitigation, including any needed improvements to State highways. The project's fair share contribution, financing, scheduling, implementation responsibilities and lead agency monitoring should be fully discussed for all proposed mitigation measures. This information should also be presented in the Mitigation Monitoring and Reporting Plan of the environmental document. Required roadway improvements should be completed prior to issuance of the Certificate of Occupancy. Since an encroachment permit is required for work in the state right of way (ROW), and the Department will not issue a permit until our concerns are adequately addressed, we strongly recommend that the City of Pinole work with both the applicant and the Department to ensure that our concerns are resolved during the CEQA process, and in any case prior to submittal of a permit application. Further comments will be provided during the encroachment permit process; see the end of this letter for more information regarding encroachment permits.

Traffic Impact Study (TIS)
Please include the information detailed below in the TIS to ensure that project-related impacts to State roadway facilities are thoroughly assessed. We encourage the City to coordinate preparation of the study with our office, and we would appreciate the opportunity to review the scope of work. The Department's *"Guide for the Preparation of Traffic Impact Studies"* should be reviewed prior to initiating any traffic analysis for the project; it is available at the following website: http://www.dot.ca.gov/hq/traffops/developserv/operationalsystems/reports/tisguide.pdf

The Traffic Study should include:

1. Vicinity map, regional location map, and a site plan clearly showing project access in relation to nearby State roadways. Ingress and egress for all project components should be clearly identified. State ROW should be clearly identified.

2. The maps should also include project driveways, local roads and intersections, parking, and transit facilities.

3. Project-related trip generation, distribution, and assignment. The assumptions and methodologies used to develop this information should be detailed in the study, and should be supported with appropriate documentation.

4. Average Daily Traffic, AM and PM peak hour volumes and levels of service (LOS) on all significantly affected roadways, including crossroads and controlled intersections for existing, existing plus project, cumulative and cumulative plus project scenarios. Calculation of cumulative traffic volumes should consider all traffic-generating developments, both existing and future, that would affect study area roadways and intersections. *The analysis should clearly identify the project's contribution to area traffic and degradation to existing and cumulative levels of service. Lastly, the Department's LOS threshold, which is the transition between LOS C and D, and is explained in detail in the Guide for Traffic Studies, should be applied to all State facilities.*

5. Schematic illustration of traffic conditions including the project site and study area roadways, trip distribution percentages and volumes as well as intersection geometrics, i.e., lane configurations, for the scenarios described above.

6. The project's consistency with both the Circulation Element of the General Plan and the Contra Costa County Congestion Management Agency's Congestion Management Plan should be evaluated.

7. Mitigation should be identified for any roadway mainline section or intersection with insufficient capacity to maintain an acceptable LOS with the addition of project-related and/or cumulative traffic.

8. Special attention should be given to the following trip-reducing measures:
   - Encouraging mixed-use,
   - Maximizing density through offering bonuses and/or credits,
   - Coordinating with WestCAT and AC Transit, to increase transit use by expanding routes and emphasizing express service to regional rail stations, and by providing bus shelters with seating at any future bus pullouts,
   - Providing transit information to all future project employees and patrons, and
   - Encouraging bicycle- and pedestrian-friendly design.

Please forward three hard copies and one CD of the environmental document, along with the Traffic Study, including Technical Appendices, and staff report to the address below as soon as they are available.

Luis Melendez, Associate Transportation Planner
Community Planning Office, Mail Station 10D
California DOT, District 4
P.O. Box 23660
Oakland, CA 94623-0660

Community Planning
The Department encourages you to locate any needed housing, jobs and neighborhood services near major mass transit nodes, and connect these nodes with streets configured to encourage walking and bicycling, as a means of reducing regional vehicle miles traveled and traffic impacts on the State highways. We also recommend modeling pedestrian, bicycle, and transit trips in order that project generated impacts can be quantified. Mitigation measures resulting from this analysis should improve pedestrian and bicycle access to transit, thereby reducing traffic impacts on state highways.

Additionally, please provide a discussion and analysis on the secondary impacts to pedestrians and bicyclists that may result from traffic impact mitigation measures. Describe any pedestrian and bicycle mitigation measures that would be needed to maintain and improve access to transit and reduce traffic impacts on the State highway system.

Traffic Impact Fees
Please identify traffic impact fees. Development plans should require traffic impact fees based on projected traffic and/or based on associated cost estimates for public transportation facilities necessitated by development. Please refer to the California Office of Planning and Research (OPR) *2003 General Plan Guidelines,* page 163, which can be accessed on-line at the following website: http://www.opr.ca.gov/index.php?a=planning/gpg.html

Scheduling and costs associated with planned improvements on Departmental ROW should be listed, in addition to identifying viable funding sources correlated to the pace of improvements for roadway improvements, if any. Please refer to the state OPR's *2003 General Plan Guidelines,* page 106.

Encroachment Permit
Please be advised that any work or traffic control that encroaches onto the state ROW requires an encroachment permit that is issued by the Department. To apply, a completed encroachment permit application, environmental documentation, and five (5) sets of plans clearly indicating state ROW must be submitted to the address below. Traffic-related mitigation measures should be incorporated into the construction plans during the encroachment permit process. See the website link below for more information. http://www.dot.ca.gov/hq/traffops/developserv/permits/

Michael Condie, District Office Chief
Office of Permits
California DOT, District 4
P.O. Box 23660
Oakland, CA 94623-0660

Please feel free to call or email Luis Melendez of my staff at (510) 286-5606 or Luis_Melendez@dot.ca.gov with any questions regarding this letter.

Sincerely,

Lisa Carboni

LISA CARBONI
District Branch Chief
Local Development – Intergovernmental Review

c: State Clearinghouse

WILLIAM B. WALKER, M.D.
HEALTH SERVICES DIRECTOR
SHERMAN L. QUINLAN, REHS, MPH
ENVIRONMENTAL HEALTH DIRECTOR

CONTRA COSTA
HEALTH SERVICES

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Ph (925) 692-2500
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www.cocoeh.org

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MAR 9 2009
CITY OF PINOLE

DATE: March 5, 2009

TO: City of Pinole, General Plan Update
Attn: Winston Rhodes, Planning Manager
2131 Pear St
Pinole, CA 94564

FROM: Jeff Edwards, REHS II JE

SUBJECT: *Project Number:* General Plan Update, Draft Environmental Health Impact Report
Location: See General Plan Update

The Environmental Health Division has completed its review of the above referenced project. This office has no comments or conditions, if public sewer and water are provided.

Any abandoned wells or septic tanks are to be abandoned as per Contra Costa Environmental Health requirements. Appropriate permits and inspections for this work shall be obtained. See the attached handouts titled *Septic Tank Destruction Requirements* and *Well Destruction Guidelines* for more information.

Contra Costa County

Health Services Department
ENVIRONMENTAL HEALTH DIVISION

2120 Diamond Blvd., Suite 200
Concord, California 94520
(510) 646-5225

WELL DESTRUCTION GUIDELINES

In order to protect groundwater resources for current and future users, the elimination of abandoned, unused or defective wells is necessary. State and local regulations govern the procedure for eliminating these wells. These requirements are applicable to abandoned wells, test holes, dry holes, cone petronometers, hydropunches and soil borings. A permit from the Environmental Health Division is required to destroy a well in Contra Costa County. The law requires that such work be performed by a licensed, insured and bonded well contractor (C-57 license). **NOTE:** There is no permit fee required to destroy an existing water well if a new well is drilled. The following is a chronological summary of the destruction process:

1. Application, Plot Plan and Permit Fee
   To apply for a well destruction permit, submit a completed application, plot plan, and permit fee to the Environmental Health Division. Application forms are available at the Division's office. Instructions for preparing the plot plan are on the reverse side of the application. If you have any questions about completing the application or preparing any acceptable plot plan, please contact this office for assistance.

2. Permit Processing
   The Division will review the permit application and if acceptable a permit will be issued.

3. Destruction Procedure
   Once the permit has been issued the authorized work can begin. A copy of the approved permit must be kept somewhere on the job site. This is to ensure that it is available for reference by the work crew should questions arise:

   A general outline of the process is as follows:

   a. Remove any obstructions from the well.
   b. Perforate or remove the well casing to the bottom of the well.
   c. Excavate around the casing to a depth of 6 feet.
   d. Place approved sealing material in the well extending from the bottom to the surface. The Environmental Health Division will inspect this stage of the work. The well contractor is responsible for contacting this Division to schedule inspection appointments. The greater the advance notice, the more likely a mutually convenient inspection appointment can be arranged.

   NOTE: Some well destructions will require deeper perforations and depth of sealing material.

4. Final Approval
   Upon satisfactory completion of the work permitted and submittal of a Well Completion Report (DWR 188 form) a final destruction approval will be given.

WILLIAM B. WALKER, M.D.
HEALTH SERVICES DIRECTOR

SHERMAN L. QUINLAN, REHS, MPH
ENVIRONMENTAL HEALTH DIRECTOR

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2120 Diamond Blvd., Suite 200
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Phone (925) 646-5225
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SEPTIC TANK DESTRUCTION REQUIREMENTS

Regulations require that abandoned septic tanks be properly destroyed in order to minimize any possible health or safety hazards. If your dwelling or building is served by a septic tank you must have it destroyed within 30 days of connecting to a sewer system. The step-wise process for destroying a tank is as follows:

1. Obtain a permit from the Contra Costa County Environmental Health. A permit fee is required. After the permit is approved, signed and issued, work can commence.

2. Have tank contents removed and properly disposed of by a licensed septic tank pumper. Present the receipt for pumping during the inspection.

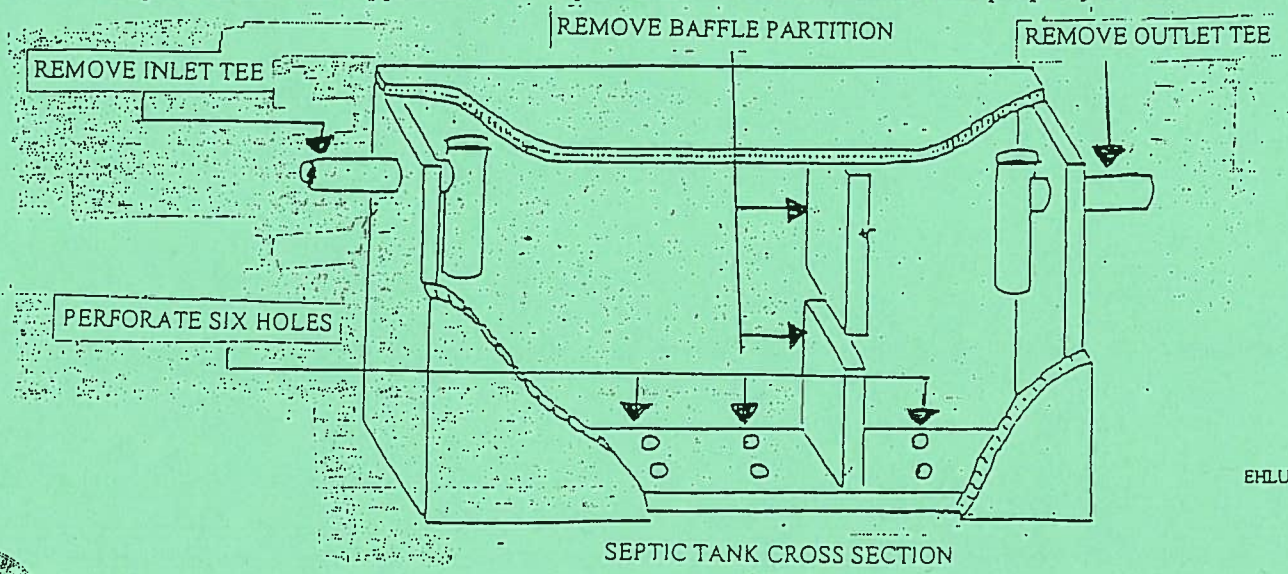
3. If the tank is to be removed and disposed off site, have the inspection done before the excavation has been backfilled.

4. If the tank will be destroyed in place, remove the top, remove the pipes connecting the tank to the house and to the drain field, and perforate the tank in at least six places, evenly distributed over the surface of the tank bottom.

5. Call the appointment desk for an available time to have the inspection done by a representative of Contra Costa Environmental Health.

6. After a satisfactory inspection, fill tank with clean sand, fill dirt or concrete. *Note: If tank is located under a future structure or building addition, contact the local Building Inspection Department for compaction requirements.* (If fill dirt is used, it must be well tamped to minimize settling).

7. Copies of the final approval will be provided for the contractor and property owner.



SEPTIC TANK CROSS SECTION

EHLUT.06-7/03

Contra Costa County
Flood Control
& Water Conservation District

Julia R. Bueren,
ex officio Chief Engineer
R. Mitch Avalon,
Deputy Chief Engineer

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MAR 16 2009
CITY OF PINOLE

March 10, 2009

Winston Rhodes
Planning Manager
City of Pinole
2131 Pear Street
Pinole, CA 94564

Our Files: 060-09 (Pinole) & 3069-00

Dear Mr. Rhodes:

We have reviewed the Notice of Preparation of a Draft Environmental Impact Report (EIR) for the City of Pinole's General Plan Update, Specific Plan, and Zoning Ordinance Update dated February 17, 2009.

We recommend that the Draft EIR include an analysis of the drainage impacts of the proposed changes that will allow for higher development densities in the San Pablo Avenue, Appian Way, and the Pinole Valley Road corridors. We recommend that the EIR document include mitigation measures for any adverse drainage impacts.

We appreciate the opportunity to review projects that involve drainage matters, and we look forward to providing comments on the environmental document. If you have any questions, please call me at (925) 313-2283.

Sincerely,

Mario A. Consolacion
Engineering Technician
Contra Costa County Flood Control
& Water Conservation District

MAC:cw
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c: Greg Connaughton, Flood Control
Tim Jensen, Flood Control
Teri E. Rie, Flood Control

WILLIAM B. WALKER, M.D.
HEALTH SERVICES DIRECTOR

SHERMAN L. QUINLAN, REHS, MPH
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March 13, 2009

City of Pinole General Plan Update
Attn: Winston Rhodes, Planning Manager
2131 Pear St.
Pinole, CA 94564

Subject: Notice of Preparation of Draft Environmental Impact Report for the City of Pinole General Plan Updates, Specific Plan, and Zoning Ordinance Update, February 17, 2009

Dear Mr. Rhodes:

The Contra Costa County Environmental Health Division, as the Local Enforcement Agency (LEA) for solid waste, has reviewed the Notice of Preparation document and provides the following comments:

1. When the City of Pinole begins the specific planning of the recycling facilities, please include the LEA in the process to ensure all requirements of the solid waste regulations are met.

2. If the proposed recycling facilities do not meet the requirements identified in the California Code of Regulations, Title 14, Section 17402.5(d) "Recycling Center", then the facilities are required to obtain a full solid waste facility permit as a transfer station/operation. This will require an extensive California Environmental Quality Act (CEQA) review prior to the issuance of a solid waste facility permit from the LEA and California Integrated Waste Management Board.

Should you have any questions, please contact Lori Braunesreither, REHS, at (925) 692-2528.

Sincerely,

Sherman L. Quinlan, REHS, MPH
Director of Environmental Health

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MAR 16 2009
CITY OF PINOLE

cc: Vanessa Cordier, Supervising Environmental Health Specialist
Lori Braunesreither, Environmental Health Specialist II

SQ:rc

SAN FRANCISCO
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March 15, 2010

Mr. Winston Rhodes, Planning Manager
City of Pinole Planning Division
Pinole City Hall
2131 Pear Street
Pinole, CA 94564
Sent via email: wrhodes@ci.pinole.ca.us

RE: Consideration of impacts to stormwater in the EIR for the General Plan, Specific Plan, and Zoning Ordinance Update

Dear Mr. Rhodes and the Members of the Pinole Planning Division,

I am writing to you on behalf of San Francisco Baykeeper ("Baykeeper") and its 1,300 members to congratulate the City of Pinole on its updated General Plan, Specific Plan, and Zoning Ordinance. Baykeeper is very happy to see additions to the Sustainability Element that encourage actions to reduce the volume of stormwater runoff, specifically through Low Impact Development ("LID"). These changes strengthened a document that was already advanced in its consideration of stormwater, making Pinole a leader in the Bay Area for protecting water quality.

Stormwater runoff is the greatest source of pollution to surface water resources in the Bay Area, including the Pinole Creek and San Pablo Bay. Not only does it introduce contaminants to fragile ecosystems, it also causes hydromodification of streams which can result in flooding problems. As you know, stormwater runoff is an unfortunate consequence of urban development, whereby impervious surface covers up the natural landscape and prevents infiltration of rainwater. We believe LID is the best way to manage stormwater in the urban environment, replacing excess impervious surface with green BMPs that collect and process stormwater naturally.

We hope that you will continue your work incorporating LID into City planning by examining stormwater in the EIR process. As you think about areas of future development in Pinole, please consider the impacts to hydrology, water quality, and biological resources that may be caused by excessive stormwater runoff, and how those impacts may be mitigated by LID. LID may also be a suitable alternative to traditional stormwater control methods that have been proposed.

We look forward to reading the environmental review of your proposed planning documents. Congratulations once again in reaching the final stages of your hard work!

Sincerely,

Rosalind Becker, Field Coordinator
San Francisco Baykeeper

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Appendix B Air Quality

AIR QUALITY IMPACT ASSESSMENT

FOR

CITY OF PINOLE GENERAL PLAN UPDATE

MAY 2010

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This report examines the air quality in the Planning Area and region, includes a summary of applicable air quality regulations, and analyzes potential air quality impacts associated with the proposed City of Pinole General Plan Update.

EXISTING SETTING

The Bay Area Air Quality Management District (BAAQMD) is the regional air quality agency for the San Francisco Bay Area Air Basin (SFBAAB), which comprises all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara counties, the southern portion of Sonoma, and the southwestern portion of Solano County. The SFBAAB is depicted in **Figure 1**. Air quality in this area is determined by such natural factors as topography, meteorology, and climate, in addition to the presence of existing air pollution sources and ambient conditions. These factors along with applicable regulations are discussed below.

CLIMATE, TOPOGRAPHY, AIR POLLUTION POTENTIAL

The SFBAAB is characterized by complex terrain, consisting of coastal mountain ranges, inland valleys, and bays, which distort normal wind flow patterns. The Coast Range splits resulting in a western coast gap, Golden Gate, and an eastern coast gap, Carquinez Strait, which allow air to flow in and out of the SFBAAB and the Central Valley.

The climate is dominated by the strength and location of a semi-permanent, subtropical high-pressure cell. During the summer, the Pacific high pressure cell is centered over the northeastern Pacific Ocean resulting in stable meteorological conditions and a steady northwesterly wind flow. Upwelling of cold ocean water from below to the surface because of the northwesterly flow produces a band of cold water off the California coast. The cool and moisture-laden air approaching the coast from the Pacific Ocean is further cooled by the presence of the cold water band resulting in condensation and the presence of fog and stratus clouds along the Northern California coast.

In the winter, the Pacific high-pressure cell weakens and shifts southward resulting in wind flow offshore, the absence of upwelling, and the occurrence of storms. Weak inversions coupled with moderate winds result in a low air pollution potential.

High Pressure Cell

During the summer, the large-scale meteorological condition that dominates the West Coast is a semi-permanent high pressure cell centered over the northeastern Pacific Ocean. This high pressure cell keeps storms from affecting the California coast. Hence, the SFBAAB experiences little precipitation in the summer months. Winds tend to blow on shore out of the north/northwest. The steady northwesterly flow induces upwelling of cold water from below. This upwelling produces a band of cold water off the California coast. When air approaches the California coast, already cool and moisture-laden from its long journey over the Pacific, it is further cooled as it crosses this bank of cold water. This cooling often produces condensation resulting in a high incidence of fog and stratus clouds along the Northern California coast in the summer.

FIGURE 1
SAN FRANCISCO BAY AREA AIR BASIN

Source: BAAQMD 2010(a)

Generally in the winter, the Pacific high weakens and shifts southward, winds tend to flow offshore, upwelling ceases and storms occur. During the winter rainy periods, inversions (layers of warmer air over colder air; see below) are weak or nonexistent, winds are usually moderate and air pollution potential is low. The Pacific high does periodically become dominant, bringing strong inversions, light winds and high pollution potential.

Topography

The topography of the SFBAAB is characterized by complex terrain, consisting of coastal mountain ranges, inland valleys and bays. This complex terrain, especially the higher elevations, distorts the normal wind flow patterns in the SFBAAB. The greatest distortion occur when low level inversions are present and the air beneath the inversion flows independently of air above the inversion, a condition that is common in the summer time (BAAQMD 2010(a)).

The only major break in California's Coast Range occurs in the SFBAAB. Here the Coast Range splits into western and eastern ranges. Between the two ranges lies San Francisco Bay. The gap in the western coast range is known as the Golden Gate, and the gap in the eastern coast range is the Carquinez Strait. These gaps allow air to pass into and out of the SFBAAB and the Central Valley (BAAQMD 2010(a)).

Wind Patterns

During the summer, winds flowing from the northwest are drawn inland through the Golden Gate and over the lower portions of the San Francisco Peninsula. Immediately south of Mount Tamalpais, the northwesterly winds accelerate considerably and come more directly from the west as they stream through the Golden Gate. This channeling of wind through the Golden Gate produces a jet that sweeps eastward and splits off to the northwest toward Richmond and to the southwest toward San Jose when it meets the East Bay hills (BAAQMD 2010(a)).

Wind speeds may be strong locally in areas where air is channeled through a narrow opening, such as the Carquinez Strait, the Golden Gate or the San Bruno gap. For example, the average wind speed at San Francisco International Airport in July is about 17 knots (from 3 p.m. to 4 p.m.), compared with only 7 knots at San Jose and less than 6 knots at the Farallon Islands. The air flowing in from the coast to the Central Valley, called the sea breeze, begins developing at or near ground level along the coast in late morning or early afternoon. As the day progresses, the sea breeze layer deepens and increases in velocity while spreading inland. The depth of the sea breeze depends in large part upon the height and strength of the inversion. If the inversion is low and strong, and hence stable, the flow of the sea breeze will be inhibited and stagnant conditions are likely to result (BAAQMD 2010(a)).

In the winter, the SFBAAB frequently experiences stormy conditions with moderate to strong winds, as well as periods of stagnation with very light winds. Winter stagnation episodes are characterized by nighttime drainage flows in coastal valleys. Drainage is a reversal of the usual daytime air-flow patterns; air moves from the Central Valley toward the coast and back down toward the Bay from the smaller valleys within the SFBAAB (BAAQMD 2010(a)).

Temperature

Summertime temperatures in the SFBAAB are determined in large part by the effect of differential heating between land and water surfaces. Because land tends to heat up and cool off more quickly than water, a large-scale gradient (differential) in temperature is often created between the coast and the Central Valley, and small-scale local gradients are often produced

along the shorelines of the ocean and bays. The temperature gradient near the ocean is also exaggerated, especially in summer, because of the upwelling of cold ocean bottom water along the coast. On summer afternoons the temperatures at the coast can be 35°F cooler than temperatures 15 to 20 miles inland. At night this contrast usually decreases to less than 10° (BAAQMD 2010(a)).

In the winter, the relationship of minimum and maximum temperatures is reversed. During the daytime the temperature contrast between the coast and inland areas is small, whereas at night the variation in temperature is large (BAAQMD 2010(a)).

Precipitation

The SFBAAB is characterized by moderately wet winters and dry summers. Winter rains account for about 75 percent of the average annual rainfall. The amount of annual precipitation can vary greatly from one part of the SFBAAB to another even within short distances. In general, total annual rainfall can reach 40 inches in the mountains, but it is often less than 16 inches in sheltered valleys (BAAQMD 2010(a)).

During rainy periods, ventilation (rapid horizontal movement of air and injection of cleaner air) and vertical mixing are usually high, and thus pollution levels tend to be low. However, frequent dry periods do occur during the winter where mixing and ventilation are low and pollutant levels build up (BAAQMD 2010(a)).

Air Pollution Potential

The potential for high pollutant concentrations developing at a given location depends upon the quantity of pollutants emitted into the atmosphere in the surrounding area or upwind, and the ability of the atmosphere to disperse the contaminated air. The topographic and climatological factors discussed above influence the atmospheric pollution potential of an area. Atmospheric pollution potential, as the term is used here, is independent of the location of emission sources and is instead a function of factors described below.

Wind Circulation

Low wind speed contributes to the buildup of air pollution because it allows more pollutants to be emitted into the air mass per unit of time. Light winds occur most frequently during periods of low sun (fall and winter, and early morning) and at night. These are also periods when air pollutant emissions from some sources are at their peak, namely, commute traffic (early morning) and wood burning appliances (nighttime). The problem can be compounded in valleys, when weak flows carry the pollutants upvalley during the day, and cold air drainage flows move the air mass downvalley at night. Such restricted movement of trapped air provides little opportunity for ventilation and leads to buildup of pollutants to potentially unhealthful levels (BAAQMD 2010(a)).

Solar Radiation

The frequency of hot, sunny days during the summer months in the SFBAAB is another important factor that affects air pollution potential. It is at the higher temperatures that ozone is formed. In the presence of ultraviolet sunlight and warm temperatures, reactive organic gases and oxides of nitrogen react to form secondary photochemical pollutants, including ozone. Because temperatures in many of the SFBAAB inland valleys are so much higher than near the coast, the inland areas are especially prone to photochemical air pollution. In late fall and winter, solar

angles are low, resulting in insufficient ultraviolet light and warming of the atmosphere to drive the photochemical reactions. Ozone concentrations do not reach significant levels in the SFBAAB during these seasons (BAAQMD 2010(a)).

Inversions

An inversion is a layer of warmer air over a layer of cooler air. Inversions affect air quality conditions significantly because they influence the mixing depth, i.e., the vertical depth in the atmosphere available for diluting air contaminants near the ground. The highest air pollutant concentrations in the SFBAAB generally occur during inversions (BAAQMD 2010(a)).

There are two types of inversions that occur regularly in the SFBAAB. One is more common in the summer and fall, while the other is most common during the winter. The frequent occurrence of elevated temperature inversions in summer and fall months acts to cap the mixing depth, limiting the depth of air available for dilution. Elevated inversions are caused by subsiding air from the subtropical high pressure zone, and from the cool marine air layer that is drawn into the SFBAAB by the heated low pressure region in the Central Valley (BAAQMD 2010(a)).

The inversions typical of winter, called radiation inversions, are formed as heat quickly radiates from the earth's surface after sunset, causing the air in contact with it to rapidly cool. Radiation inversions are strongest on clear, low-wind, cold winter nights, allowing the build-up of such pollutants as carbon monoxide and particulate matter. When wind speeds are low, there is little mechanical turbulence to mix the air, resulting in a layer of warm air over a layer of cooler air next to the ground. Mixing depths under these conditions can be as shallow as 50 to 100 meters, particularly in rural areas. Urban areas usually have deeper minimum mixing layers because of heat island effects and increased surface roughness. During radiation inversions downwind transport is slow, the mixing depths are shallow, and turbulence is minimal (BAAQMD 2010(a)).

Although each type of inversion is most common during a specific season, either inversion mechanism can occur at any time of the year. Sometimes both occur simultaneously. Moreover, the characteristics of an inversion often change throughout the course of a day. The terrain of the SFBAAB also induces significant variations among subregions (BAAQMD 2010(a)).

Climatological Subregions

Although air pollution potential is strongly influenced by climate and topography, the air pollution that occurs in a location also depends upon the amount of air pollutant emissions in the surrounding area or transported from more distant places. Air pollutant emissions generally are highest in areas that have high population densities, high motor vehicle use and/or industrialization. These contaminants created by photochemical processes in the atmosphere, such as ozone, may result in high concentrations many miles downwind from the sources of their precursor pollutants (BAAQMD 2010(a)).

Varying climatological and topographic conditions, the location of emission sources, and susceptibility to emissions transport can combine to result in substantial variations in air pollution potential, within inhabited subregions of the SFBAAB (BAAQMD 2010(a)).

Northern Alameda and Western Contra Costa Counties Subregion

Within the SFBAAB there are eleven major climatological subregions (BAAQMD 2010(a)). The City of Pinole is located within the Northern Alameda and Western Contra Costa Counties

Subregion. This climatological subregion stretches from Richmond to San Leandro. Its western boundary is defined by the Bay and its eastern boundary by the Oakland-Berkeley Hills. The Oakland-Berkeley Hills have a ridge line height of approximately 1500 feet, a significant barrier to air flow. The most densely populated area of the subregion lies in a strip of land between the Bay and the lower hills. In this area, marine air traveling through the Golden Gate, as well as across San Francisco and through the San Bruno Gap, is a dominant weather factor. The Oakland-Berkeley Hills cause the westerly flow of air to split off to the north and south of Oakland, which causes diminished wind speeds. The prevailing winds for most of this subregion are from the west. At the northern end, near Richmond, prevailing winds are from the south-southwest (BAAQMD 2010(a)).

Temperatures in this subregion have a narrow range due to the proximity of the moderating marine air. Maximum temperatures during summer average in the mid-70's, with minimums in the mid-50's. Winter highs are in the mid- to high-50's, with lows in the low- to mid-40's. The air pollution potential is lowest for the parts of the subregion that are closest to the bay, due largely to good ventilation and less influx of pollutants from upwind sources. The occurrence of light winds in the evenings and early mornings occasionally causes elevated pollutant levels. This subregion contains a variety of industrial air pollution sources. Some industries are quite close to residential areas. The subregion is also traversed by frequently congested major freeways. Traffic and congestion, and the motor vehicle emissions they generate, are increasing (BAAQMD 2010(a)).

Ambient Air Quality Standards

Both the U.S. Environmental Protection Agency (EPA) and California Air Resources Board (ARB) established ambient air quality standards for common air pollutants. These ambient air quality standards are levels of contaminants that represent safe levels that avoid specific adverse health effects associated with each pollutant. The ambient air quality standards cover what are called "criteria" pollutants because the health and other effects of each pollutant are described in criteria documents. The federal and state ambient standards were developed independently with differing purposes and methods, although both processes attempted to avoid health-related effects. As a result, federal and state standards differ in some cases. In general, California standards are more stringent. This is particularly true for nitrogen dioxide (NO_2) and course particulate matter (PM_{10}). The federal and California state ambient air quality standards and BAAQMD attainment status are summarized in **Table 1**.

TABLE 1
FEDERAL AND STATE AMBIENT AIR QUALITY STANDARDS AND ATTAINMENT STATUS

Pollutant	Averaging Time	State Standard	Attainment Status	Federal Primary Standard	Attainment Status
Ozone (O_3)	1-Hour 8-Hour	0.09 ppm 0.07 ppm	N (Serious) --	-- 0.075 ppm	-- N
Carbon Monoxide (CO)	1-Hour 8-Hour	20 ppm 9.0 ppm	A	35 ppm 9.0 ppm	U/A
Nitrogen Dioxide (NO_2)	Annual Average 1-Hour	0.03 ppm 0.18 ppm	-- A	0.053 ppm --	U/A --
Sulfur Dioxide (SO_2)	Annual Average 24-Hour 3-Hour 1-Hour	-- 0.04 ppm — 0.25 ppm	-- A — A	0.03 ppm 0.14 ppm -- --	A A A --
Respirable Particulate Matter (PM_{10})	Annual Average 24-Hour	20 $\mu g/m^3$ 50 $\mu g/m^3$	N	— 150 $\mu g/m^3$	U
Fine Particulate Matter ($PM_{2.5}$)	Annual Average 24-Hour	12 $\mu g/m^3$ —	N --	15 $\mu g/m^3$ 35 $\mu g/m^3$	N
Lead	30-day Average Calendar Quarter	1.5 $\mu g/m^3$ --	A --	-- 1.5 $\mu g/m^3$	-- --
Sulfates	24-Hour	25 $\mu g/m^3$	A	No National Standards	
Hydrogen Sulfide	1-hour	0.03 ppm	U		
Vinyl Chloride	24-hour	0.01 ppm	--		
Visibility Reducing Particulate Matter	8-hour	Extinction coefficient of 0.23 per kilometer-visibility of 10 miles or more	U		

Notes: ppm = parts per million, $\mu g/m^3$ = micrograms per cubic meter.
Source: BAAQMD 2010(a), 2010(b)

AMBIENT AIR QUALITY

The BAAQMD operates a regional air quality monitoring network that regularly measures the concentrations of the five major criteria air pollutants. Air quality conditions in the SFBAAB have improved significantly since the BAAQMD was created in 1955. Ambient concentrations and the number of days on which the region exceeds standards have declined dramatically. Neither State nor national ambient air quality standards of these chemicals have been violated in recent decades for nitrogen dioxide, sulfur dioxide, sulfates, lead, hydrogen sulfide, and vinyl chloride.

The nearest ambient air quality monitoring station is the San Pablo-Rumrill Boulevard monitoring station, located approximately four miles southwest of the City of Pinole. **Table 2** summarizes historical occurrences of pollutant levels for this monitoring station, based on the last three-years of available data (i.e., 2007-2009). The number of days for which state and federal ambient air quality standards have been exceeded during this same monitoring period is also presented. As depicted, there have been no days during which measured concentrations of ozone, carbon monoxide, or nitrogen dioxide exceeded federal or state ambient air quality standards during the last three years of available data. The state standard for PM_{10} was exceeded on two days in 2007.

TABLE 2
AMBIENT AIR QUALITY MONITORING DATA

Pollutant Standards	2007	2008	2009
Ozone			
Max 1-hour concentration (ppm)	0.074	0.084	0.043
Max 8-hour concentration (ppm) (federal/state)	0.051/0.051	0.063/0.064	0.040/0.040
Number of days above State 1-hr standard	0	0	0
Number of days above State/Federal 8-hour standard	0/0	0/0	0/0
Respirable Particulate Matter (PM_{10})			
Max 24-hour concentration (μg/m3) (federal/state)	54.4/57.4	41.8/44.3	32.0/34.0
Number of days above State/Federal standard	2/0	0/0	0/0
Carbon Monoxide (CO)			
Max 1-hr/8-hr concentration (ppm)	2.4/1.23	2.5/1.30	--/0.78
Number of days above State/Federal 8-hour standards	0	0	0
Number of days above State/Federal 1-hour standard	0	0	0
Nitrogen Dioxide (NO_2)			
Max 1-Hour concentration (ppm)	0.052	0.067	0.041
Annual Concentration (ppm)	0.012	0.012	--
Number of days above State standard	0	0	0

Based on ambient monitoring data obtained from the San Pablo-Rumrill Boulevard monitoring station.
-- Insufficient or no data currently available to determine the value.
Source: ARB 2010(a), EPA 2010

AIR POLLUTANTS OF CONCERN AND HEALTH EFFECTS

The most problematic pollutants in the planning area include ozone and particulate matter. The health effects and major sources of these pollutants are described below. Toxic air contaminants are a separate class of pollutants and are discussed later in this section.

Ozone

Ground-level ozone (O3), commonly referred to as smog, is greatest on warm, windless, sunny days. Ozone is not emitted directly into the environment, but is formed in the atmosphere by complex chemical reactions between ROG and NOX in the presence of sunlight. Ozone formation is greatest on warm, windless, sunny days. The main sources of NOX and ROG, often referred to as ozone precursors, are combustion processes (including motor vehicle engines) the evaporation of solvents, paints, and fuels, and biogenic sources. Automobiles are the single largest source of ozone precursors in the SFBAAB. Tailpipe emissions of ROG are highest during cold starts, hard acceleration, stop-and-go conditions, and slow speeds. They decline as speeds increase up to about 50 mph, then increase again at high speeds and high engine loads. ROG emissions associated with evaporation of unburned fuel depend on vehicle and ambient temperature cycles. Nitrogen oxide emissions exhibit a different curve; emissions decrease as the vehicle approaches 30 mph and then begin to increase with increasing speeds (BAAQMD 2010(a)).

Ozone levels usually build up during the day and peak in the afternoon hours. Short-term exposure can irritate the eyes and cause constriction of the airways. Besides causing shortness of breath, it can aggravate existing respiratory diseases such as asthma, bronchitis and emphysema. Chronic exposure to high ozone levels can permanently damage lung tissue. Ozone can also damage plants and trees, and materials such as rubber and fabrics (BAAQMD 2010(a)).

Particulate Matter

Particulate matter (PM) can be divided into several size fractions. Coarse particles (PM_{10}) are between 2.5 and 10 microns in diameter and arise primarily from natural processes, such as wind-blown dust or soil. Fine particles ($PM_{2.5}$) are less than 2.5 microns in diameter and are produced mostly from combustion or burning activities. Fuel burned in cars and trucks, power plants, factories, fireplaces, and wood stoves produces fine particles.

The level of $PM_{2.5}$ in the air is a public health concern because it can bypass the body's natural filtration system more easily than larger particles and can lodge deep in the lungs. The health effects vary depending on a variety of factors, including the type and size of particles. Research has demonstrated a correlation between high PM concentrations and increased mortality rates. Elevated PM concentrations can also aggravate chronic respiratory illnesses such as bronchitis and asthma (BAAQMD 2010(a)).

Carbon Monoxide

Carbon monoxide (CO) is an odorless, colorless gas that is formed by the incomplete combustion of fuels. At high concentrations, CO reduces the oxygen-carrying capacity of the blood and can cause dizziness, headaches, unconsciousness, and even death. CO can also aggravate cardiovascular disease. Relatively low concentrations of CO can significantly affect the amount of oxygen in the bloodstream because CO binds to hemoglobin more strongly than oxygen.

Elevated CO concentrations are usually localized and are often the result of a combination of high traffic volumes and traffic congestion. Elevated CO levels develop primarily during winter periods of light winds or calm conditions combined with the formation of ground-level temperature inversions. Wintertime CO concentrations are higher because of reduced dispersion of vehicle emissions and because CO emission rates from motor vehicles increase as

temperature decreases. However, CO emissions and ambient concentrations have decreased significantly in recent years. These improvements are due largely to the introduction of cleaner burning motor vehicles and motor vehicle fuels. CO is still a pollutant that must be closely monitored, however, due to its severe effect on human health.

Nitrogen Dioxide

Nitrogen dioxide (NO_2) is a brownish, highly reactive gas that is present in all urban environments. The major human-made sources of NO_2 are combustion devices such as boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines. Construction devices emit primarily nitric oxide (NO), which reacts through oxidation in the atmosphere to form NO_2. The combined emissions of NO and NO_2 are referred to as NO_X. Because NO_2 is formed and depleted by reactions associated with O_3, the NO_2 concentration in a particular geographic area may not be representative of the local NO_X emission sources.

Inhalation is the most common route of exposure to NO_2. Because NO_2 has relatively low solubility in water, the principal site of toxicity is in the lower respiratory tract. The severity of adverse health effects depends primarily on the concentration inhaled rather than the duration of the exposure. Exposure can result in a variety of acute symptoms, including coughing, difficulty with breathing, vomiting, headache, and eye irritation. Symptoms that are more significant may include chemical pneumonitis or pulmonary edema with breathing abnormalities, cyanosis, chest pain and rapid heartbeat.

Sulfur Dioxide

Sulfur dioxide (SO_2) is produced by such stationary sources as coal and oil combustion, steel mills, refineries, pulp and paper mills. The major adverse health effects associated with exposure to SO_2 pertain the upper respiratory tract. SO_2 is a respiratory irritant with constriction of the bronchioles occurring with inhalation of SO_2 at five ppm or more. On contact with the moist mucous membranes, SO_2 produces sulfurous acid, which is a direct irritant. Similar to NO_2, the severity of adverse health effects depends primarily on the concentration inhaled rather than the duration of the exposure. Exposure to high concentrations of SO_2 may result in edema of the lungs or glottis and respiratory paralysis.

Toxic Air Contaminants

In addition to the criteria pollutants discussed above, toxic air contaminants (TACs) are another group of pollutants of concern. TACs are considered either carcinogenic or non-carcinogenic based on the nature of the health effects associated with exposure to the pollutant. For regulatory purposes, carcinogenic TACs are assumed to have no safe threshold below which health impacts would not occur and cancer risk is expressed as excess cancer cases per one million exposed individuals. Non-carcinogenic TACs differ in that there is generally assumed to be a safe level of exposure below which no negative health impact is believed to occur. These levels are determined on a pollutant-by-pollutant basis.

There are many different types of TACs, with varying degrees of toxicity. Sources of TACs include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Public exposure to TACs can result from emissions from normal operations, as well as from accidental releases of hazardous materials during upset conditions. The health effects of TACs include cancer, birth defects, neurological damage, and death. **Table 3** displays potential sources of TAC emissions for various land uses. No major sources of TAC emissions were identified in the City of Pinole or surrounding areas (ARB 2010(b)). However, various smaller permitted sources of TACs

are located within the City, including gasoline dispensing facilities, and dry cleaning establishments.

TABLE 3
TOXIC AIR EMISSION BY LAND USE

Land Use	Toxic Air Emission
Auto Body Shop	Benzene, Toluene, Xylene
Auto Machine Shop	Asbestos
Chemical Manufacturing	Ethylene, Dichloride, Asbestos
Dry Cleaner	Perchloroethylene (Phased out in 2011)
Electrical Manufacturing	Polychlorinated Biphenyls (PCBs), Cadmium, Chromium, Nickel
Funeral Home	Formaldehyde
Gasoline Station	Benzene
Hospital	Dioxin, Cadmium, Ethylene Oxide
Medical Equipment Sterilization	Ethylene Oxide
Printing Services	Ethyl Benzene, Ethylene Glycol, Xylene
Wastewater Treatment	Benzene, Carbon Tetrachloride, Ethylene Dichloride, Chloroform

Source: EDCAPCD 2002

Diesel Exhaust

Diesel exhaust is a TAC of growing concern in California. According to the California Almanac of Emissions and Air Quality (ARB 2009b), the majority of the estimated health risk from TACs can be attributed to relatively few compounds, the most important being PM from diesel fueled engines (DPM). In 1998, ARB identified DPM as a TAC. DPM differs from other TACs in that it is not a single substance but rather a complex mixture of hundreds of substances. The exhaust from diesel engines contains hundreds of different gaseous and particulate components, many of which are toxic. Many of these compounds adhere to the particles, and because diesel particles are so small, they penetrate deep into the lungs. DPM has been identified as a human carcinogen. Mobile sources, such as trucks, buses, automobiles, trains, ships, and farm equipment, are by far the largest source of diesel emissions. Studies show that diesel particulate matter concentrations are much higher near heavily traveled highways and intersections. BAAQMD research indicates that mobile-source emissions of DPM represent a substantial portion of the ambient background risk from TACs in the SFBAAB (BAAQMD 2010(a)).

Unlike criteria pollutants, TACs do not have ambient air quality standards. Since no safe levels of TACs can be determined, there are no air quality standards for TACs. Instead, TAC impacts are evaluated by calculating the health risks associated with a given exposure. Two types of risk are usually assessed: chronic non-cancer risk and acute non-cancer risk. Both the State and BAAQMD implement programs of identifying and reducing DPM health risks. These programs include implementation and enforcement of new regulatory standards for all new on-road, off-road, and stationary diesel-fueled engines and vehicles, new retrofit requirements for existing on-road, off-road, and stationary diesel-fueled engines and vehicles, and new diesel fuel regulations to reduce the sulfur content of diesel fuel as required by advanced diesel emission control systems. Land uses where individuals could be exposed to high levels of diesel exhaust include:

- Railroad operations
- Warehouses
- Schools with a high volume of bus traffic
- High volume highways (Interstate 80 and State Route 65)
- High volume arterials and local roadways with a high level of diesel traffic.

Land Use Compatibility with TAC Emission Sources

The ARB published an informational guide entitled: "Air Quality and Land Use Handbook: A Community Health Perspective" (Handbook) in 2005. The purpose of this guide is to provide information to aid local jurisdictions in addressing issues and concerns related to the placement of sensitive land uses near major sources of air pollution. The ARB's Handbook includes recommended separation distances for various land uses that are based on relatively conservative estimations of emissions based on source-specific information. However, these recommendations are not site specific and should not be interpreted as defined "buffer zones". It is also important to note that the recommendations of the Handbook are advisory and need to be balanced with other State and local policies (ARB 2005). Depending on site and project-specific conditions, an assessment of potential increases in exposure to TACs may be warranted for proposed development projects located within the distances identified. ARB-recommended separation distances for various sources of emissions are summarized in **Table 4**.

Wood Smoke

Wood smoke has long been identified as a significant source of pollutants in urban and suburban areas. Wood smoke contributes to particulate matter and CO concentrations, reduces visibility, and contains numerous TACs. Present controls on this source include the adoption of emission standards for wood stoves and fireplace inserts. In 2008, the BAAQMD adopted Regulation 6, Rule 3 (Wood-Burning Devices) to reduce harmful emissions associated with wood smoke (BAAQMD 2010(a)).

TABLE 4
RECOMMENDATIONS ON SITING NEW SENSITIVE LAND USES NEAR AIR POLLUTANT SOURCES

Source Category	Advisory Recommendations
Freeways and High-Traffic Roads	Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles per day, or rural roads with 50,000 vehicles per day.
Distribution Centers	Avoid siting new sensitive land uses within 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units (TRUs) per day, or where TRU unit operations exceed 300 hours per week).
	Take into account the configuration of existing distribution centers and avoid locating residences and other new sensitive land uses near entry and exit points.
Rail Yards	Avoid siting new sensitive land uses within 1,000 feet of a major service and maintenance rail yard.
	Within one mile of a rail yard, consider possible siting limitations and mitigation approaches.
Ports	Avoid siting of new sensitive land uses immediately downwind of ports in the most heavily impacted zones. Consult local air districts or ARB on the status of pending analyses of health

Source Category	Advisory Recommendations
	risks.
Refineries	Avoid siting new sensitive land uses immediately downwind of petroleum refineries. Consult with local air districts and other local agencies to determine an appropriate separation.
Chrome Platers	Avoid siting new sensitive land uses within 1,000 feet of a chrome plater.
Dry Cleaners Using Perchloroethylene	Avoid siting new sensitive land uses within 300 feet of any dry cleaning operation. For operations with two or more machines, provide 500 feet. For operations with 3 or more machines, consult with the local air district.
	Do not site new sensitive land uses in the same building with perchloroethylene dry cleaning operations.
Gasoline Dispensing Facilities	Avoid siting new sensitive land uses within 300 feet of a large gas station (defined as a facility with a throughput of 3.6 million gallons per year or greater). A 50 foot separation is recommended for typical gas dispensing facilities.

Note: Recommendations are advisory, are not site-specific, and may not fully account for future reductions in emissions, including those resulting from compliance with existing/future regulatory requirements, such as reductions in diesel-exhaust emissions anticipated to occur with continued implementation of ARB's Diesel Risk Reduction Plan.

Source: ARB 2005

Asbestos

Asbestos is the common name for a group of naturally-occurring fibrous silicate minerals that can separate into thin but strong and durable fibers. Naturally-occurring asbestos (NOA), which was identified as a TAC in 1986 by ARB, is located in many parts of California and is commonly associated with ultramafic rock. The City of Pinole is not located near any areas that are likely to contain ultramafic rock.

Odors

Typically odors are regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

With respect to odors, the human nose is the sole sensing device. The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; in fact, an odor that is offensive to one person (e.g., from a fast-food restaurant) may be perfectly acceptable to another. It is also important to note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word "strong" to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air. When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite

difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

Sensitive Receptors and Pollution Sources

Sensitive receptors are facilities where sensitive receptor population groups (children, the elderly, the acutely ill, and the chronically ill) are likely to be located. These land uses include schools, retirement homes, convalescent homes, hospitals, and medical clinics.

Regulatory Framework

Air quality in the SFBAAB is addressed through the efforts of various federal, state, regional, and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, regulations, planning, policy making, education, and a variety of programs. The agencies primarily responsible for improving the air quality in the SFBAAB, including the City of Pinole, are discussed below along with their individual responsibilities.

Federal

U.S. Environmental Protection Agency

EPA is responsible for enforcing the Federal Clean Air Act and the 1990 amendments to it (CAAA), and the national ambient air quality standards (federal standards) that EPA establishes. These standards identify levels of air quality for six criteria pollutants, which are considered the maximum levels of ambient (background) air pollutants considered safe, with an adequate margin of safety, to protect public health and welfare. The six criteria pollutants include O_3, CO, NO_2, SO_2, PM_{10}, and lead. EPA also has regulatory and enforcement jurisdiction over emission sources beyond state waters (outer continental shelf), and sources that are under the exclusive authority of the federal government, such as aircraft, locomotives, and interstate trucking.

As part of its enforcement responsibilities, EPA requires each state with nonattainment areas to prepare and submit a State Implementation Plan (SIP) that demonstrates the means to attain the federal standards. The SIP must integrate federal, state, and local plan components and regulations to identify specific measures to reduce pollution in nonattainment areas, using a combination of performance standards and market-based programs.

Hazardous Air Pollutant Program

Title III of the FCAAA requires the EPA to promulgate national emissions standards for hazardous air pollutants (NESHAPs). The NESHAP may differ for major sources than for area sources of HAPs. (Major sources are defined as stationary sources with potential to emit more than 10 tons per year [TPY] of any HAP or more than 25 TPY of any combination of HAPs; all other sources are considered area sources.) The emissions standards are to be promulgated in two phases. In the first phase (1992–2000), the EPA developed technology-based emission standards designed to produce the maximum emission reduction achievable. These standards are generally referred to as requiring MACT. These federal rules are also commonly referred to as MACT standards, because they reflect the Maximum Achievable Control Technology. For area sources, the standards may be different, based on generally available control technology. In the second phase (2001–2008), the EPA is required to promulgate health risk–based emissions standards, where deemed necessary, to address risks remaining after implementation of the technology-

based NESHAP standards. The FCAAA required the EPA to promulgate vehicle or fuel standards containing reasonable requirements that control toxic emissions, at a minimum to benzene and formaldehyde. Performance criteria were established to limit mobile-source emissions of toxics, including benzene, formaldehyde, and 1,3-butadiene. In addition, §219 required the use of reformulated gasoline in selected U.S. cities (those with the most severe ozone nonattainment conditions) to further reduce mobile-source emissions (BAAQMD 2010(a)).

STATE

California Air Resources Board

ARB, a department of the California Environmental Protection Agency, oversees air quality planning and control throughout California. It is primarily responsible for ensuring implementation of the 1989 amendments to the California Clean Air Act (CCAA), responding to the federal CAAA requirements, and for regulating emissions from motor vehicles and consumer products within the state. ARB has established emission standards for vehicles sold in California and for various types of equipment available commercially. It also sets fuel specifications to further reduce vehicular emissions.

The amendments to the CCAA establish ambient air quality standards for the state (state standards) and a legal mandate to achieve these standards by the earliest practical date. These standards apply to the same six criteria pollutants as the federal CAA, and also include sulfate, visibility, hydrogen sulfide, and vinyl chloride. They are more stringent than the federal standards and, in the case of PM_{10} and NO_2, far more stringent.

Toxic Air Contaminant Programs

California regulates TACs primarily through the Tanner Air Toxics Act (AB 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588). The Tanner Act sets forth a formal procedure for ARB to designate substances as TACs. This includes research, public participation, and scientific peer review before ARB can designate a substance as a TAC. To date, ARB has identified over 21 TACs, and adopted the EPA's list of HAPs as TACs. Most recently, diesel exhaust particulate was added to the ARB list of TACs. Once a TAC is identified, ARB's then adopts an Airborne Toxics Control Measure for sources that emit that particular TAC. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If there is no safe threshold, the measure must incorporate TBACT to minimize emissions. None of the TACs identified by ARB have a safe threshold.

The Hot Spots Act requires that existing facilities that emit toxic substances above specified level:

- Prepare a toxic emission inventory;
- Prepare a risk assessment if emissions are significant;
- Notify the public of significant risk levels;
- Prepare and implement risk reduction measure.

ARB has adopted diesel exhaust control measures and more stringent emission standards for various on-road mobile sources of emissions, including transit buses, and off-road diesel equipment (e.g., tractors, generators). In February 2000, ARB adopted a new public transit bus fleet rule and emission standards for new urban buses. These new rules and standards provide for 1) more stringent emission standards for some new urban bus engines beginning with 2002 model year engines, 2) zero-emission bus demonstration and purchase requirements applicable to transit agencies, and 3) reporting requirements with which transit agencies must demonstrate compliance with the urban transit bus fleet rule. Upcoming milestones include the low sulfur diesel fuel requirement, and tighter emission standards for heavy-duty diesel trucks (2007) and

off-road diesel equipment (2011) nationwide. Over time, the replacement of older vehicles will result in a vehicle fleet that produces substantially less TACs than under current conditions.

Mobile-source emissions of TACs (e.g., benzene, 1-3-butadiene, diesel PM) have been reduced significantly over the last decade, and will be reduced further in California through a progression of regulatory measures [e.g., Low Emission Vehicle/Clean Fuels and Phase II reformulated gasoline regulations) and control technologies. With implementation of ARB's Risk Reduction Plan, it is expected that diesel PM concentrations will be reduced by 75% in 2010 and 85% in 2020 from the estimated year 2000 level. Adopted regulations are also expected to continue to reduce formaldehyde emissions from cars and light-duty trucks. As emissions are reduced, it is expected that risks associated with exposure to the emissions will also be reduced (BAAQMD 2010(a)).

Senate Bill 656

In 2003, the California Legislature enacted Senate Bill 656 to reduce public exposure to PM_{10} and $PM_{2.5}$. ARB approved a list of the most readily available, feasible, and cost-effective control measures that can be employed by air districts to reduce PM_{10} and $PM_{2.5}$ (collectively referred to as PM) in 2004. The list is based on rules, regulations, and programs existing in California as of January 1, 2004, for stationary, area-wide, and mobile sources. In 2005, air districts adopted implementation schedules for selected measures from the list. The implementation schedules identify the appropriate subset of measures, and the dates for final adoption, implementation, and the sequencing of selected control measures. In developing the implementation schedules, each air district prioritized measures based on the nature and severity of the PM problem in their area and cost-effectiveness. Consideration was also given to ongoing programs such as measures being adopted to meet national air quality standards or the state ozone planning process.

LOCAL

Bay Area Air Quality Management District

The BAAQMD attains and maintains air quality conditions in the SFBAAB through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. The clean air strategy of the BAAQMD includes the preparation of plans for the attainment of ambient air quality standards, adoption and enforcement of rules and regulations concerning sources of air pollution, and issuance of permits for stationary sources of air pollution. The BAAQMD also inspects stationary sources of air pollution and responds to citizen complaints, monitors ambient air quality and meteorological conditions, and implements programs and regulations required by the FCAA, FCAAA, and the CCAA. The BAAQMD also limits emissions and public exposure to emissions, including TACs, through a number of programs. The BAAQMD prioritizes TAC-emitting stationary sources based on the quantity and toxicity of the TAC emissions and the proximity of the facilities to sensitive receptors. In addition, the BAAQMD has adopted Regulation 11 Rules 2 and 14, which address asbestos demolition renovation, manufacturing, and standards for asbestos containing serpentine (BAAQMD 2010(a)).

BAAQMD CEQA Guidelines

In 2009, the BAAQMD released the update to its CEQA Guidelines. This is an advisory document that provides the Lead Agency, consultants, and project applicants with uniform procedures for addressing air quality in environmental documents. The handbook contains the following applicable components (BAAQMD 2010(a)):

- Criteria and thresholds for determining whether a project may have a significant adverse air quality impact;
- Specific procedures and modeling protocols for quantifying and analyzing air quality impacts;
- Methods available to mitigate air quality impacts;
- Information for use in air quality assessments and environmental documents that will be updated more frequently such as air quality data, regulatory setting, climate, topography.

2010 Clean Air Plan

As stated above, the BAAQMD prepares plans to attain ambient air quality standards in the SFBAAB. The BAAQMD prepares ozone attainment plans (OAP) for the national ozone standard and clean air plans (CAP) for the California standard both in coordination with the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG). With respect to applicable air quality plans, the BAAQMD prepared the *2010 Clean Air Plan* to address nonattainment of the national 1-hour ozone standard in the SFBAAB; as well as, nonattainment of the CAAQS. The purpose of the 2010 Clean Air Plan is to (BAAQMD 2010(a)):

- Update the Bay Area 2005 Ozone Strategy in accordance with the requirements of the California Clean Air Act to implement "all feasible measures" to reduce ozone;
- Consider the impacts of ozone control measures on particulate matter (PM), air toxics, and greenhouse gases in a single, integrated plan;
- Review progress in improving air quality in recent years;
- Establish emission control measures to be adopted or implemented in the 2009-2012 timeframe.

IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

Per Appendix G of the California Environmental Quality Act (CEQA) Guidelines and BCAQMD recommendations, air quality impacts are considered significant if implementation of the proposed project would:

1) Conflicts with or obstruct implementation of the applicable air quality plan.
2) Violates any air quality standard or contributes substantially to an existing or projected air quality violation.
3) Results in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).
4) Exposes sensitive receptors to substantial pollutant concentrations.
5) Creates objectionable odors affecting a substantial number of people.

As stated in Appendix G, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the above determinations. To assist local jurisdictions in the evaluation of air quality impacts, the BAAQMD

has development *CEQA Guidelines*, which was most recently updated in May 2010. The *CEQA Guidelines* include recommended significance thresholds to be applied for project-level and plan-level environmental documentation. In accordance with the BAAQMD's *CEQA Guidelines* (2010), the following plan-level significance thresholds were relied upon for determination of impact significance associated with the proposed general plan update (BAAQMD 2010(a)):

- **Criteria Air Pollutants and Precursors**

  To meet the Threshold of Significance for operational-related criteria air pollutant and precursor impacts, a proposed plan must satisfy the following criteria:
  1. Consistency with current air quality plan (AQP) control measures.
  2. A proposed plan's projected VMT or vehicle trips (VT) increase is less than or equal to its projected population increase.

- **Local Community Risk and Hazards**

  The BAAQMD-recommended thresholds of significance for plans with regard to community risk and hazard impacts are:
  1. The land use diagram must identify: a) Special overlay zones around existing and planned sources of TACs; and b) Special overlay zones of at least 500 feet (or Air District-approved modeled distance) on each side of all freeways and high-volume roadways; and
  2. The plan must also identify goals, policies, and objectives to minimize potential impacts and create overlay zones for sources of TACs and receptors.

- **Odors**

  For plans to have a less-than-significant impact, a plan must identify the location of existing and planned odor sources in the plan area. The plan must also include policies to reduce potential odor impacts in the plan area.

METHODOLOGY

Air quality impacts were assessed in accordance with methodologies recommended by the BAAQMD and in comparison to the recommended BAAQMD significance thresholds. Estimates of projected population and vehicle miles traveled for future conditions were obtained from the California Department of Finance and the Association of Bay Area Governments, respectively. For comparison purposes, long-term increase in emissions were quantified for both baseline future cumulative (year 2030) and future cumulative plus project conditions using the URBEMIS 2007 (v9.2.4) computer program. This program estimates pollutants from area and mobile emission sources associated with development projects, based on the specific types of land uses proposed for development. Use of this model for the General Plan Update, where specific land uses have not yet been identified, may not fully account for site-specific conditions, but has been used to provide a reasonable estimation of emissions based on typical land use development conditions under the proposed General Plan Update.

IMPACTS AND MITIGATION MEASURES

Conflict with the BAAQMD 2010 Clean Air Plan

Impact 1 Subsequent land use activities associated with implementation of the proposed General Plan Update would result in increased population and VMT that would conflict with the BAAQMD's Clean Air Plan. The proposed General

Plan Update includes several policy provisions that would assist in air quality attainment efforts, however, this impact is considered to be **significant and unavoidable**.

In accordance with BAAQMD recommended guidance, determination of consistency is based on an evaluation of projected increases in population and VMT attributable to the proposed plan, as well as, consistency with the control measures identified in the CAP. The proposed GPU's consistency with projected future population and VMT projections and CAP control measures are discussed in more detail, as follows:

Consistency with Ozone Strategy Population Projections

According to the California Department of Finance, the City of Pinole's existing (year 2009) population is 19,383 individuals. Because the City is largely built out, minimal growth is projected for future years. However, the proposed General Plan Update policy document and land use map would accommodate some modification of uses and infill development that could increase population, housing, and employment in the City in order to provide adequate housing opportunities for all segments of the community and to increase the jobs-to-housing ratio. Primarily the General Plan Update includes opportunities for some new development and redevelopment on Pinole's primary commercial corridors via the Three Corridor Specific Plan. Accordingly, population projections for the General Plan Update focus on the land use changes that increase development potential within the Specific Plan areas. Under existing baseline conditions, the City's projected population for year 2030 conditions is estimated at 21,800 individuals, an increase of approximately 2,417 individuals, or an overall increase of approximately 12.5 percent in comparison to existing conditions. With implementation of the proposed General Plan Update, the City's projected year 2030 population would increase to approximately 22,353 individuals, which would equate to an overall increase of approximately 2,970 individuals, or an increase of approximately 15 percent in comparison to existing conditions. Given that buildout of the proposed General Plan update would result in projected population increases that would exceed ABAG projections, the rate of population growth would not be consistent with projections used for air quality attainment plans. For this reason, increased emissions attributable to future growth could potentially exceed those identified in the air quality plan.

Rate of VMT Growth in Excess of Population Growth

Based on information obtained from the traffic analysis prepared for this project, existing annual vehicle miles traveled (VMT) was estimated at approximately 620,000 miles. Under existing baseline conditions, projected future (year 2030) annual VMT would increase to approximately 750,000 miles. With implementation of the proposed General Plan Update, projected future (year 2030) annual VMT would increase to approximately 830,000 miles. In comparison to baseline future conditions, implementation of the proposed General Plan Update would result in an overall increase in annual VMT of approximately 80,000 miles, or an increase of approximately 34 percent, in comparison to existing conditions. Under future cumulative (year 2030) conditions, implementation of the proposed General Plan Update would result in a slight increase in daily vehicle trips, due to projected increases in development, as well as a slight increase in average trip distances (i.e., approximately 0.02 miles per trip). The projected growth rate in VMT attributable to the proposed General Plan Update (i.e., 34 percent) would be higher than the projected population growth identified for this same period (i.e., 15 percent).

Consistency with BAAQMD 2010 Clean Air Plan

The *2010 Clean Air Plan (CAP)* includes numerous control measures related to reducing emissions from stationary and mobile sources of emissions. **Table 5** provides a summary of proposed General Plan Update (GPU) policies that are supportive of control measures most applicable to local jurisdictions and development projects. A summary description of each CAP control measure is included along with a listing of the most relevant GPU policies that support this CAP control measures. It is important to note that **Table 5** only provides a summary of the most relevant proposed GPU policies that relate to the CAP control measures. The proposed GPU contains numerous additional proposed policies, including those related to transportation, land use, energy conservation, and resource conservation that would also help to support these control measures and help to reduce emissions.

TABLE 5
CONSISTENCY WITH BAAQMD'S 2010 CLEAN AIR PLAN

2010 Clean Air Plan Control Strategies	General Plan Policies that Provide Consistency
MSM A-1 - Promote Clean, Fuel-Efficient Light and Medium-Duty Vehicles. **Brief Summary:** The Air District, in cooperation with local businesses, city and county governments, and state and federal agencies, will expand the use of Super Ultra-low Emission (SULEV) and Partial-Zero (ZEV) emission light-duty passenger vehicles and trucks within the Bay Area.	The City of Pinole supports these efforts by implementation of various policies, including, but not limited to, Policy SE.7.5, Policy SE.7.6, and Policy SE.8.10.
MSM A-2 - Zero Emission Vehicles (ZEV) and Plug-in Hybrids **Brief Summary:** The Air District, in cooperation with local businesses, city and county governments, and state and federal agencies, will expand the use of Zero Emission (ZEV) and Plug-in Hybrid (PHEV) passenger vehicles and light-duty trucks within the Bay Area.	
TCM C-1 - Voluntary Employer-Based Trip Reduction Programs **Brief Summary:** This measure will support voluntary efforts by Bay Area employers to encourage their employees to use alternative commute modes, such as transit, ridesharing, bicycling, walking, telecommuting, etc.	The City of Pinole supports these efforts by implementation of various policies, including, but not limited to, Policy SE.7.7, Policy SE.7.8, Policy SE.7.9, Policy SE.7. Policy SE.8.1, Policy CE.6.2, Policy CE.6.3, and Policy CE.8.2.
TCM C-2 - Safe Routes to Schools and Safe Routes to Transit Programs **Brief Summary:** This measure will facilitate safe routes to schools and transit by providing funds and working with transportation agencies, local governments, schools, and communities to implement safe access for pedestrians and cyclists. Likely projects will include implementation of bicycle facilities, such as lanes, routes, paths, and parking, and improvements to pedestrian facilities, such as sidewalks/paths, benches, reduced street width, reduced intersection turning radii, crosswalks with activated signals, curb extensions/bulbs, buffers between sidewalks and traffic lanes and streets trees.	The City of Pinole supports these efforts by implementation of various policies, including, but not limited to, Policy SE.8.7, Policy CE.1.2, Policy CE.5.3, Policy CE.7.1, Policy CE.7.3, Policy CE.7.4, Policy CE.8.1, and Policy CE.8.3,

TABLE 5
CONSISTENCY WITH BAAQMD'S 2010 CLEAN AIR PLAN

2010 Clean Air Plan Control Strategies	General Plan Policies that Provide Consistency
TCM C-3 - Ridesharing Services and Incentives **Brief Summary:** This measure will promote ridesharing services and incentives through the implementation of the 511 Regional Rideshare Program, as well as local rideshare programs implemented by Congestion Management Agencies. These activities will include marketing rideshare services, operating the rideshare information call center and website, and providing vanpool support services. In addition, this measure includes provisions for encouraging car- sharing programs where appropriate.	The City of Pinole supports these efforts by implementation of various policies, including, but not limited to, Policy CE.5.1, Policy CE.6.1, Policy CE.6.2. and Policy CE.5.3
TCM D-1 - Bicycle Access and Facilities Improvements **Brief Summary:** TCM D-1 will expand bicycle facilities serving employment sites, educational and cultural facilities, residential areas, shopping districts, and other activity centers. Typical improvements include bike lanes, routes, paths, and bicycle parking facilities. This TCM also includes improving bicycle access to transit and supporting the annual Bike to Work event.	The City of Pinole supports these efforts by implementation of various policies, including, but not limited to, Policy CE.1.2, Policy CE.7.1, and Policy CE.7.2.
TCM D-2 - Pedestrian Access and Facilities Improvements **Brief Summary:** TCM D-2 will improve pedestrian facilities and encourage walking by funding projects that improve pedestrian access to transit, employment and major activity centers. Improvements may include sidewalks/paths, benches, reduced street width, reduced intersection turning radii, crosswalks with activated signals, curb extensions/bulbs, buffers between sidewalks and traffic lanes, and street trees.	The City of Pinole supports these efforts by implementation of various policies, including, but not limited to, Policy CE.1.2, Policy CE.1.3 and Policy CE.1.5.
TCM D-3 - Local Land Use Strategies **Brief Summary:** TCM D-3 will support and promote land use patterns, policies, and infrastructure investments that support higher density mixed-use, residential and employment development near transit in order to facilitate walking, bicycling and transit use.	The City of Pinole supports these efforts by implementation of various policies, including, but not limited to, Policy CE.1.1, Policy CE.1.3, Policy CE.1.4, Policy CE.1.6, Policy CE.6.2, Policy CE.7.1, Policy CE.7.3, Policy CE.8.1, Policy CE.8.3, Policy CE.8.4, Policy SE.8.2, Policy SE.8.3, Policy SE.8.4, and Policy SE.7.1.
TCM E-2 - Promote Parking Policies to Reduce Motor Vehicle Travel **Brief Summary:** Parking policies and practices have a profound impact on vehicle travel and mode choice, as well as land use patterns and the quality of the built environment. Parking policies are also an important tool in implementing focused growth strategies. This control measure outlines how the Air District, in cooperation with its regional agency partners, will 1) take actions at the regional level to implement parking policies that will benefit air quality, and 2) encourage and support local agency parking policies to reduce motor vehicle travel and promote focused growth.	The City of Pinole supports these efforts by implementation of various policies, including, but not limited to, Policy SE.8.6, Policy SE.8.7, Policy CE.5.4, Policy CE.6.1. and Policy CE.5.3
ECM 1 - Energy Efficiency **Brief Summary:** This control measure consists of three components: 1) provide education and outreach to	The City of Pinole supports these efforts by implementation of various policies, including, but not limited to, Policy SE.1.2, Policy SE.1.3, Policy SE.1.2, Policy SE.1.4, Policy

TABLE 5
CONSISTENCY WITH BAAQMD'S 2010 CLEAN AIR PLAN

2010 Clean Air Plan Control Strategies	General Plan Policies that Provide Consistency
increase energy efficiency in residential and commercial buildings and industrial facilities, 2) provide technical assistance to local governments to adopt and enforce energy efficiency building codes, and 3) provide incentives for increasing energy efficiency at schools.	SE.2.1, Policy SE.2.2, Policy SE.34.1, Policy SE.4.2, Policy SE.4.3, Policy SE.4.4, Policy SE.4.5, Policy SE.4.6, Policy SE.4.7, Policy SE.6.1, Policy SE.6.2, Policy SE.6.7 and Policy LU.4.2.
ECM 2 - Renewable Energy **Brief Summary:** This control measure consists of two components: 1) promote incorporation of renewable energy sources into new developments and redevelopment projects, and 2) foster innovative renewable energy projects through provision of incentives. Note: In addition, as part of the Further Study Measure entitled "Enhancement to Energy Measures," the District will evaluate the cost-effectiveness of solar thermal technology for consideration as a potential solar hot water heating rule.	The City of Pinole supports these efforts by implementation of various policies, including, but not limited to, Policy SE.6.6, Policy SE.34.1, Policy SE.4.2, Policy SE.4.3, Policy SE.4.4, Policy SE.4.5, Policy SE.4.6, and Policy SE.4.7.
ECM 3 - Urban Heat Island Mitigation **Brief Summary:** The control measure includes regulatory and educational approaches to reduce the "urban heat island" (UHI) phenomenon by increasing the application of "cool roofing" and "cool paving" technologies.	The City of Pinole supports these efforts by implementation of various policies, including, but not limited to, Policy SE.7.1, Policy SE.7.2 and Policy SE.7.3.
ECM 4 - Shade Tree Planting **Brief Summary:** The control measure includes voluntary approaches to reduce the "urban heat island" phenomenon by increasing shading in urban and suburban communities through planting of (low VOC-emitting) trees and preservation of natural vegetation and ground cover.	The City of Pinole supports these efforts by implementation of various policies, including, but not limited to, Policy SE.4.5, and Policy SE.3.3.
FSM 13 - Energy Efficiency and Renewable Energy **Brief Summary:** Many agencies are already involved in issuing building standards and promoting energy efficiency and renewable energy. It is important to determine the proper role and added value that the District could bring to energy use in the buildings sector in light of constraints related to legal authority, potential enforcement mechanisms, in-house experience and expertise, available resources, and existing regulatory structures.	The City of Pinole supports these efforts by implementation of various policies, including, but not limited to, Policy SE.1.2, Policy SE.1.3, Policy SE.1.4, Policy SE.34.1, and Policy SE.4.2.

The proposed GPU would be consistent with the control measures identified in the 2010 CAP. However, as noted earlier in this impact discussion, the proposed GPU would result in increased population and VMT that would exceed AMBAG projections, at buildout. For this reason, the proposed GPU would be inconsistent with the BAAQMD's *Clean Air Plan*. This impact would be considered **significant**.

Proposed General Plan Update Policies and Actions that Provide Mitigation

The proposed General Plan Update contains numerous policies and actions that include specific, enforceable requirements and/or restrictions and corresponding performance standards that address this impact. A majority of the policies related to air quality are contained

in the Sustainability Element and the Transportation and Circulation Element. Additional air quality-related policies are also included in various other proposed General Plan Elements. The following policies and actions are most applicable to this impact:

Sustainability Element

POLICY SE.1.2 Conduct public outreach to Pinole businesses to inform them about rebates and other financial incentives for using ENERGY STAR® or equivalent energy-efficient appliances, lighting, and heating equipment.

POLICY SE.1.3 Enhance the energy efficiency of all City facilities.

Action SE.1.3.1 Conduct energy audits for all public facilities, as feasible.

Action SE.1.3.2 Retrofit facilities for energy efficiency where feasible. Include items such as increased insulation, green or reflective roofs, and low-emissive window glass.

Action SE.1.3.3 Implement an energy tracking and management system for City departments and public facilities.

Action SE.1.3.4 Work with Public Works to install energy-efficient lighting retrofits and occupancy sensors on public facilities.

POLICY SE.1.4 Require all newly constructed, purchased, or leased municipal buildings or facilities meet minimum standards for green building as appropriate.

Action SE.1.4.1 Consider setting standards for green building for public facilities that include a minimum LEED certification and integrate solar design, heat-minimizing features such as cool paving, landscaping, pervious surfaces, and other appropriate techniques.

POLICY SE.2.1 Support the efforts of community groups, including the Pinole Valley High School Environmental Academy, to educate the public about sustainability and climate change.

Action SE.2.1.1 Assist in the creation of effective educational materials and outreach efforts relating to climate change.

Action SE.2.1.2 Support the Development and implementation of a program to present educational information to schoolchildren about climate change and behaviors that reduce GHG emissions and mitigate the effects of climate change.

Action SE.2.1.3 Acknowledge outstanding local efforts (private and public) that support the City's sustainability goals, including the reduction of GHG emissions.

Action SE.2.1.4 Consider establishing and/or sponsor competitions, or contests that promote climate protection, reducing GHG emissions, or fund-raising to support community climate protection programs.

Action SE.2.1.5 Support student participation in local efforts to combat or raise awareness about climate change and GHG emissions.

POLICY SE.2.2 Pinole should continue to encourage a vital economy that supports green businesses and green industry.

Action SE. 2.2.1 Through the Redevelopment Agency and education programs, create a "Green Jobs Incubator" to help create more green jobs and offer green job training opportunities.

Action SE.2.2.2 Join the Bay Area Green Business Program, a partnership of environmental agencies, professional associations, waste management agencies, utilities and a concerned public.

Action SE.2.2.3 Support and encourage conveniently located child care services with flexible hours.

POLICY SE.3.3 Pinole will mitigate climate change by decreasing heat gain from pavement and other hard surfaces associated with infrastructure (i.e. heat island effect).

Action SE.3.3.1 Reduce heating and cooling loads by promoting light-colored roofs and paving materials, planting trees, and increasing vegetative cover.

Action SE.3.3.2 Where possible, use parkway strips to allow shading of streets by trees.

Action SE.3.3.3 Require the use of shade trees on south- and west-facing sides of structures, where possible.

Action SE.3.3.4 Include low-water landscaping in place of hardscaping around transportation infrastructure and in parking areas.

Action SE.3.3.5 Where feasible, require the use of pervious pavement options.

Action SE.3.3.6 Where feasible, require the use of edible landscaping and low-water landscaping.

POLICY SE.4.2 Explore opportunities for City-wide expansion of Programs and Facilities related to energy efficiency and conservation.

Action SE.4.2.1 Continue to identify and remove regulatory or procedural barriers to producing renewable energy in building and development codes, design guidelines, and zoning ordinances. Work with related agencies in areas such as fire, water, and health that may impact the use of alternative technologies. Actively participate in the development protocols for alternative energy storage such as biodiesel, hydrogen, and/or compressed air.

Action SE.4.2.2 Provide energy conservation information to the public.

Action SE.4.2.3 Provide information to planning and building staff and citizen review bodies regarding energy conservation and efficiency issues, including Pinole's energy conservation policies, and work with applicants to achieve energy conservation goals.

Action SE.4.2.4 Provide technical assistance to builders and developers to encourage sustainable and energy efficient building design.

POLICY SE.4.3 Pinole will promote and require renewable energy generation and co-generation where feasible and appropriate.

Action SE. 4.3.1 Require that new office/retail/commercial or industrial development, or major rehabilitation (e.g. additions of 25,000 square feet commercial, or 100,000 square feet industrial) incorporate renewable energy generation either on- or off-site to provide 15% or more of the project's energy needs.

POLICY SE.4.4 Identify opportunities for creating energy conservation and efficiency programs for application in Pinole facilities, residences, schools and local businesses.

Action SE.4.4.1 Utilize energy-efficient products for City equipment purchases where feasible.

Action SE.4.4.2 Continue to conduct energy audits of Pinole facilities and implement energy efficiency and retrofitting recommendations from those audits. Seek funding from available state sources and grant opportunities, as well as the CIP.

Action SE.4.4.3 Where feasible and appropriate, transition to LED/energy efficient lights in all City facilities and equipment.

Action SE.4.4.4 Set a target to meet a majority of the City's energy needs via renewable energy.

Action SE.4.4.5 Explore funding sources and mechanisms for energy efficiency improvements for residences. (ex: AB 811, which provides cities ways to fund energy efficiency improvements via assessments).

POLICY SE.4.5 Pinole will continue to promote and support and require, where appropriate, the development of solar energy.

Action SE.4.5.1 Require that, where feasible, all new buildings be constructed for easy, cost-effective installation of solar energy systems. This should include requiring such features as optimal roof orientation, clear access without obstructions, and appropriate roof framing and wiring.

Action SE.4.5.3 Require that any building constructed in whole or in part with City funds incorporate passive solar design features such as daylighting and passive solar heating, where feasible.

Action SE.4.5.4 Pinole will protect active and passive solar design elements and systems from shading by neighboring structures and trees, as consistent with existing tree shading requirements.

POLICY SE.4.6 Pursue and provide economic incentives and creative financing for renewable energy projects, as well as other support for community members or developers seeking funding for such projects.

Action SE.4.6.1 Provide, where possible, grants, rebates, and incentives for renewable energy projects, including reduced fees and expedited permit processing.

Action SE.4.6.2 Pinole will provide, where feasible, creative financing for renewable energy projects, including subsidized or other low-interest loans, and the option to pay for system installation through long-term assessments on individual property tax bills.

Action SE.4.6.3 Pinole will pursue partnerships with other governmental entities and with private companies and utilities to establish incentive programs for renewable energy.

POLICY SE.4.7 Pinole will implement measures to support the purchase and use of renewable and alternative energy.

Action SE.4.7.1 Evaluate the feasibility and effectiveness of using Community Choice Aggregation as a model for providing renewable energy to meet Pinole's electricity needs, including potential partnerships with other jurisdictions.

POLICY SE.6.1 Develop local green building and energy efficiency standards.

Action SE.6.1.1 Develop a Green Building Ordinance to require green building standards be utilized such as the use of renewable energy, efforts to improve air and water quality, and to conserve natural resources. Other areas to address in the Ordinance include building orientation and shading, landscaping, solar orientation, and sustainable building materials.

Action SE.6.1.2 Investigate sliding-scale building permit fees with rebates and/or expedited permit review for high-performance green buildings and higher fees for conventional buildings. .

POLICY SE.6.2 Explore the establishment of an energy plans examiner and a required field inspection of energy systems to ensure maximization of energy efficiency.

Action SE.6.2.1 Reduce energy consumption in buildings by balancing energy-efficient design with land use compatibility during the design review process.

POLICY SE.6.6 Collaborate with other local jurisdictions to share resources, and develop sustainable and resource efficient building policies and programs that are optimized for the region. This approach may include the following:

- Optional or incentive-based sustainable building provisions to encourage compliance.
- Conservation of natural resources when planning site development.
- Use of resource efficient building materials, including recycled-content materials.
- Promotion of water efficiency and conservation measures, including low-impact development strategies.
- Increased energy efficiency in building and site designs.
- Promotion of the use of renewable energy in new development proposals.
- Improved indoor air quality that includes the use of formaldehyde-free, non-toxic construction materials.

POLICY SE.6.7 Where feasible, install energy efficient and/or reflective roofing materials on existing or new City facilities.

POLICY SE.7.1 Continue working with the Bay Area Air Quality Management District and other regional agencies to:

1. Improve air quality through pollution prevention methods.
2. Ensure enforcement of air emission standards.
3. Reduce local and regional traffic (the single largest source of air pollution in the city) and support public transit improvements.
4. Promote regional air pollution prevention plans for business and industry.
5. Promote strategies to reduce particulate pollution from residential fireplaces and wood-burning stoves.

6. Locate parking appropriately and provide adequate signage to reduce unnecessary "circling" and searching for parking.
7. Promote anti-idling policies and programs.

POLICY SE.7.2 Support the expansion of tree planting and landscaping practices that encourage the use of trees, plants, and vegetation to improve air quality to enhance the scenic quality of the City.

Action SE.7.2.1 Establish tree planting targets in order to reduce or sequester greenhouse gas emissions, provide for energy efficiency, and to enhance the City's quality of life.

Action SE.7.2.2 Pursue funding for private and public park and street tree planting.

Action SE.7.2.3 Establish and maintain a Pinole tree planting guide to encourage tree planting, reduce long-term maintenance costs, reduce fire hazards, improve energy efficiency, and enhance the quality of the community over time.

Action SE.7.2.4 Develop landscape standards that require minimum planting and maintenance requirements for new and retrofit development and the use of native or drought-tolerant vegetation.

POLICY SE.7.3 Increase public awareness of air quality problems, rules and solutions through use of City publications and networks.

POLICY SE.7.4 Reduce methane emissions released from waste disposal. Encourage recycling, decrease waste sent to landfills, require landfill methane recovery and promote methane recovery for energy production from other sources.

POLICY SE.7.5 Research and consider a set of standards that provide a set of voluntary measures to incorporate clean vehicles in private fleets and promote the use of clean alternative fuels.

POLICY SE.7.6 Continue to encourage innovative technologies and programs such as clean-fuel, electric and low-emission cars that reduce the air quality impacts of the automobile.

POLICY SE.7.7 Support alternate work schedules where feasible. Encourage employers to allow alternate work schedules for employees, telecommuting and other practices that reduce auto trips.

POLICY SE.7.8 In order to reduce vehicle miles traveled and traffic congestion, new development within 1,000 feet of an existing or planned transit stops should be designed to encourage the usage of public transit and minimize the dependence on the automobile through the application of site design guidelines.

Action SE.7.8.1 Develop a TDM program for Pinole that includes such improvements as bike parking, showers for employees, etc.

POLICY SE.7.9 Air quality will be maintained and improved by requiring project mitigation, such as Transportation Demand Management (TDM) techniques, where significant air quality impacts are identified.

POLICY SE.7.10 Air quality should not decline from levels experienced during the early 1990s, when the community's growth capacity was last re-examined.

POLICY SE.8.1 Encourage alternatives to single-occupancy vehicle use, including using public transit, carpooling, teleworking, bicycling and walking.

Action SE.8.1.1 Publicize and participate in campaigns to promote options to single-occupancy vehicle travel.

Action SE.8.1.2 Continue and expand projects that increase pedestrian accessibility to transit stops, neighborhood shopping areas, schools, churches and parks.

Action SE.8.1.3 Provide maps highlighting alternative modes of transportation and preferred routes for those modes.

Action SE.8.1.4 Explore parking pricing to all appropriate commercial areas to reduce single-occupancy vehicle use.

Action SE.8.1.5 Educate all employees on fuel-efficient driving practices, such as avoiding unnecessary idling.

Action SE.8.1.6 Explore providing City employees with transit subsidies for travel on business to improve air quality and reduce greenhouse gas emissions.

Action SE.8.1.7 Include sidewalks, separated sidewalks whenever possible, on both sides of all new street improvement projects, except where there are severe topographic or natural resource constraints.

Action SE.8.1.8 Whenever feasible, ensure transit stops are safe and sheltered, with clean benches and adequate lighting.

POLICY SE.8.2 Encourage development of a planning and zoning strategy to absorb all new growth in the city in areas that achieve transit-supportive densities through strategic development controls.

Action SE.8.2.1 Adopt a specific plan for Pinole's transit corridors.

Action SE.8.2.2 Ensure transportation centers are multi-modal to allow transportation modes to intersect.

POLICY SE.8.3 Encourage housing opportunities for all income levels to ensure that workers in Pinole can live in the City and reduce the need for outbound commuting for employment.

POLICY SE.8.4 Consider the creation of a citywide transportation business improvement district in which commercial property owners would fund a private transportation service, which would be operated by a nonprofit Transportation Management Association. The transportation service could operate a shuttle to provide essential connectivity to points within and outside Pinole while also helping to alleviate congestion.

POLICY SE.8.6 Establish parking policies and requirements that capture the true costs of private vehicle use and support alternative modes of transportation.

Action SE.8.6.1 Encourage shared parking opportunities, such as movie theaters with primary parking needs in evenings and churches or other facilities with weekend-only parking needs.

Action SE.8.6.2 Consider reducing minimum parking requirements for new development.

Action SE.8.6.3 Continue to encourage shared parking programs in mixed-use and transit-oriented development.

Action SE.8.6.4 Consider using time limited/metered parking to discourage private vehicle use, especially at peak times.

Action SE.8.6.5 Require that new and fully renovated commercial and retail development provide preferential parking for electric vehicles and vehicles using alternative fuels.

POLICY SE.8.7 Work to improve Pinole's pedestrian and bicycle infrastructure and to meet the needs of all pedestrians bicyclists.

Action SE.8.7.1 Implement public transit-, bicycle- and pedestrian-oriented land use and design strategies in new development, as described in the Land Use and Circulation Elements of the General Plan to reduce the number of single-occupant trips in fossil-fueled vehicles.

Action SE.8.7.2 Consider establishing a "free bicycle" program with bicycles that the public may borrow for trips around Pinole.

Action SE.8.7.3 Require new commercial, multi-family residential, and mixed-use development to provide secure bicycle parking.

Action SE.8.7.4 The City will set a deadline by which it will be assured that all city parks, schools, commercial districts, and other high-volume trip destinations within Pinole provide secure bicycle parking.

Action SE.8.7.5 Establish and implement standards that meet or exceed state law for "complete streets" that foster equal access by all users in the roadway system. Include standards that address connection of bicycle and pedestrian access to other areas, safe road crossings, adequate and secure bike parking at public and private facilities, and street standards as is feasible for bicycle infrastructure.

Action SE.8.7.6 Apply for regional, state, and federal grants for bicycle and pedestrian infrastructure projects.

POLICY SE.8.9 Implement traffic and roadway management strategies to improve mobility and efficiency and reduce associated emissions. (See Circulation Element).

POLICY SE.8.10 Support and promote the use of low- and zero-emission vehicles, alternative fuels, and other measures to directly reduce emissions from motor vehicles.

Action SE.8.10.1 Develop the necessary infrastructure to encourage the use of zero-emission vehicles and clean alternative fuels, such as development of electric vehicles charging facilities and alternative fueling stations.

Action SE.8.10.2 Encourage new construction to include vehicle access to properly wired outdoor receptacles to accommodate plug-in vehicles.

Action SE.8.10.3 Establish incentives for use of alternative fuel, electric, or gas-electric hybrid vehicles.

POLICY SE.34.1 Explore and promote opportunities for the City's use of sustainable energy sources (e.g. solar, wind, biomass, tidal energy generation, methane, geothermal, and hydropower).

Action SE.4.1.1 Utilize, where feasible, renewable energy and clean generation technologies such as solar, wind, biogas, tidal, cogeneration, and fuel cells to power City facilities using tax-free low-interest loans and other available financial options.

Action SE.4.1.2 Evaluate the feasibility of purchasing renewable energy certificates to reduce the City's contribution to greenhouse gas emissions.

Action SE.4.1.3 Designate suitable sites to prioritize their development for renewable energy generation.

Action SE.4.1.4 Adopt measures to protect the renewable energy use of the sites and their resources, such as utility easements, rights-of-way, and land set-asides.

Circulation Element

POLICY CE.1.1 Encourage strategic growth that concentrates future development along Pinole's three primary transit corridors (San Pablo Avenue, Appian Way and Pinole Valley Road).

Action CE.1.1.1 Adopt and implement the Three Corridors Specific Plan.

Action CE.1.1.2 Adopt a Resolution of Support for the designation of Appian Way, San Pablo Avenue and Pinole Valley Road as Preferred Development Areas (PDAs).

Action CE.1.1.3 Apply for grants and other funding, as appropriate to implement the PDAs.

POLICY CE.1.2 Coordinate development of the circulation system with sustainable land use planning.

Action CE.1.2.1 Give priority to projects that will contribute to a reduction in vehicle miles traveled per capita, while maintaining economic vitality and sustainability.

Action CE.1.2.2 Require development to provide bus, bicycle, pedestrian and alternative fuel vehicle facilities, as appropriate.

Action CE.1.2.3 Provide safe and convenient access for pedestrians and bicyclists, wherever feasible.

POLICY CE.1.3 Encourage development that is sensitive to both local and regional transit measures and that promotes the use of alternative modes of transportation.

Action CE.1.3.1 Consult with transit providers during review of development proposals.

Action CE.1.3.2 Include facilities that support alternative modes of transportation (pedestrian, bicycles, public transit, electric vehicles, etc.) where feasible.

POLICY CE.1.4 Encourage maximum utilization of the existing public transit system and alternate modes of transportation in Pinole.

Action CE.1.4.1 Study the feasibility of increasing public transit frequency in areas currently served, and continue evaluating the possibility of expanding service to areas currently without service.

Action CE.1.4.2 Include links to public transit resources, bike trails maps, pedestrian trails maps and carpool/van pool information on the City's website.

Action CE.1.4.3 Pursue extension of rapid bus service to Pinole and enhance transit facilities that serve Pinole users.

Action CE.1.4.4 Support provision of wayfinding signage and markers for transit stops and multi use trails.

POLICY CE.1.5 Encourage transit facilities that will provide good access to major public facilities and employment centers in the city.

Action CE.1.5.1 Enhance existing and provide additional bus shelters and other amenities that support transit use, where feasible and appropriate.

POLICY CE.1.6 Encourage transit services between major employment centers in each area of the city and surrounding communities.

Action CE.1.6.1 Coordinate the integration of local and regional transit with transportation agencies and other jurisdictions.

Action CE.1.6.2 Work with WestCAT, AC Transit and other transit providers to support expanded transit lines and increased frequency of service on major transit arterials.

POLICY CE.5.1 Provide off-street parking to employees; however preferential parking at several locations in the city shall be made available to vanpools, carpools, alternative fuel vehicles and other transit users, where feasible and appropriate.

Action CE.5.1.1 Continue to encourage shared parking facilities for both private businesses and public agencies.

Action CE.5.1.2 Continue to maintain the Old Town parking district as described in Figure 7.5.

POLICY CE.5.3 Work with various government agencies to provide secure parking at park-and-ride lots and transit stations.

POLICY CE.5.4 Establish parking policies and requirements that support alternative modes of transportation.

Action CE.5.4.1 Allow Reduction of minimum on-site parking requirements for development that includes exceptional features that support multiple modes of transportation.

Action CE.5.4.2 Encourage shared parking programs in mixed-use and transit-oriented development areas.

POLICY CE.6.1 Encourage the use of carpooling and vanpooling to maintain an acceptable LOS on city streets and I-80.

Action CE.6.1.1 Designate a certain percentage of parking spaces for ride-sharing vehicles.

Action CE.6.1.2 Require the development of Transportation Management Associations (TMA) for large employers and commercial/industrial complexes. These TMAs would develop plans to encourage their employees to use some form of collective transportation to commute to and from work. These plans should include not only information regarding rideshare lists and available transit, but may also include provision of transit passes, preferential parking and other incentives to participating employees.

POLICY CE.6.2 Implement transportation demand management strategies in conjunction with land uses in order to prevent future traffic congestion in the city.

Action CE.6.2.1 Coordinate with ride-sharing programs to provide up-to-date lists of potential riders and to educate the public on commuting options.

Action CE.6.2.2 Encourage the development of employer-funded vanpool and shuttle bus services to new employment centers.

Action CE.6.2.3 Encourage employer provision of information on alternative modes of transit.

Action CE.6.2.4 Encourage employers to offer flextime arrangements to their employees in order to reduce the percentage of trips made during peak hours.

Action CE.6.2.5 Work with schools to encourage carpooling and a flexible class schedule in order to reduce the percentage of trips made during peak hours.

Action CE. 6.2.6 Establish and apply minimum carpool requirements for all non-residential developments

POLICY CE.6.3 Strive to achieve a 30 percent reduction in the total number of peak period employee trips.

Action CE.6.3.1 Encourage and utilize shuttles to serve neighborhoods, employment centers and major destinations.

Action CE.6.3.2 Work with existing shuttle service providers to coordinate their services with other forms of transit, special events and work centers.

Action CE.6.3.3 Encourage home offices, live/work sites and satellite work centers in appropriate locations.

Action CE.6.3.4 Encourage telecommuting options through public outreach and with new and existing employers, as appropriate.

Action CE.6.3.5 Explore the potential for creation of a transportation assessment district to help fund transportation improvements and repairs throughout the city.

Action CE.6.3.6 Explore the creation of a network of park and ride facilities to support and encourage the use of regional transit.

Action CE.6.3.7 Identify and correct gaps in the pedestrian travel network, whenever feasible.

POLICY CE.7.1 Enhance the city's bikeway network through the use of Class I, II and III bikeways.

Action CE.7.1.1 Develop street design and bikeway design standards to address all street users, autos, public transit, bicycles and pedestrians of all ages and abilities.

Action CE.7.1.2 Prepare and regularly update a Pinole bikeways map and make it available on the city's website.

Action CE.7.1.3 Provide safe access to public transportation and other non-motorized uses through construction of dedicated bicycle paths.

POLICY CE.7.2 Establish standards for new development and redevelopment projects to support bicycle use.

Action CE.7.2.1 Establish engineering standards for pedestrian and bicycle facilities.

Action CE.7.2.2 Require provision of adequate, convenient, and secure bike parking in conjunction with private development.

Action CE.7.2.3 Provide public bike parking as funding is available.

Action CE.7.2.4 Require projects to include bicycle facilities, as appropriate.

POLICY CE.7.3 Establish a network of multi-use paths to facilitate safe and direct off-street bicycle and pedestrian travel.

Action CE.7.3.1 Where feasible, provide bike racks along these trails at safe, lighted locations.

Action CE.7.3.2 Pursue enhanced funding for bicycle and pedestrian facilities and access projects.

Action CE.7.3.3 Adopt bicycle parking standards that encourage and facilitate bicycle travel.

Action CE.7.3.4 Minimize bicycle/pedestrian/motor vehicle conflicts by providing proper trail, street and intersection design and separation.

POLICY CE.7.4 Establish bicycle safety as a priority through ongoing public education.

Action CE.7.4.1 Assist in the development and dissemination of public education programs to promote bicycle safety.

POLICY CE.8.1 Require development to provide pedestrian walkways that are safe, interconnected, and accessible by all members of the community

Action CE.8.1.1 As feasible, ensure that all intersections in areas with pedestrian usage are signalized with curb ramps, bulbouts, high-contrast crosswalks and pedestrian actuation, and other safety measures.

Action CE.8.1.2 Where feasible, use landscaping or physical barriers on high-capacity arterials to separate vehicles and pedestrians.

POLICY CE.8.2 Encourage the community to take advantage of Pinole's pedestrian facilities and recreational opportunities and increase non-motorized modes of transportation.

POLICY CE.8.3 Design access ways to school facilities that will ensure public safety.

Action CE.8.3.1 In conjunction with the public school system and other appropriate public facilities and programs, assist in developing public education programs to promote pedestrian safety.

Action CE.8.3.2 Ensure that all intersections near schools are signalized with curb ramps, high-contrast crosswalks and pedestrian actuation, where feasible.

Action CE.8.3.3 Actively support the Safe Routes to Schools program, including making use of available funding and technical assistance.

POLICY CE.8.4 Encourage the location of basic shopping and services within walkable distances to residential areas.

Action CE.8.4.1 Use strategic planning to establish land use patterns that encourage mixed-use, walkable development.

In addition to the policies and actions noted above, the proposed General Plan Update includes numerous additional goals, policies and actions that would reduce VMT within the City and would promote energy and resource conservation. These goals, policies and actions would reduce air quality impacts. However, given that projected future population and VMT associated with the proposed GPU would still be anticipated to conflict with projections used for air quality planning purposes, this impact remains ***significant and unavoidable.***

Violate Air Quality Standard or Contribute Substantially to an Air Quality Violation: Short-Term, Construction Emissions

Impact 2 Subsequent land use activities associated with implementation of the proposed General Plan Update could result in short-term construction emissions that could violate or substantially contribute to violations of federal and state ambient air quality standards. This impact is considered to be **potentially significant**.

Implementation of the proposed General Plan Update will result in short-term emissions from construction activities associated with subsequent development, including site grading, asphalt paving, building construction, and architectural coating. Emissions commonly associated with construction activities include fugitive dust from soil disturbance, fuel combustion from mobile heavy-duty diesel- and gasoline-powered equipment, portable auxiliary equipment, and worker commute trips. During construction, fugitive dust, the dominant source of PM_{10} and $PM_{2.5}$ emissions, is generated when wheels or blades disturb surface materials. Uncontrolled dust from construction can become a nuisance and potential health hazard to those living and working nearby. Demolition and renovation of buildings can also generate PM_{10} and $PM_{2.5}$ emissions. Off-road construction equipment is often diesel powered and can be a substantial source of NO_X emissions, in addition to PM_{10} and $PM_{2.5}$ emissions. Worker commute trips and architectural coatings are dominant sources of ROG emissions.

The amount of emissions generated would vary, by project, depending on numerous factors, including the size of the development and construction activities required. Furthermore, it is anticipated that multiple construction projects could occur simultaneously within a given year. Without detailed construction information (i.e., construction schedules, demolition, grading, excavation, and construction requirements), construction emissions for individual projects

cannot be quantified. Given these limitations, construction-generated emissions associated with development that would occur as part of the General Plan Update cannot be quantified at this time. Although many of the individual construction projects would likely not generate construction emissions that would exceed BAAQMD's project-level significance thresholds, some development projects may be large enough such that the project-level significance thresholds would be exceeded. It should be noted that all projects in the City would be subject to applicable BAAQMD rules and regulations in effect at the time of construction. In addition, future development would also be subject to subsequent environmental review. In the event that a significant impact is identified for an individual project, BAAQMD-recommended mitigation measures would be required to reduce project-related impacts. However, even with mitigation, it may not be possible to reduce potential emissions to levels below the BAAQMD thresholds. As a result, this impact would be considered significant.

Proposed General Plan Update Policies and Actions that Provide Mitigation

The proposed General Plan Update contains the following list contains those policies and actions that include specific, enforceable requirements and/or restrictions and corresponding performance standards that address this impact.

POLICY SE.7.1 Continue working with the Bay Area Air Quality Management District and other regional agencies to:

1. Improve air quality through pollution prevention methods.
2. Ensure enforcement of air emission standards.
3. Reduce local and regional traffic (the single largest source of air pollution in the city) and support public transit improvements.
4. Promote regional air pollution prevention plans for business and industry.
5. Promote strategies to reduce particulate pollution from residential fireplaces and wood-burning stoves.
6. Locate parking appropriately and provide adequate signage to reduce unnecessary "circling" and searching for parking.
7. Promote anti-idling policies and programs.

POLICY SE.7.9 Air quality will be maintained and improved by requiring project mitigation, such as Transportation Demand Management (TDM) techniques, where significant air quality impacts are identified.

Mitigation Measures

Implementation of the above proposed General Plan Update policies, actions would require implementation of mitigation measures to reduce air quality impacts and would ensure enforcement of air emission standards through continued coordination with the BAAQMD. Implementation of the proposed policies and actions would reduce potential construction-related air quality impacts. However, these actions would not fully offset air pollutant emissions resulting from construction activities. Increases in construction-generated emissions may contribute to future nonattainment conditions. Thus, this impact is considered **significant and unavoidable**.

Violate Air Quality Standard or Contribute Substantially to an Air Quality Violation: Long-Term, Operational Emissions

Impact 3 Subsequent land use activities associated with implementation of the proposed General Plan Update could result in long-term, operational emissions that could violate or substantially contribute to violations of federal

and state ambient air quality standards. This impact is considered to be **significant**.

As discussed in **Impact 1**, implementation of the General Plan Update would result in the development and operation of new land uses, which would generated increased air emissions. For comparison purposes, projected increases in emissions associated with projected future development, with and without implementation of the proposed project, are summarized in **Table 6**. As depicted, the proposed General Plan Update would result in net increases of approximately 15.71 tons/year of ROG, 20.92 tons/year of NO_X, 24.71 tons/year of PM_{10}, and 4.74 tons/year of $PM_{2.5}$. The emissions estimates are based on gross land use data and actual emissions may vary, depending on various factors, such as the type and size of the development proposed and emission reduction strategies incorporated. The estimates are useful, however, in providing an understanding of the City's emissions inventory and overall increases that could potentially occur associated with future development. According to these estimates, mobile sources are the largest contributor to the City's projected future emissions inventory. Future development attributable to the proposed General Plan Update would be anticipated to result in increased emissions from both area and mobile sources.

BAAQMD project-level thresholds of significance apply to individual development projects and do not apply to cumulative development or multiple development projects. As with construction-related impacts, supplemental project-specific air quality analyses would be required to analyze operational emissions of individual development projects, in comparison to BAAQMD-recommended project-level significance thresholds. Mitigation measures would be required to reduce potentially significant impacts. However, given that a majority of operational emissions would be attributable to increases in VMT, it may not be possible to reduce potential emissions of individual projects to levels below the BAAQMD BAAQMD-recommended project-level significance thresholds, even with implementation of all available mitigation measures. In addition, as noted in **Impact 1**, increases in VMT attributable to future development, and associated emissions, would be inconsistent with the BAAQMD's Clean Air Plan. For these reasons, this impact would be considered **significant**.

TABLE 6
PROJECTED INCREASES IN AREA-SOURCE EMISSIONS

Scenario	Annual Emissions (tons/year)			
	ROG	NO_X	PM_{10}	$PM_{2.5}$
2030 Baseline				
Area Sources	12.28	6.16	0.01	0.01
Mobile Sources	108.63	162.96	235.86	45.14
Total:	120.91	169.12	235.87	45.15
2030 with Proposed General Plan Update				
Area Sources	16.62	10.01	0.02	0.02
Mobile Sources	120.00	180.03	260.56	49.87
Total:	136.62	190.04	260.58	49.89
Net Increase:	*15.71*	*20.92*	*24.71*	*4.74*

Notes: Emissions were quantified using the URBEMIS2007 computer program. Area source emissions include emission associated with natural gas use, landscape maintenance, architectural coatings and consumer products. Based on the following assumptions:

2030 Baseline: Assumes 1,270 dwelling units, 1,122.14 KSF retail, 909.74 KSF office, and 476.283 KSF industrial; includes

emissions associated with use of consumer projects assuming 0.0171 lbs/person, net increase of 2,417 individuals. Assumes 750,000 VMT/day.

2030 with Preferred Project: Assumes 2,346 dwelling units, 1,553.23 KSF retail, 1,422.21 KSF office, and 472.58 KSF industrial; includes emissions associated with use of consumer projects assuming 0.0171 lbs/person, net increase of 2,970 individuals. Assumes 830,000 VMT/day.

Proposed General Plan Update Policies and Actions that Provide Mitigation

As noted previously, the General Plan Update includes a number of policies and actions that would reduce the potential impacts associated with long-term operation emissions. Applicable policies and actions are listed under **Impact 1**.

Mitigation Measures

Implementation of the above proposed General Plan Update policies and actions would reduce potential long-term, operational air quality impacts. However, these actions would not fully offset long-term increases in emissions associated with build-out of the General Plan Update. Thus, this impact is considered **significant and unavoidable**.

Exposure of Sensitive Receptors to Substantial Concentrations of Mobile-Source Carbon Monoxide

Impact 4 Implementation of the proposed General Plan Update would result in increased population and employment that would increase traffic volumes on area roadways. This could result in elevated carbon monoxide emissions from motor vehicle congestion that could expose sensitive receptors to elevated carbon monoxide concentrations. As a result, this is considered to be a **significant impact.**

Localized carbon monoxide (CO) concentrations near roadway intersections are a function of traffic volume, speed, and delay. Transport of CO is extremely limited because it disperses rapidly with distance from the source under normal meteorological conditions. Under specific meteorological conditions, CO concentrations near roadways and/or intersections may reach unhealthy levels with respect to sensitive receptors, often referred to as a "CO hotspot."

The BAAQMD recommends use of a screening approach to determine if long-term, project operations would have the potential to create a violation of the ambient air quality standards for CO. Based on BAAQMD guidance, projects meeting the following screening criteria would be considered to have a less -than-significant impact to localized CO concentrations (BAAQMD 2010(a)):

- Project is consistent with an applicable congestion management program established by the county congestion management agency for designated roads or highways, regional transportation plan, and local congestion management agency plans; and

- The project would not result in an affected intersection experiencing more than 44,000 vehicles per hour or 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway).

The Congestion Management Program (CMP) requires each jurisdiction to identify existing and future transportation facilities that would operate below an acceptable service level and provide mitigation where future growth would degrade that service level. The Contra Costa Transportation Authority (CCTA) serves as the Congestion Management Agency responsible for the CMP. As part of western Contra Costa County, the City of Pinole works with other west county jurisdictions through the West Contra Costa Transportation Advisory Committee (WCCTAC) to develop the West County Action Plan. The Action Plan identifies multi-modal traffic service objectives (MTSOs) for Routes of Regional Significance, which in Pinole include the freeway (I-80) and arterial streets (San Pablo Avenue and Appian Way). On these arterials, the MTSO sets a target level of service. The West County Action Plan was adopted on July 31, 2009 (Dowling Associates 2010).

Based on the traffic analysis prepared for this project, peak hour volumes at several intersections along key corridors serving Pinole, such as San Pablo Avenue, Appian Way, and Pinole Valley Road, would approach or exceed the capacity of the intersection, resulting in unacceptable levels of service at four area intersections located along these roadway segments. Under General Plan build-out conditions, the intersections of Tennent Avenue at San Pablo Avenue, Pinole Valley Road at San Pablo Avenue, Pinole Valley Road at I-80 eastbound ramps, and John Street at San Pablo Avenue would be anticipated to be primarily affected, operating at levels of service of LOS E, or worse. However, traffic volumes under peak-hour conditions at these intersections would not be projected to exceed the BAAQMD's screening criteria of 44,000 vehicles per hour. In addition, these intersections would not experience limitations with regard to vertical or horizontal mixing (e.g., tunnel, bridge underpass, etc.). However, as noted in the traffic analysis prepared for this project, implementation of the proposed General Plan Update would conflict with the objectives identified in the West County Action Plan. As a result, this impact is considered **significant**.

Proposed General Plan Update Policies and Actions that Provide Mitigation

Action CE.3.1.1 of the proposed General Plan Update directs the City to work with WCCTAC and CCTA to revise the MTSO for San Pablo Avenue within Old Town to LOS F. This Action provides mitigation to eliminate the conflict between the West County Action Plan and the proposed General Plan Update related to the Old Town segment of San Pablo Avenue.

Mitigation Measures

Based on the traffic analysis prepared for this project, maintaining the existing level of service performance standards along San Pablo Avenue and Appian Way would ensure consistency with MTSO and would mitigate the project impact. To address the proposed LOS change for Appian Way, the traffic analysis recommends modification of the proposed Action CE.3.1.1 to include revisions to the Action Plan Level of Service standard for Appian Way between Mann Drive and I-80. With implementation of Action CE.3.1.1 and the proposed traffic and circulation mitigation measure, the proposed project would be consistent with the BAAQMD's screening criteria. This impact would be considered **less than significant**.

Exposure of Sensitive Receptors to Substantial Concentrations of Toxic Air Contaminant and/or Fine Particulate Matter

Impact 5 Subsequent land use activities associated with implementation of the proposed General Plan Update could result in projects that would include sources of toxic air contaminants which could affect surrounding land use. Subsequent land use activities could also place sensitive land uses near

existing sources of toxic air contaminants. These factors could result in the exposure of sensitive receptors to substantial concentrations of toxic air contaminants and/or fine particulate matter. This is considered a **potentially significant** impact.

Subsequent land use activities associated with implementation of the proposed General Plan Update could potentially include short-term, construction sources of toxic air contaminants (TACs) and long-term, operational sources of TACs, including stationary and mobile sources.

Short-Term Exposure

Construction projects can result in short-term increases of TACs, as well as, emissions of airborne fugitive dust. Emissions of diesel particulate matter (DPM) emitted from diesel-fueled construction vehicles is of particular concern. Exposure to DPM results in a greater incidence of chronic non-cancer health effects, such as cough, labored breathing, chest tightness, wheezing, and bronchitis. However, various other TACs from diesel exhaust also contribute to both cancer and non-cancer health risks. Construction-generated emissions of fine particulate matter ($PM_{2.5}$) can also contribute to significant health impacts, particularly among the more sensitive population groups (i.e., children, elderly, etc.).

The amount of TACs generated during construction of individual projects would vary depending on numerous factors, including the size of the development, the type, age and number of pieces of equipment required, and hours of use. Furthermore, it is anticipated that multiple construction projects could occur simultaneously within a given year and within a given area. Without detailed construction information (i.e., construction schedules, demolition, grading, excavation, and construction requirements), construction-generated emissions of TACs for individual projects cannot be quantified at this time.

To assist local jurisdictions in the analysis of potential health risks associated with short-term construction projects, the BAAQMD will be developing screening criteria that can be applied at the project level (BAAQMD 2010(a)). Depending on the construction activities required and distances to nearby receptors, it is conceivable that some development projects may be large enough such that the project-level significance thresholds would be exceeded. In the event that a significant impact is identified for an individual project, BAAQMD-recommended mitigation measures would be required to reduce project-related impacts. However, even with mitigation, it may not be possible to reduce potential emissions of TACS and all health-related risks to nearby receptors to levels below the BAAQMD thresholds. As a result, this impact would be considered **significant**.

Long-Term Exposure

Development of future land uses may include potential stationary sources of TACs, such as diesel-powered emergency-use power generators. The type and level of TAC emissions emitted would depend upon the nature of the land use and the specific methods and operations that involve toxic air emissions. Pursuant to BAAQMD rules and regulations, including BAAQMD Regulation 2, Rule 5 (new Source Review of Toxic Air Contaminants), major stationary sources having the potential to emit TACs are required to obtain permits from the BAAQMD. Permits may be granted to these operations provided they are constructed and operated in accordance with applicable BAAQMD rules and regulations. Given that compliance with applicable standards and regulations would be required, TAC emissions from new major stationary sources would not be anticipated to result in an increased risk to nearby sensitive receptors that would exceed applicable significance thresholds. However, some proposed

projects may include the operation of non-permitted sources of TAC and/or $PM_{2.5}$ emissions. For instance, projects that would attract high numbers of diesel-powered on-road haul trucks or use off-road diesel equipment on site, such as a distribution center or manufacturing facilities, could potentially expose receptors to substantial risk levels and/or health hazards (BAAQMD 2010(a)).

In addition to long-term exposure to stationary emission sources, new land uses may also be exposed to emissions from mobile sources. To assist local jurisdictions in the evaluation of community risk and hazard impacts, the BAAQMD recommends that general plans: 1) special overlay zones be established around existing and planned land uses that emit TACs, 2) establish special overlay zones of at least 500 feet on each side of all freeways and high-volume roadways; and 3) identify goals, policies, and objectivies to minimize potential impacts and create overlay zones for sources of TACs and receptors (BAAQMD 2010(a)).

Within the City of Pinole, I-80 is considered the major source of TAC emissions. To a lesser extent, trains traveling along the UPRR and BNSF railroad corridors also contribute to localized concentrations of TACs within the community. However, as noted in **Table 4**, ARB considers major service and maintenance rail yards as potential sources of TACs. The operation of rail lines outside of rail yards has not been identified as a major source of TACs that pose a significant risk to sensitive receptors. The nearest major rail yard is located near Point Richmond, approximately 6 miles southwest of the City of Pinole. No major stationary sources of TACs were identified within the planning area.

The proposed General Plan Update would include opportunities for new development and redevelopment on Pinole's primary commercial corridors. As a result, new development and/or redevelopment of various urban uses, including mixed and multiple family uses, would be predominantly located along the San Pablo Avenue, Pinole Valley Road, and Appian Way corridors. Given that future development of sensitive land uses could potentially occur within 500 feet of I-80, or may involve the operation of non-permitted sources of TACs/ $PM_{2.5}$, this impact would be considered **significant**.

Proposed General Plan Update Policies and Actions that Provide Mitigation

The proposed General Plan Update contains the following policies and actions that include specific, enforceable requirements and/or restrictions and corresponding performance standards that address this impact.

POLICY SE.7.1 Continue working with the Bay Area Air Quality Management District and other regional agencies to:

1. Improve air quality through pollution prevention methods.
2. Ensure enforcement of air emission standards.
3. Reduce local and regional traffic (the single largest source of air pollution in the city) and support public transit improvements.
4. Promote regional air pollution prevention plans for business and industry.
5. Promote strategies to reduce particulate pollution from residential fireplaces and wood-burning stoves.
6. Locate parking appropriately and provide adequate signage to reduce unnecessary "circling" and searching for parking.
7. Promote anti-idling policies and programs.

POLICY SE.7.9 Air quality will be maintained and improved by requiring project mitigation, such as Transportation Demand Management (TDM) techniques, where significant air quality impacts are identified.

POLICY LU.3.3 Require design review of commercial and industrial projects to ensure compatibility with adjacent or nearby land uses, including intensity, access, internal circulation, visual characteristics, noise, odors, fire hazards, vibrations, smoke, discharge of wastes and nighttime lighting.

Mitigation Measures

- The proposed General Plan Update shall include an action item that would require the City to create overlay zones for major stationary and mobile sources of emissions. At a minimum, overlay zones should be established 500 feet on each side of I-80. Future planned development of sensitive land uses (e.g., residential, convalescent care facilities, schools, etc.) within overlay zones should be required to evaluate potential health risks resulting from exposure to toxic air contaminants. Evaluation of potential risks should be conducted in accordance with BAAQMD recommended methodologies. Implementation of BAAQMD-recommended mitigation measures would be required for significant impacts.

- The proposed General Plan Update shall include an action item that would require the City shall periodically review and amend overlay zones, as deemed necessary, to reflect development of any new major stationary sources of toxic air contaminants.

Implementation of the above proposed General Plan Update policies and actions would require implementation of mitigation measures to reduce short-term and long-term air quality impacts and would ensure enforcement of air emission standards through continued coordination with the BAAQMD. The proposed mitigation measures would require the City to establish a special overlay zone for major sources of TACs located within the City, which would include an overlay zone extending to a minimum of 500 feet on each side of I-80. Development of future sensitive land uses within overlay zones would be required to evaluate potential health risks in accordance with BAAQMD-recommended methodologies. Implementation of the proposed policies, actions, and mitigation measures would reduce potential health-related risks associated with future development. However, even with mitigation, it may not be possible to reduce potential emissions of TACS and all health-related risks to nearby receptors to levels below the BAAQMD thresholds. As a result, this impact would be considered **significant and unavoidable**.

Create Objectionable Odors Affecting a Substantial Number of People

Impact 6 Subsequent land use activities associated with implementation of the proposed General Plan Update could include sources that could create objectionable odors affecting a substantial number of people or expose new residents to existing sources of odor. Thus, this impact is considered to be **significant**.

Subsequent land use activities associated with implementation of the proposed General Plan Update could allow for the development of uses that have the potential to produce odorous emissions either during the construction or operation of future development. Additionally, subsequent land use activities may allow for the construction of sensitive land uses (i.e., residential development, schools, parks, offices, etc.) near existing or future sources of odorous emissions. Future construction activities could also result in odorous emissions from diesel exhaust associated with construction equipment. However, because of the temporary nature of these emissions and the highly diffusive properties of diesel exhaust, exposure of sensitive receptors to these emissions would be limited.

To assist local jurisdictions in the evaluation of odor-related impacts, the BAAQMD has developed screening levels for project-level evaluations where sensitive receptors would be

located near various types of odor sources. For general plans, the BAAQMD recommends that the plan: 1) identify special overlay zones around existing and planned sources of odors, and 2) identify goals, policies, and objectives to minimize potential impacts and create overlay zones for sources of odors and receptors (BAAQMD 2010(a)).

Major sources of potential odors identified by the BAAQMD include wastewater treatment plants, wastewater pumping facilities, sanitary landfills, transfer stations, composting facilities, petroleum refineries, asphalt batch plants, chemical and fiberglass manufacturing, painting/coating operations, food processing facilities, and green waste and recycling operations. Major odor sources located within the City of Pinole include the Hercules/Pinole Wastewater Treatment Plant, which is located adjacent to San Pablo Bay at the end of Tennant Avenue. Additional sources of potential odors within the City include various automotive body repair shops.

The proposed General Plan Update would include opportunities for new development and redevelopment on Pinole's primary commercial corridors. As a result, new development and/or redevelopment of various urban uses, including mixed and multiple family uses, would be predominantly located along the San Pablo Avenue, Pinole Valley Road, and Appian Way corridors. Given that future development of sensitive land uses could potentially occur within close proximity to existing or future odorous emission sources, this impact would be considered **significant**.

Proposed General Plan Update Policies and Actions that Provide Mitigation

The proposed General Plan Update contains the following policies and actions that include specific, enforceable requirements and/or restrictions and corresponding performance standards that address this impact.

POLICY SE.7.1 Continue working with the Bay Area Air Quality Management District and other regional agencies to:

1. Improve air quality through pollution prevention methods.
2. Ensure enforcement of air emission standards.
3. Reduce local and regional traffic (the single largest source of air pollution in the city) and support public transit improvements.
4. Promote regional air pollution prevention plans for business and industry.
5. Promote strategies to reduce particulate pollution from residential fireplaces and wood-burning stoves.
6. Locate parking appropriately and provide adequate signage to reduce unnecessary "circling" and searching for parking.
7. Promote anti-idling policies and programs.

POLICY SE.7.9 Air quality will be maintained and improved by requiring project mitigation, such as Transportation Demand Management (TDM) techniques, where significant air quality impacts are identified.

POLICY LU.3.3 Require design review of commercial and industrial projects to ensure compatibility with adjacent or nearby land uses, including intensity, access, internal circulation, visual characteristics, noise, odors, fire hazards, vibrations, smoke, discharge of wastes and nighttime lighting.

Mitigation Measures

The City of Pinole is largely developed and projected future growth is anticipated to consist of a mix of land uses, consisting of predominantly commercial and residential land uses located along major transportation corridors. Development of major odor emission sources would not be anticipated with implementation of the proposed General Plan Update. However, exposure to

existing sources of odors, such as the Hercules/Pinole Wastewater Treatment Plant, could potentially occur. Implementation of the above proposed General Plan Update policies would require review of proposed development projects and implementation of mitigation measures to reduce potential odor impacts. The City of Pinole will also continue to work with the BAAQMD to improve local air quality for community residents. However, even with mitigation, it may not be possible to reduce odor impacts to all receptors to less-than-significant levels. As a result, this impact would be considered **significant and unavoidable**.

CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The policies and actions in the proposed General Plan Update would provide direction for growth within the City limits, while the General Plan policies and actions of neighboring jurisdictions and the Contra Costa County provides direction for growth outside the City limits. Similar relationships between cities and counties occur throughout the SFBAAB. Thus, the setting for this cumulative analysis consists of the SFBAAB and associated growth and development anticipated in the SFBAAB.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Result in a Cumulatively Considerable Net Increase of Nonattainment Criteria Pollutants and Precursors

Impact 7 Implementation of the proposed General Plan Update, in combination with cumulative development in the SFBAAB, would result in a cumulatively considerable net increase of ozone, course and fine particulate matter. This is considered a **cumulatively considerable** impact.

As noted in Impact 1, the proposed General Plan Update would result in increased VMT that would increase at a greater rate than projected population growth and, therefore, would be inconsistent with the BAAQMD Clean Air Plan. The Draft 2020 General Plan includes extensive goals, policies and actions that would reduce emissions from area and mobile sources. However, the projected population and VMT could still exceed the underlying assumptions used for air planning and attainment efforts. As a result, future development associated with the proposed General Plan Update may interfere with future attainment and/or maintenance of ambient air quality standards.

Proposed General Plan Policies that Provide Mitigation

The discussion under Impact 1 identifies those policy provisions that contain specific, enforceable requirements and/or restrictions and corresponding performance standards to directly address air quality.

Mitigation Measures

Implementation of the proposed General Plan Update policies and actions would assist in reducing the proposed General Plan Update's contribution to cumulative air quality impacts; however, this contribution is still considered **cumulatively considerable** and thus a **significant and unavoidable** impact. There are no feasible mitigation measures that can completely offset air pollutant emissions from subsequent development under the proposed General Plan Update.

REFERENCES

Bay Area Air Quality Management District (BAAQMD). May 2010(a). *California Environmental Quality Act Guidelines.*

Bay Area Air Quality Management District (BAAQMD). 2010(b) *Website url: http://hank.baaqmd.gov/pln/air_quality/ambient_air_quality.htm*. Accessed: May 7, 2010.

California Air Resources Board (ARB). 2005. *Air Quality and Land Use Handbook.*

California Air Resources Board (ARB). 2010(a). Website url: http://www.arb.ca.gov/aqd/aqdpage.htm. Accessed: May 8, 2010.

California Air Resources Board (ARB). 2010(b). Community Health Air Pollution Information System. Website url: http://www.arb.ca.gov/ch/chapis1.htm. Accessed: May 8, 2010.

Dowling Associated, Inc. 2010. City of Pinole General Plan Update Traffic and Circulation Analysis.

El Dorado County. 2002. *Guide to Air Quality Assessment*.

U.S. Environmental Protection Agency (EPA). 2010. *Monitor Values Report: Criteria Air Pollutants*. Website url: http://www.epa.gov/air/data/monvals.html. Accessed May 8, 2010.

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name:

Project Name: Pinole GPU - Area Source, 2030 Baseline

Project Location: Contra Costa County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5
TOTALS (tons/year, unmitigated)	4.74	6.16	4.52	0.00	0.01	0.01

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5
TOTALS (tons/year, unmitigated)	4.74	6.16	4.52	0.00	0.01	0.01

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5
Natural Gas	0.46	6.15	3.96	0.00	0.01	0.01
Hearth						
Landscape	0.04	0.01	0.56	0.00	0.00	0.00
Consumer Products						
Architectural Coatings	4.24					
TOTALS (tons/year, unmitigated)	4.74	6.16	4.52	0.00	0.01	0.01

Area Source Changes to Defaults

Percent residential using natural gas changed from 60% to 100%

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Users\KURT\AppData\Roaming\Urbemis\Version9a\Projects\Pinole GPU Area Source Future.urb924

Project Name: Pinole GPU - Area Source, 2030 Project

Project Location: Contra Costa County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5
TOTALS (tons/year, unmitigated)	7.35	10.01	6.73	0.00	0.02	0.02

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5
TOTALS (tons/year, unmitigated)	7.35	10.01	6.73	0.00	0.02	0.02

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5
Natural Gas	0.75	10.00	6.17	0.00	0.02	0.02
Hearth						
Landscape	0.04	0.01	0.56	0.00	0.00	0.00
Consumer Products						
Architectural Coatings	6.56					
TOTALS (tons/year, unmitigated)	7.35	10.01	6.73	0.00	0.02	0.02

Area Source Changes to Defaults

Percent residential using natural gas changed from 60% to 100%

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Users\KURT\AppData\Roaming\Urbemis\Version9a\Projects\Pinole GPU Mobile.urb924

Project Name: Pinole General Plan Update-Mobile Emissions, 2030 Baseline

Project Location: Contra Costa County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5
TOTALS (tons/year, unmitigated)	108.63	162.96	1,427.66	1.26	235.86	45.14

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5
TOTALS (tons/year, unmitigated)	108.63	162.96	1,427.66	1.26	235.86	45.14

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Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25
Pinole GPU-2030 Baseline	108.63	162.96	1,427.66	1.26	235.86	45.14
TOTALS (tons/year, unmitigated)	108.63	162.96	1,427.66	1.26	235.86	45.14

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2011 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Pinole GPU-2030 Baseline		81,679.00	1000 sq ft	1.00	81,679.00	751,446.78
					81,679.00	751,446.78

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	50.9	1.0	98.6	0.4
Light Truck < 3750 lbs	13.2	1.5	94.7	3.8
Light Truck 3751-5750 lbs	20.4	0.5	99.5	0.0
Med Truck 5751-8500 lbs	7.7	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.1	0.0	72.7	27.3
Lite-Heavy Truck 10,001-14,000 lbs	0.6	0.0	50.0	50.0

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Med-Heavy Truck 14,001-33,000 lbs	0.7	0.0	14.3	85.7
Heavy-Heavy Truck 33,001-60,000 lbs	0.4	0.0	0.0	100.0
Other Bus	0.0	0.0	0.0	0.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	3.7	62.2	37.8	0.0
School Bus	0.4	0.0	0.0	100.0
Motor Home	0.8	0.0	87.5	12.5

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	9.2	9.2	9.2	9.2	9.2	9.2
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Pinole GPU-2030 Baseline				0.0	0.0	100.0

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Users\KURT\AppData\Roaming\Urbemis\Version9a\Projects\Pinole GPU Mobile 2030Project.urb924

Project Name: Pinole General Plan Update-Mobile Emissions, 2030 Project

Project Location: Contra Costa County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5
TOTALS (tons/year, unmitigated)	120.00	180.03	1,577.19	1.39	260.56	49.87

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5
TOTALS (tons/year, unmitigated)	120.00	180.03	1,577.19	1.39	260.56	49.87

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Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25
Pinole GPU-2030 Baseline	120.00	180.03	1,577.19	1.39	260.56	49.87
TOTALS (tons/year, unmitigated)	120.00	180.03	1,577.19	1.39	260.56	49.87

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2011 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Pinole GPU-2030 Baseline		90,234.00	1000 sq ft	1.00	90,234.00	830,152.78
					90,234.00	830,152.78

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	50.9	1.0	98.6	0.4
Light Truck < 3750 lbs	13.2	1.5	94.7	3.8
Light Truck 3751-5750 lbs	20.4	0.5	99.5	0.0
Med Truck 5751-8500 lbs	7.7	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.1	0.0	72.7	27.3
Lite-Heavy Truck 10,001-14,000 lbs	0.6	0.0	50.0	50.0

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Med-Heavy Truck 14,001-33,000 lbs	0.7	0.0	14.3	85.7
Heavy-Heavy Truck 33,001-60,000 lbs	0.4	0.0	0.0	100.0
Other Bus	0.0	0.0	0.0	0.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	3.7	62.2	37.8	0.0
School Bus	0.4	0.0	0.0	100.0
Motor Home	0.8	0.0	87.5	12.5

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	9.2	9.2	9.2	9.2	9.2	9.2
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Pinole GPU-2030 Baseline				0.0	0.0	100.0

APPENDIX C TRAFFIC

This section describes the current transportation network in the City of Pinole and summarizes the effects on the circulation system that would result from the implementation of the proposed General Plan Update. The impact analysis evaluates the local and regional roadway, transit, bicycle, and pedestrian components of the overall transportation system.

4.4.1 ENVIRONMENTAL SETTING

Pinole's transportation system, made up of roadways, transit services, bicycle and pedestrian facilities, and other transportation related facilities such as parking and freight service, is set up to serve the transportation needs of residents, employees, and visitors. About 71 percent of Pinole residents commute to work by driving alone and 17.5 percent carpool. Around 6.4 percent uses transit services including bus (2 percent), subway (4 percent), rail (0.09 percent) and ferry (0.05 percent). For non-motorized modes, approximately 0.22 percent travels by bicycle and just over one percent commute on foot[1].

At the core of the city's transportation system is the street system, which is largely complete. In general, the street system design and classifications were developed consistent with the 1995 General Plan policies that major arterials should not pass through residential neighborhoods, but should provide neighborhood boundaries, and interior street patterns should be designed through use of cul-de-sacs, loop streets, and neighborhood collectors to discourage through traffic. Given the topography of Pinole, the street system is not the traditional grid pattern.

Direct transit service is provided by two bus transit agencies, the Western Contra Costa Transit Authority (WestCAT) and the Alameda Contra Costa Transit Authority (AC Transit), offering nine fixed-route services and linking the city with the greater Bay Area region. The bus transit agencies also provide connection services to other transit services including subway provided by the San Francisco Bay Area Rapid Transit District (BART) via El Cerrito del Norte station in El Cerrito and passenger rail provided by Amtrak via Richmond station in downtown Richmond.

EXISTING ROADWAY NETWORK

Streets and highways in the city are described by their functional classification and illustrated on **Figure 4.4-1**. These classifications identify the purpose of the streets and highways relative to their overall function in the distribution of different types of trips using the facilities.

Freeway

Freeways serve both inter-regional and intra-regional circulation needs. These facilities are typically accessed by collector or arterial roadways and have no at-grade crossings. Bicyclists and pedestrians are prohibited from accessing these facilities, unless stated otherwise. These facilities have the highest carrying capacity with the maximum speed limits allowed by law and are owned and operated by the California Department of Transportation (Caltrans).

Interstate 80 (I-80) is an 8-lane divided freeway that runs east-west to bisect the city. It provides regional access to San Francisco City and County, Alameda County, Contra Costa County, Solano County, and points beyond to the east. In the vicinity of Pinole, I-80 carries from 180,000

[1] Census Transportation Planning Package (CTPP) 2000, Part 3 <http://www.mtc.ca.gov/maps_and_data/Datamart/census/ctpp2000/>

Figure 4.4-1 Circulation Map (Insert Circulation Map from Circulation Element)

to 196,000 vehicles daily.[2] Full access to the City is provided at interchanges with Richmond Parkway, Appian Way, and Pinole Valley Road. Access to the freeway is provided by slip ramps at Pinole Valley Road, and slip ramps and a loop ramp (for southbound vehicles entering eastbound on-ramp) at Appian Way. At Richmond Parkway, freeway access is provided by slip and loop ramps in addition to a direct off-ramp for the eastbound High Occupancy Vehicle (HOV) lane and a direct on-ramp for the westbound HOV lane.

Arterials

Arterials provide primary connections between major areas within the City of Pinole and also distribute traffic between adjacent communities. In addition, arterials provide considerable regionwide and intercity circulation. Speed limits often range from 30 to 50 mph.

San Pablo Avenue is a 4-lane, mostly divided arterial running east-west along the northern portion of Pinole and providing connections to the unincorporated community of Tara Hills to the south and City of Hercules to the north. San Pablo Avenue generally runs north-south from the City of Oakland to the unincorporated community of Crockett. On-street parking is generally allowed along the segment in Pinole.

Fitzgerald Drive is a 4-lane, east-west, divided arterial connecting Richmond Parkway and Appian Way on the southern side of I-80. On-street parking is prohibited.

Tara Hills Drive is a circuitous arterial connecting Appian Way to unincorporated communities on both sides of San Pablo Avenue. It's a 4-lane roadway from Appian Way to Flannery Road, where it narrows to 2-lanes to its terminus in the unincorporated community of Bayview-Montalvin. On-street parking is generally allowed on the 4-lane section and prohibited on the 2-lane section.

Appian Way is a 4-lane, north-south arterial beginning at San Pablo Avenue and running through the unincorporated community of El Sobrante. On-street parking is allowed on some segments of the roadway.

Pinole Valley Road is a 4-lane, north-south arterial from Henry Avenue through Pinole that becomes Alhambra Valley Road at the city limits. From San Pablo Avenue to Tennent Avenue, Pinole Valley Road is a 2-lane collector. On-street parking is allowed on some segments of the roadway.

Tennent Avenue is a 2-lane, north-south arterial from its southern terminus at Pinole Valley Road to San Pablo Avenue. From San Pablo Avenue to its northern terminus at Pinole Bayfront Park, Tennent Avenue serves as a collector. On-street parking is generally allowed.

Collector Roads

Collectors typically serve intra-city rather than regional circulation needs. Their primary function is to provide access to adjacent properties and connections between local roads and other roadways that are higher in the hierarchy of classification. Travel speeds on collectors often range between 25 mph and 45 mph.

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[2] Caltrans, Traffic Operations Program, 2005 All Traffic Volumes on California State Highway System. Website address: http://traffic-counts.dot.ca.gov/2005all/r071-80i.htm

The following roadways are identified in the 1995 General Plan Circulation Element as Collectors:

1. Allview Avenue
2. Canyon Drive
3. Del Monte Drive
4. Estates Avenue
5. Flannery Road
6. Galbreth Road
7. Henry Avenue
8. Manor Road
9. Marlesta Road
10. Pinole Shores Drive
11. Pinole Valley Road (between Tennent and San Pablo Avenue)
12. Rancho Road
13. Sarah Drive
14. Shamrock Drive
15. Shawn Drive
16. Shea Drive
17. Simas Avenue
18. Sunnyview Drive
19. Wright Avenue

Local Streets

Local roads provide access to adjacent properties, primarily residential uses, and distribute traffic to collectors. Travel speeds on local streets typically range from 25 to 35 mph. All other roadways not identified above are classified as Local Streets.

LEVEL OF SERVICE

The operating conditions experienced by motorists are described as "levels of service" (LOS). Level of service is a qualitative measure of the effect of a number of factors, including speed and travel time, traffic interruptions, freedom to maneuver, driving comfort, and convenience. Levels of service are designated "A" through "F" from best to worst, which cover the entire range of traffic operations that might occur. Levels of service "A" through "E" generally represent traffic volumes at less than roadway capacity, while LOS "F" represents over capacity and/or forced flow conditions. Each level of service for signalized intersections is generally described as follows:

LOS A- Free-flowing travel with an excellent level of comfort and convenience and freedom to maneuver.

LOS B- Stable flow conditions, but the presence of other road users causes a noticeable, though slight, reduction in comfort, convenience and maneuvering freedom.

LOS C- Stable flow conditions, but the operation of individual users is substantially affected by the interaction with others in the traffic stream.

LOS D- High-density, but stable flow. Users experience severe restrictions in speed and freedom to maneuver, with poor levels of comfort and convenience.

LOS E- Operating conditions at or near capacity. Speeds are reduced to a low but relatively uniform value. Freedom to maneuver is difficult with users experiencing frustration and poor comfort and convenience. Unstable operation is frequent, and minor disturbances in traffic flow can cause breakdown conditions.

LOS F- Forced or breakdown conditions. This condition exists whenever the volume of traffic exceeds the capacity of the roadway. This condition exists wherever the amount of traffic approaching a point exceeds the amount that can traverse a point. Roadways store long queues behind such locations, with traffic advancing in stop-and-go "waves".

EXISTING TRAFFIC VOLUMES AND OPERATING CONDITIONS

Intersection turning movement counts were compiled from a number of sources in order to assess the traffic conditions at critical locations throughout the city. The counts were conducted between Fall 2006 to Fall 2008. **Figure 4.4-2** shows a map of the study intersections.

Intersections

Intersection levels of service were evaluated at 20 key signalized intersections in Pinole for the AM and PM peak hours. The level of service was determined using the Contra Costa Transportation Authority's methodology, which calculates a ratio of the volume of vehicles to the capacity of the critical movements at the intersection, similar the Circular 212 Planning Method. The intersection volumes at these locations are depicted in Figure 4.4-3 and the corresponding levels of service at the intersections are shown in **Table 4.4-1**.

Under the existing conditions, all study intersections operate at LOS C or better during the AM and PM peak hours. The capacities of these key intersections are more than adequate to meet the current peak hour traffic demands.

In addition to the level of service analysis, traffic conditions were observed in the field. Operations at the I-80 interchanges of Appian Way and Pinole Valley Road were observed for 15-minute periods during a weekday morning commute time. There was one observed instance at southbound Appian Way where the queue from the traffic signal at the northern leg of the interchange reached the preceding intersection and caused vehicle backups for right-turning vehicles from Tara Hills Drive. I-80 westbound vehicles could not get around the queue to access the uncontrolled on-ramp. No spillovers onto city roadways were observed at the I-80 interchange of Pinole Valley Road but a large number of vehicles in the AM peak-hour exited I-80 using the westbound off-ramp, proceeded through the intersection, and re-entered I-80 in order to avoid this congested section of the freeway.

Lane utilization presents an issue at the Tara Hills-Canyon Drive and Appian Way intersection. Even though two eastbound right-turn lanes are provided, the outer turn lane, which leads directly to I-80 westbound on-ramp just 300 feet south on Appian Way, is preferred by motorists in order to avoid the need to merge into the right-hand lane after the turn. The resulting congestion is particularly pronounced in the AM peak hour, when most of the turning traffic is destined for westbound I-80. Such operational issue may not be reflected in the level of service analysis.

Figure 4.4-2 Study Intersections

Figure 4.4-3: Intersection Traffic Volume – Existing Conditions

TABLE 4.4-1
INTERSECTION LEVELS OF SERVICE
EXISTING CONDITIONS

#	Intersection	Time Period	LOS	V/C Ratio
1	Del Monte Drive at San Pablo Avenue	AM	A	0.50
		PM	A	0.40
2	Pinole Shores Drive at San Pablo Avenue	AM	A	0.44
		PM	A	0.34
3	Sunnyview Drive at San Pablo Avenue	AM	A	0.39
		PM	A	0.38
4	Appian Way at San Pablo Avenue	AM	A	0.43
		PM	A	0.59
5	Tennent Avenue at San Pablo Avenue	AM	A	0.55
		PM	A	0.43
6	Pinole Valley Road at San Pablo Avenue	AM	A	0.57
		PM	A	0.55
7	Pinole Valley Road at Tennent Avenue	AM	A	0.42
		PM	A	0.32
8	Pinole Valley Road at Henry Avenue	AM	A	0.41
		PM	A	0.39
9	Pinole Valley Road at I-80 westbound ramps	AM	A	0.54
		PM	A	0.52
10	Pinole Valley Road at I-80 eastbound ramps	AM	B	0.69
		PM	C	0.71
11	Pinole Valley Road at Estates Avenue	AM	A	0.48
		PM	A	0.45
12	Pinole Valley Road at Ramona Street	AM	A	0.30
		PM	A	0.24
13	Appian Way at Mann Drive	AM	A	0.51
		PM	A	0.50
14	Appian Way at Tara Hills Drive-Canyon Drive	AM	B	0.67
		PM	A	0.55
15	Appian Way at I-80 westbound ramps	AM	B	0.67
		PM	A	0.60

#	Intersection	Time Period	LOS	V/C Ratio
16	Appian Way at I-80 eastbound ramps	AM	A	0.41
		PM	B	0.60
17	Appian Way at Fitzgerald Drive-Sara Drive	AM	A	0.50
		PM	A	0.54
18	Oak Ridge Lane at San Pablo Avenue	AM	A	0.41
		PM	A	0.35
19	Fernandez Avenue at San Pablo Avenue	AM	A	0.41
		PM	A	0.34
20	John Street at San Pablo Avenue	AM	A	0.44
		PM	A	0.38

Source: Dowling Associates, Inc. 2010

TRANSIT SYSTEMS

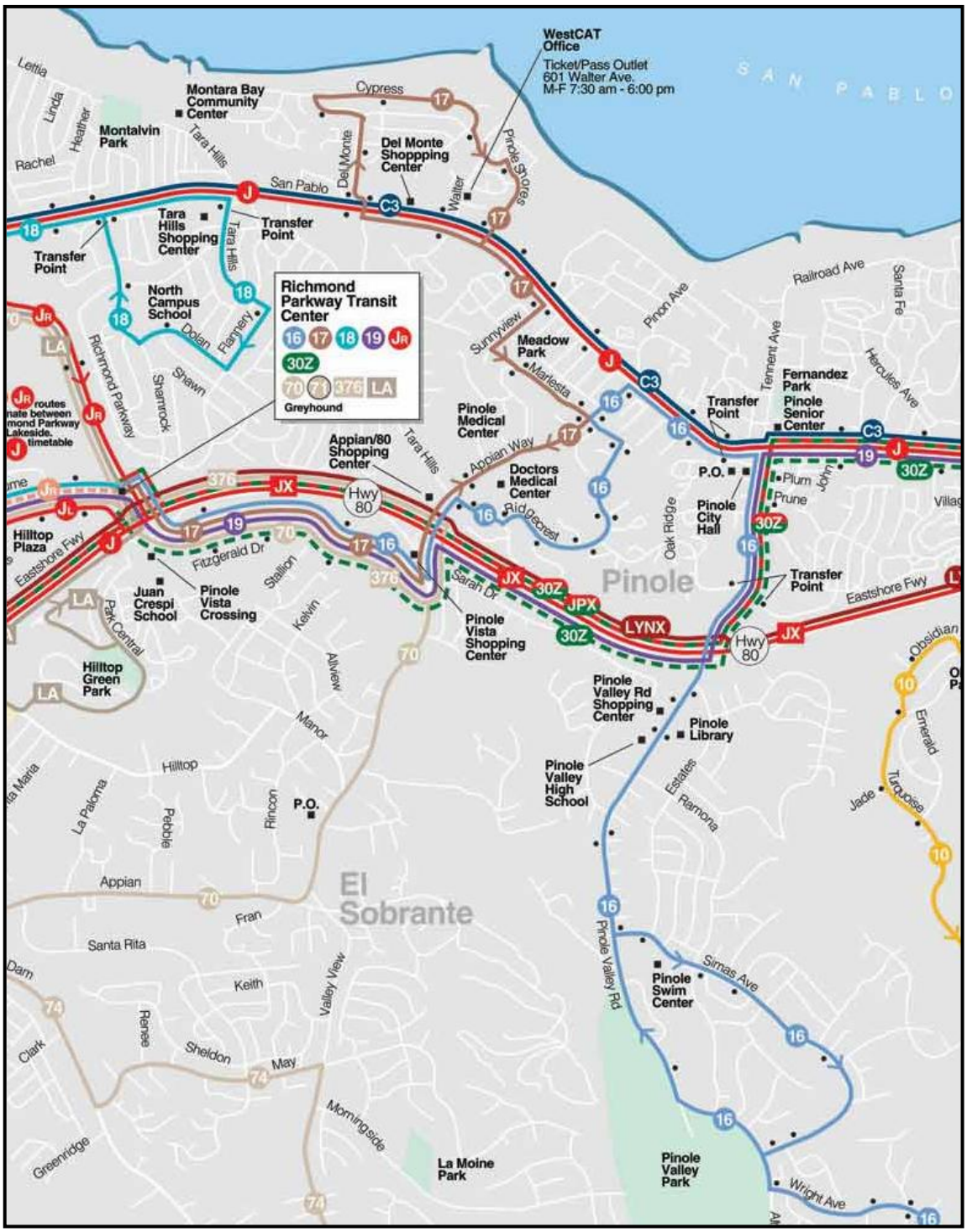
Transit systems provide a motorized alternative to private vehicles. They serve citizens who cannot drive or choose not to drive, including senior citizens, residents with limited mobility, people under the age of 16, residents with no driving licenses or suspended driving licenses, and citizens opting to live a less car-dependent lifestyle.

Bus Service

Pinole is served by two bus transit agencies, the Western Contra Costa Transit Authority (WestCAT) and the Alameda Contra Costa Transit Authority (AC Transit).

WestCAT operates 7 fixed-route services that serve Pinole as shown in **Figure 4.4-4**. Additionally, WestCAT operates an express bus service, the JPX, to El Cerrito BART and an express bus service, the Lynx, to San Francisco from the Hercules Transit Center. WestCAT also operates a dial-a-ride paratransit service for seniors and the disabled. All fixed route busses are equipped with front-loading racks that can hold up to two bicycles. WestCAT's portable route map contains information on bus stop locations, routes, and fixed route bus schedules.

Figure 4.4-4: WestCAT and AC Transit Bus Service in Pinole (insert better map from Circulation Element)



Source: WestCAT website, www.westcat.org

AC Transit operates 2 fixed-route services in southern Pinole, Route 70 and Route 376, which are pictured in **Figure 4.4-4**. AC Transit also operates dial-a-ride paratransit services for seniors and the disabled in southern Pinole. Busses are equipped with front-loading racks that can hold up to two bicycles.

Passenger Rail Service

The San Francisco Bay Area Rapid Transit District (BART) provides heavy-rail, regional transit service to Alameda, San Francisco, Contra Costa, and San Mateo counties. There is currently no BART service in Pinole. However, WestCAT operates the J bus route which connects to the BART station at El Cerrito del Norte. BART's direct service from this station includes the Richmond/Fremont line, with trains every 15 minutes during the weekday and every 20 minutes on the weekend. This train line runs until 1:00 AM daily, with weekday, Saturday, and Sunday service beginning at 4:15 AM, 6:00 AM, and 8:00 AM, respectively. The Richmond/San Francisco line also runs with trains every 15 minutes during the weekday until 7:45 PM and every 20 minutes on Saturday until 6:00 PM. Connections to the Fremont/San Francisco line, Pittsburgh/Daly City line, and the Dublin-Pleasanton/Millbrae line can be made at various points throughout the system.

Amtrak operates passenger rail service for three routes that traverse western Contra Costa County. While there is no station in Pinole, the closest station is an unmanned Amtrak station at the Richmond BART station and there are plans to build a ferry and Amtrak station in neighboring Hercules. [3] Two of Amtrak's routes that stop in Richmond are intrastate services, the Capitol Corridor serving Sacramento/ San Jose, and the San Joaquin serving Oakland/ Bakersfield. The other route is the Zephyr, an interstate service serving Emeryville/ Chicago.

Ferry Service

There is currently no ferry service offered in western Contra Costa County. Ferry service to San Francisco is provided by Baylink from Vallejo and by East Bay Ferry from Oakland. Weekday service is provided from about 5:30 AM into the evening hours at 30 to 100 minute intervals and weekend service is provided from 9:00 AM into the evening hours at 60 to 120 minute intervals. There are plans to build a ferry station in Richmond and a multi-modal ferry and Amtrak station in neighboring Hercules. [4]

For Hire Passenger Services

Pinole is served by two taxi cab companies that provide passenger services for hire. They are:

- Greyline Cab Company
- Yellow Cab and Shuttle Services

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[3] *West County Action Plan 2009 Update*, published by the West Contra Costa Transportation Advisory Committee and the Water Emergency Transportation Authority website accessed September 3, 2009, http://www.watertransit.org/proposedRoutes/hercules_overview.aspx

[4] *West County Action Plan 2009 Update*, published by the West Contra Costa Transportation Advisory Committee and the Water Emergency Transportation Authority website accessed September 3, 2009, http://www.watertransit.org/proposedRoutes/hercules_overview.aspx

BICYCLING FACILITIES

Pinole is generally quite hilly from San Pablo Avenue to the south. Additionally, many local streets do not provide parallel lower-traffic-volume, lower-speed alternatives for bicyclists to arterials due to roadway configurations and geographical constraints. Nonetheless, Pinole maintains a limited number of bicycle facilities as described below and shown in Figure 4.4-5.

- *Class I Multi-Use Path,* a paved right-of-way separate from any street or highway, is provided along Pinole Creek between I-80 and Railroad Avenue and at the Bayfront Park. The Pinole Creek Trail provides connections to Collins Elementary School, Pinole Valley Lanes Bowling Alley, the Central Business District, Fernandez Park, residential areas, and the Bay Trail.[5] The trail at Bayfront Park provides a recreational cycling opportunity but is not yet connected to other segments of the Bay Trail. The undeveloped segment of Bay Trail between Bayfront Park and Pinole Shore Regional Park has been identified for future improvement by the Bay Trail Project.[6]
- *Class II Bike Lanes* provides for a striped and stenciled lane for one-way travel on a street or highway. Currently, there is no bike lane in Pinole. However, such facility is proposed along San Pablo Avenue and Pinole Valley Road in the 2009 Contra Costa Countywide Bicycle and Pedestrian Plan adopted in October 2009. Further, the Plan also proposed the conversion of the existing Class III bike routes along Fitzgerald Drive and Appian Way to Class II bike lanes.
- *Class III Bike Route* provides for shared use of a street with motor vehicle traffic, and may be identified only by signing and/or pavement legends. Bike routes are found on Fitzgerald Drive and Appian Way.

PEDESTRIAN SYSTEMS

Sidewalks with raised curb and gutter are generally provided on all arterials and collectors. Most signalized intersections have marked crosswalks on all legs, and pedestrian signal heads and actuation. Marked crosswalks are also generally found at unsignalized intersections on some legs. Pedestrian curb ramps are located at most intersections except at some T-intersections, such as the northwest corner of Pinole Valley Road at Ramona. However, none of the pedestrian ramps observed contained high-contrast, truncated domes.

The city's multi-use paths along Pinole Creek and in Bayfront Park at the Bay Trail provide recreational and transportation opportunities to walkers, with Pinole Creek Trail providing connections to several activity centers. Observed numbers of pedestrians on the trails are significant throughout the day.

The Central Business District, located on San Pablo Avenue from Quinan Street to Pinole Valley Road, contains pedestrian-oriented land uses, pedestrian-scaled lighting, and crossing aids at all intersections such as marked, high-contrast crosswalks, intersection bulb-outs, directional curb ramps, and pedestrian signal heads.

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[5] The Bay Trail is a project of the Association of Bay Area Governments (ABAG) and is a planned recreational corridor that, when complete, will encircle San Francisco and San Pablo Bays with a continuous 400-mile network of bicycling and hiking trails. See the Community Services and Facilities chapter (chapter 4) for more discussion.

[6] The Bay Trail west of the loop is not complete, according to field work. Also see Bay Trail map.

Figure 4.4-5: Existing and Proposed Bikeways

4.4.2 REGULATORY FRAMEWORK

STATE

California Department of Transportation (Caltrans) is responsible for planning, design, construction, and maintenance of all state highways. I-80 is the only state highway that passes through Pinole. Caltrans' jurisdictional interest extends to improvements to those local roadways at the interchange ramps serving area freeways. Any federally funded transportation improvements are subject to review by Caltrans staff and the California Transportation Commission.

The Guide for the Preparation of Traffic Impact Studies (Caltrans, 2001) provides consistent guidance for Caltrans staff who review local development and land use change proposals. The guide also helps Caltrans staff, who informs local agencies of the information needed to analyze the traffic impacts to State highway facilities including freeway segments, on- or off-ramps, and signalized intersections.

REGIONAL

Metropolitan Transportation Commission (MTC) is the regional organization responsible for prioritizing transportation projects in a Regional Transportation Improvement Program (RTIP) for federal and state funding. The process is based on evaluating each project for need, feasibility, and adherence to federal transportation policies and the local Congestion Management Program (CMP). The CMP requires each jurisdiction to identify existing and future transportation facilities that would operate below an acceptable service level and provide mitigation where future growth would degrade that service level.

Standards for roadway operations in Pinole are defined on a countywide basis. In 1988, Contra Costa County voters passed Measure C, which raised the sales tax to provide funding for regional transportation improvements. Measure C requires local jurisdictions to adopt and implement a growth control program in order to receive their share of funds for transportation projects including maintenance. Measure C also included the Growth Management Program, which established a cooperative, multi-jurisdictional planning process requiring participation of all cities, towns, and the County in managing the impacts of growth in Contra Costa County.

Measure J, approved by the voters in 2004, authorized the extension of Measure C and establishes Transportation Sales Tax Expenditure Plan that extends the transportation sales tax initially authorized by the passage of Contra Costa Measure C. It provides for $2 billion in funding for programs and projects. These expenditures are "for the construction and improvement of state highways, the construction, maintenance, improvement, and operation of local streets, roads, and highways, and the construction, improvement, and operation of public transit systems", including paratransit services (California Public Utilities Code §180205), and for specific efforts supporting such investments. Measure J's Growth Management Program simplifies Measure C's requirements; it also requires a binding Urban Limit Line for the county and all of the cities within the county.

The Contra Costa Transportation Authority (CCTA) was established to implement Measure C and its overall goals. CCTA also serves as the Congestion Management Agency responsible for the

CMP. Local jurisdictions work through their respective Regional Transportation Planning Committees (RTPCs). As part of western Contra Costa County, the City of Pinole works with other west county jurisdictions through the West Contra Costa Transportation Advisory Committee (WCCTAC) to develop the West County Action Plan. The Action Plan identifies multi-modal traffic service objectives (MTSOs) for Routes of Regional Significance, which in Pinole include the freeway (I-80) and arterial streets (San Pablo Avenue and Appian Way). On these arterials, the MTSO sets a target level of service. The West County Action Plan was adopted on July 31, 2009.

LOCAL

The Measure C Growth Management Program sets standards for the regional and non-regional routes in Contra Costa County, which the City has incorporated into the Circulation Element of the 1995 General Plan. These standards are tied to land use and provide for a tiered system of transportation systems in Pinole, with different standards used for different types of streets.

4.4.3 IMPACTS AND MITIGATION MEASURES

This subsection describes the transportation analysis of the proposed General Plan Update and identifies potential impacts and mitigation measures that would be associated with the adoption of the proposed General Plan Update. Quantitative transportation impact analyses were conducted for the Year 2030 and assumed full build-out of the land uses proposed in the General Plan Update. In this manner, the full impact of the proposed Plan is analyzed. However, because it is unlikely that full build-out condition would occur by Year 2030, the transportation analyses tend to be more conservative.

STANDARDS OF SIGNIFICANCE

The impact analysis provided below is based on the following State CEQA Guidelines Appendix G. A transportation/traffic impact is considered significant if implementation of the proposed General Plan would result in the following:

1. Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit. Specifically, the following LOS and Volume to Capacity Ratios (V/C Ratios) are applied as the minimum acceptable standards for signalized intersections:

   Central Business District (LOS E+ or better, V/C Ratio of 0.90 to 0.94)

   Applicable roadways

   - San Pablo Avenue from Oak Ridge Road to eastern city limits

   Urban (LOS D- or better, V/C Ratio of 0.85 to 0.89)

   Applicable roadways

   - San Pablo Avenue from Oak Ridge Road to western city limits
   - Appian Way from San Pablo Avenue to southern city limits
   - Pinole Valley Road from San Pablo Avenue to city limits
   - Tennent Avenue from Pinole Valley Road to Railroad Avenue

- Fitzgerald Drive from Appian Way to 1,000 feet west of Appian Way
- Tara Hills Drive from Appian Way to 1,000 feet west of Appian Way

Suburban (LOS D+ or better, V/C Ratio of 0.80 to 0.85)

Applicable roadways

- All roadways not listed above

2. Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways. Specifically, the relevant MTSOs of the West County Action Plan are:
    - Maintain a Delay Index of 3.0 or less during weekday morning and evening peak hour on Interstate 80
    - Maintain LOS "E" or better at all signalized intersections along San Pablo Avenue
    - Maintain LOS "D" or better at all signalized intersections on Appian Way
3. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.
4. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
5. Result in inadequate emergency access.
6. Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

Traffic Issues Not Further Analyzed

Air Traffic

Given the distance to San Rafael Airport (approximately 12 miles west) and Buchanan Field Airport (approximately 13 miles east), the proposed General Plan is not expected to result in a change to air traffic patterns because the facilities do not provide commuter or connecting services. Therefore, threshold of significance (3) above is not applicable.

TRANSPORTATION ANALYSIS METHODOLOGY AND RESULTS

The transportation impact analysis is focused on potential LOS impacts on freeways and intersections that would occur from increased travel demand associated with new land development and roadway network modifications under the proposed General Plan. The assessment of these components of the transportation systems was conducted quantitatively using the process outlined in the Analysis Methodology section below. For the transit, bicycle and pedestrian systems, the policies and implementation measures were evaluated against the significance thresholds.

Analysis Methodology

The Contra Costa Transportation Authority's Travel Demand Model was used to develop future traffic volume forecasts. The model was used to forecast the daily roadway volumes as well as the AM and PM peak hour intersection turning movement data. The following steps were taken in the analysis:

1. Roadway Networks. The latest available CCTA Model was reviewed to ensure that future regional roadway improvements are included as part of the future 2030 condition. For the 2030 baseline condition, this included the planned Appian Way widening from two lanes to four lanes between San Pablo Dam Road and Manor Road outside the city limit. For the Proposed General Plan, modifications included the proposed narrowing of San Pablo Avenue between Oakridge Road and the eastern city limit.

2. Land Use Data. The CCTA model includes future development throughout the region. The 2030 forecasts are consistent with regional totals for growth projected by the Association of Bay Area Governments (ABAG) in their *Projections 2005* report. Therefore, the traffic forecasts reflect traffic from growth in Pinole as well as traffic in the region that may use the roadways in the City of Pinole.

   The land use data for the proposed General Plan Update were developed. The land use data was categorized into total households, single-family dwelling units, multi-family dwelling units, total employment, and employment by sector (retail, service, agriculture, manufacturing, wholesale, and other) by traffic analysis zone (TAZ) for input to the model.

3. Model Forecasts. The model was used to produce traffic volume forecasts for 2030 baseline conditions and 2030 proposed General Plan Update conditions. The Gateway Capacity Constraint Methodology was applied in projecting the peak hour volumes. This methodology, consistent with the West County Action Plan for Routes of Regional Significance – 2009 Update (West County Action Plan), limits future peak hour volumes based on the capacity of major corridors (or gateways) that serves the area. The Bay Bridge serves as the gateway for the West Contra Costa County including Pinole. Both base year and future year forecasts were extracted and used to estimate the growth, which was applied to the existing counts. .

4. Impact Analysis. The significance criteria were used to identify potential roadway network deficiencies. For the intersections, the future (2030) volumes were adjusted following the process established in the CCTA Technical Procedures, using the Furness method. Free-flow and congested speeds from the model were used to calculate the delay index. For the other transportation issues, the impacts were qualitatively assessed and the proposed General Plan policies were reviewed for conflicts with adopted plans and policies.

Model Forecasts Summary

Summaries of daily vehicles trips, average vehicle trip lengths, and vehicle-miles traveled for trip generated in Pinole from the model forecasts are presented in Table 4.4-2.

TABLE 4.4-2
MODEL FORECAST SUMMARY

Year	Households	Total Employment	Total Daily Vehicle Trips	VMT Generated (in miles)	Average Trip Length (in miles)
2000 Model	7137	5747	68,495	620,000	9.05
2030 Baseline	7619	7324	81,679	750,000	9.18
Cumulative with Preferred Project	8651	8093	90,234	830,000	9.20

Source: Dowling Associates, 2010.

Intersection Operations

The forecasted intersection traffic volume for Year 2030 Baseline conditions is shown Figure 4.4-6 and for the proposed General Plan Update is shown in Figure 4.4.7. The intersection levels of service under both 2030 conditions are summarized in Table 4.4-3 The peak hour volumes at several intersections along key corridors serving Pinole, such as San Pablo Avenue, Appian Way, and Pinole Valley Road, would approach or exceed the capacity of the intersection, resulting in substandard conditions as identified in **bold**.

TABLE 4.4-3
YEAR 2030 PEAK HOUR INTERSECTION LEVELS OF SERVICE
BASELINE AND PROPOSED GENERAL PLAN UPDATE

#	Intersection	Time Period	LOS	V/C Ratio	LOS	V/C Ratio
			2030 Baseline		Proposed GP Update	
1	Del Monte Drive at San Pablo Avenue	AM	B	0.610	A	0.570
		PM	A	0.550	A	0.460
2	Pinole Shores Drive at San Pablo Avenue	AM	A	0.560	A	0.510
		PM	A	0.440	A	0.370
3	Sunnyview Drive at San Pablo Avenue	AM	A	0.510	A	0.470
		PM	A	0.500	A	0.430
4	Appian Way at San Pablo Avenue	AM	D	0.850	B	0.630
		PM	**F**	**1.060**	C	0.740
5	Tennent Avenue at San Pablo Avenue	AM	C	0.780	**E**	**0.980**
		PM	B	0.680	D	0.830
6	Pinole Valley Road at San Pablo Avenue	AM	C	0.780	**E**	**0.950**
		PM	D	0.830	**F**	**1.060**

#	Intersection	Time Period	LOS	V/C Ratio	LOS	V/C Ratio
			2030 Baseline		Proposed GP Update	
7	Pinole Valley Road at Tennent Avenue	AM	B	0.610	B	0.670
		PM	A	0.380	A	0.450
8	Pinole Valley Road at Henry Avenue	AM	A	0.540	B	0.610
		PM	A	0.530	C	0.700
9	Pinole Valley Road at I-80 westbound ramps	AM	B	0.660	B	0.680
		PM	A	0.560	B	0.640
10	Pinole Valley Road at I-80 eastbound ramps	AM	C	0.700	B	0.700
		PM	**D**	**0.900**	**E**	**0.930**
11	Pinole Valley Road at Estates Avenue	AM	A	0.490	A	0.480
		PM	A	0.470	A	0.460
12	Pinole Valley Road at Ramona Street	AM	A	0.320	A	0.330
		PM	A	0.280	A	0.300
13	Appian Way at Mann Drive	AM	A	0.540	A	0.530
		PM	A	0.460	A	0.400
14	Appian Way at Tara Hills Drive-Canyon Drive	AM	**E**	**0.910**	D	0.880
		PM	B	0.680	C	0.710
15	Appian Way at I-80 westbound ramps	AM	**D**	**0.900**	D	0.870
		PM	C	0.710	C	0.720
16	Appian Way at I-80 eastbound ramps	AM	B	0.650	A	0.560
		PM	C	0.760	C	0.740
17	Appian Way at Fitzgerald Drive-Sara Drive	AM	B	0.700	C	0.760
		PM	D	0.820	D	0.870
18	Oak Ridge Lane at San Pablo Avenue	AM	A	0.570	D	0.810
		PM	A	0.530	B	0.670
19	Fernandez Avenue at San Pablo Avenue	AM	B	0.600	C	0.780
		PM	A	0.590	B	0.600
20	John Street at San Pablo Avenue	AM	B	0.690	**E**	**0.910**
		PM	A	0.580	C	0.740

Note: Bold indicates facilities that would not meet current standard; **Shaded** cells indicate significant impacts.

Figure 4.4.6: Intersection Traffic Volume – 2030 Baseline Conditions

Figure 4.4.7: Intersection Traffic Volume – Proposed General Plan Update Conditions

The 2030 conditions at these intersections represent increase traffic volumes due to growth in the City of Pinole as well as adjacent communities. In addition, San Pablo Avenue, as a parallel arterial to the congested I-80 corridor, and Appian Way providing access to the freeway serve not only the local traffic, but regional traffic along the I-80 corridor as well. Under the proposed General Plan Update with the narrowing of San Pablo Avenue, some of the traffic on San Pablo Avenue would shift back to I-80, but the reduced capacity due to the lane reduction on San Pablo Avenue would result in increased v/c at the intersection with Pinole Valley Road and Tennent Avenue.

PROJECT IMPACTS AND MITIGATION

Intersection Operations

Impact 4.4.1 Implementation of the proposed General Plan Update would result in an increase in V/C and decrease in LOS on study intersections during the AM and PM peak hours. This is considered a **significant** impact.

Implementation of the land use development and roadway modifications proposed in the General Plan Update would cause four study intersections to operate below City level of service standards as shown in Table 4.4-3. The San Pablo Avenue intersections with Tennent Avenue, Pinole Valley Road and John Street would degrade to LOS E or LOS F during one or both peak hours. The deterioration in operation at these intersections can be attributed to the proposed narrowing of San Pablo Avenue from the existing four travel lanes to two travel lanes through the Old Town area. In addition, the intersection of Pinole Valley Road and I-80 eastbound ramp would continue to operate at substandard level with an increase in V/C by 0.03 and level of service degrade from a high LOS D to a low LOS E.

Proposed General Plan Policies and Action Items

The proposed General Plan Update incorporates the following policies and actions that guide the development of the proposed circulation system and reduce potential level of service impacts to study roadway segments and intersections.

POLICY CE.1.2 Coordinate development of the circulation system with sustainable land use planning.

> Action CE.1.2.1 Give priority to projects that will contribute to a reduction in vehicle miles traveled per capita, while maintaining economic vitality and sustainability.
>
> Action CE.1.2.2 Require development to provide bus, bicycle, pedestrian and alternative fuel vehicle facilities, as appropriate.
>
> Action CE.1.2.3 Provide safe and convenient access for pedestrians and bicyclists, wherever feasible.

POLICY CE.1.6 Encourage transit services between major employment centers in each area of the city and surrounding communities.

Action CE.1.6.1 Coordinate the integration of local and regional transit with transportation agencies and other jurisdictions.

Action CE.1.6.2 Work with WestCAT, AC Transit and other transit providers to support expanded transit lines and increased frequency of service on major transit arterials.

POLICY CE.3.1 Apply the traffic service objectives indicated on Figure 7.4 (of the Circulation Element) for the identified roadways.

Action CE.3.1.1 Work with WCCTAC and CCTA to revise the Action Plan Level of Service standard for San Pablo Avenue within Old Town to LOS F.

Action CE.3.1.2 Project applicants shall provide a traffic study forecasting traffic impacts, identifying deficient roadways and intersections, and providing an implementation plan for needed improvements to the satisfaction of the Public Works Director/City Engineer.

Action CE.3.1.3 The City shall develop a Roadway/Trail Master plan to improve the sidewalk, bike trail, pedestrian trail and roadway system, as necessary for build-out of the General Plan.

POLICY CE.3.2 Maintain roadway network at or above established LOS thresholds.

POLICY CE.3.3 All projects shall pay their fair share of the cost for project impacts on the circulation network in order to ensure that established LOS are met.

Action CE.3.3.1 Establish a mechanism for collecting appropriate fees from development projects that will offset negative impacts on LOS thresholds.

Action CE.3.3.2 Adopt traffic impact fees that are based upon peak hour trip generation.

POLICY CE.3.4 Reduce traffic congestion at key intersections throughout the City, as appropriate and in line with the overall sustainability goals of the City.

Action CE.3.4.1 Construct necessary improvements to intersections to ensure that the applicable LOS mentioned in Policy CE.3.1 are achieved.

Mitigation Measures

The project impacts at the four study intersections would be considered **less than significant** if the proposed performance standards proposed in Policy CE.3.1 are applied. Therefore, no further mitigation measure to lessen the project impact at these intersections is proposed.

West County Action Plan MTSOs

Impact 4.4.2 Implementation of the proposed General Plan Update would conflict with the multimodal transportation service objectives (MTSOs) identified in the West County Action Plan. This is considered a **significant** impact.

As summarized in Table 4.4-4, the delay index for I-80 between Alameda County Line and Carquinez Bridge would be maintained at less than 3.0 with and without the proposed General Plan Update. Implementation of the proposed General Plan Update would not exceed the MTSO outlined in the West County Action Plan for this facility. Therefore, this is considered a **less than significant** impact.

TABLE 4.4-4
DELAY INDEX FOR INTERSTATE 80 BETWEEN ALAMEDA COUNTY LINE AND CARQINEZ BRIDGE
2030 BASELINE AND PROPOSED GENERAL PLAN UPDATE

Scenario	*Direction*	*Distance (miles)*	*AM Delay Index*	*PM Delay Index*
2030 Baseline	I-80 NB	13.802	1.61	2.33
	I-80 SB	13.807	2.47	1.82
Proposed General Plan Update	I-80 NB	13.802	1.64	2.51
	I-80 SB	13.807	2.63	1.87

However, implementation of the General Plan Update and specifically, Policy CE.3.1 would modify the level of service standards along the Old Town segment of San Pablo Avenue to LOS F and along a segment of Appian Way just north of I-80 to LOS E as detailed under Impact 4.4.1. However, the West County Action Plan dictates that all signalized intersections along San Pablo Avenue shall maintain LOS E or better and along Appian Way LOS D or better. Therefore, the project conflicts with the MTSO established by the Action Plan and is therefore considered a **significant** impact.

Proposed General Plan Policies and Action Items That Provide Mitigation

Action CE.3.1.1 of the proposed General Plan Update directs the City to work with WCCTAC and CCTA to revise the MTSO for San Pablo Avenue within Old Town to LOS F. This Action provides mitigation to eliminate the conflict between the West County Action Plan and the proposed General Plan Update related to the Old Town segment of San Pablo Avenue.

Mitigation Measures

Maintaining the existing level of service performance standards along San Pablo Avenue and Appian Way, which are consistent with MTSO, would mitigate the project impact. However, the proposed modification in level of service standards reflects greater emphasis on alternative modes of transportation and allows for more sustainable growth in the city. The implementation of the General Plan Update would better balance the needs of all roadway users despite its conflict with the West County Action Plan's MTSOs.

To address the proposed LOS change for Appian Way, the following modification to the proposed Action CE.3.1.1 should be included in the Circulation Element.

MM 4.4.2a Action CE.3.1.1 of the Circulation Element of the General Plan shall be revised to read:

Work with WCCTAC and CCTA to revise the Action Plan Level of Service standard for San Pablo Avenue within Old Town to LOS F and for Appian Way between Mann Drive and I-80 to LOS E.

If the City is able to work with WCCTAC and CCTA to revise the Action Plan or the City modifies the proposed Circulation Element to be consistent with the adopted Action Plan, the project impact would be **less than significant**.

Roadway Hazards

Impact 4.4.3 Implementation of the proposed General Plan Update would result in changes to the circulation network. However, it would not increase hazards due to a design feature or incompatible uses. Therefore, the project impact is considered to be **less than significant**.

Subsequent land use activities associated with implementation of the proposed General Plan Update may require new roadway construction or modification to the existing circulation network associated with specific projects; however, the design of any new roadways or modifications would be required to meet the City's roadway design standards. Adherent to such standards would preclude the construction of any unsafe design features. Therefore, the project impact is anticipated to be **less than significant**.

Mitigation Measures

None required.

Emergency Access

Impact 4.4.4 Implementation of the proposed General Plan Update would result in an increase in vehicular traffic and changes to the roadway network, which may potentially increase emergency access conflicts. This is considered a **less than significant** impact.

While implementation of the proposed General Plan would increase the amount of vehicle traffic and modify the roadway network, the proposed General Plan Update is designed to provide and maintain a comprehensive circulation system within the City that would provide adequate roadway connections and emergency access options. The proposed narrowing of San Pablo Avenue in the Old Town area and the resulting degradation of level of service between Tennent Avenue and John Street may cause delay along San Pablo Avenue during the morning and evening peak periods. However, bike lanes and striped medians are proposed on the roadway, which would allow vehicles to pull over to the right and emergency response vehicles to pass on the left. The roadway design for the narrowing would be reviewed by the City's police and fire departments to ensure compliance with established standards and emergency requirement. Therefore, the project impact is anticipated to be **less than significant**.
.

Mitigation Measures

None required.

Alternative Mode of Transportation

Impact 4.4.5 Implementation of the proposed General Plan Update would support continued and expanded transit use, bicycling, and walking throughout the city, although changes to the roadway network may potentially affect bus operations. This is considered a **less than significant** impact.

The General Plan Update supports bicycle use and walking as forms of non-motorized transportation by establishing goals and related policies to enhance bicycle and pedestrian infrastructures throughout the city (Goal CE.7 and CE.8). For example, the proposed narrowing of San Pablo Avenue through Old Town would allow for the construction of bike lanes and provision of curb bulb-outs that would shorten the crossing distance and minimize safety exposure for pedestrians. As such, the General Plan Update would have positive impacts on bicycle and pedestrian facilities.

Regarding public transit, the narrowing of San Pablo Avenue may result in nominal delay for bus service during the peak commute periods. Furthermore, even though currently there is no bus stop in Old Town between John Street and Oak Ridge Avenue, stopped buses may inhibit through traffic if bus stops are to be added in the future. The proposed pedestrian bulb-outs would also require buses to pull into and out of the parking lane to load and unload passengers, which result in additional delays. Similar to emergency access discussed under Impact 4.4.4, the availability of bike lanes and striped medians would allow through traffic to pass on the left of the stopped bus and the City shall work with WestCat to design a narrowing plan compatible with the transit agency's needs, such as longer bulb-outs that can accommodate buses.

Proposed General Plan Policies and Action Items

The proposed General Plan Update includes the following policies and actions that support alternative mode of transportation:

POLICY CE.1.3 Encourage development that is sensitive to both local and regional transit measures and that promotes the use of alternative modes of transportation.

> Action CE.1.3.1 Consult with transit providers during review of development proposals.
>
> Action CE.1.3.2 Include facilities that support alternative modes of transportation (pedestrian, bicycles, public transit, electric vehicles, etc.) where feasible.

POLICY CE.1.4 Encourage maximum utilization of the existing public transit system and alternate modes of transportation in Pinole.

> Action CE.1.4.1 Study the feasibility of increasing public transit frequency in areas currently served, and continue evaluating the possibility of expanding service to areas currently without service.
>
> Action CE.1.4.2 Include links to public transit resources, bike trails maps, pedestrian trails maps and carpool/van pool information on the City's website.
>
> Action CE.1.4.3 Pursue extension of rapid bus service to Pinole and enhance transit facilities that serve Pinole users.
>
> Action CE.1.4.4 Support provision of wayfinding signage and markers for transit stops and multi use trails.

POLICY CE.1.5 Encourage transit facilities that will provide good access to major public facilities and employment centers in the city.

> Action CE.1.5.1 Enhance existing and provide additional bus shelters and other amenities that support transit use, where feasible and appropriate.

POLICY CE.1.6 Encourage transit services between major employment centers in each area of the city and surrounding communities.

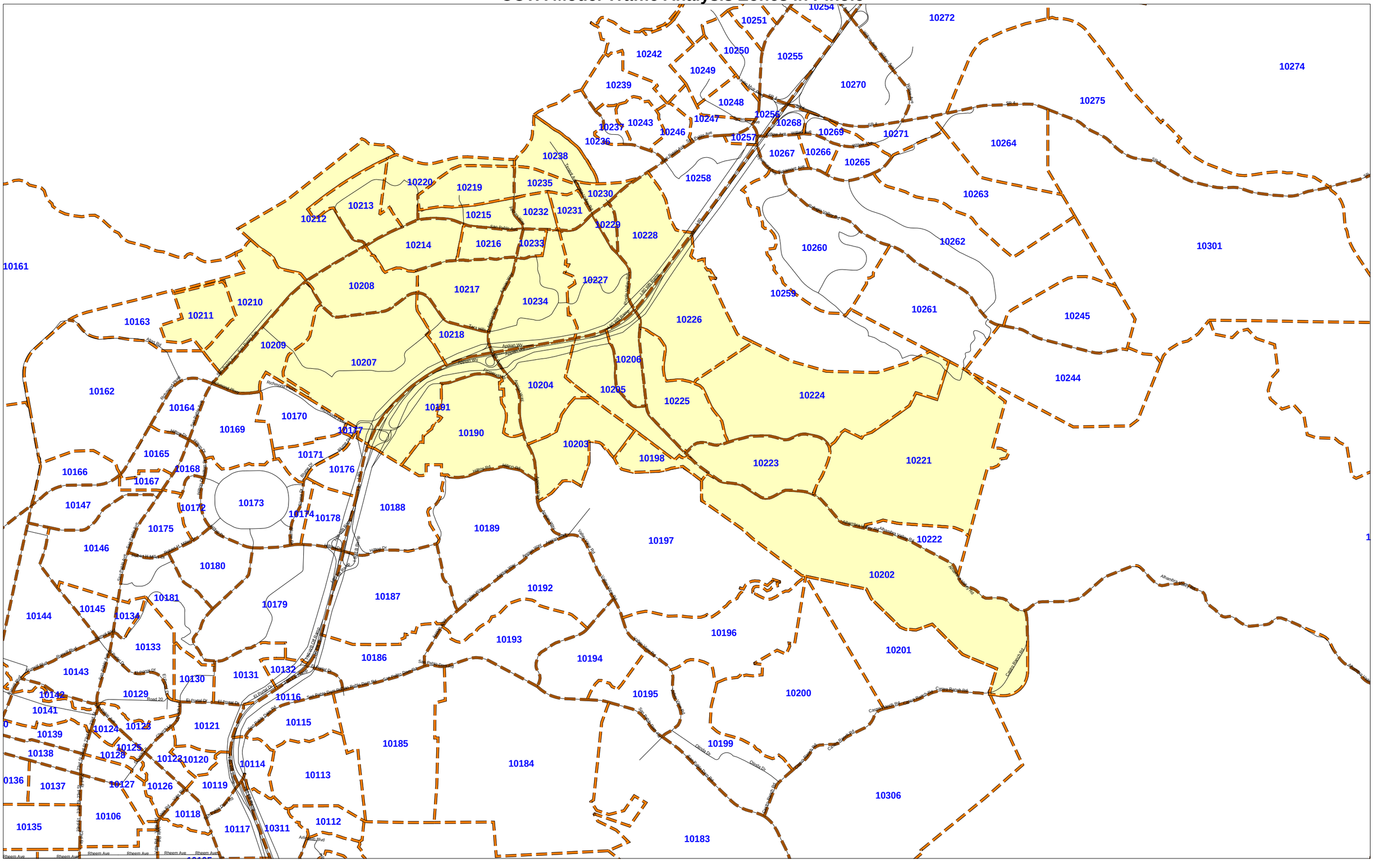
> Action CE.1.6.1 Coordinate the integration of local and regional transit with transportation agencies and other jurisdictions.

> Action CE.1.6.2 Work with WestCAT, AC Transit and other transit providers to support expanded transit lines and increased frequency of service on major transit arterials.

Mitigation Measures

None required.

CCTA Model Traffic Analysis Zones in Pinole



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Pinole General Plan (P06-130)
Existing AM Peak Hour
Dowling Associates, Inc.

Scenario Report

Scenario:	Existing AM
Command:	ExAM
Volume:	Existing AM
Geometry:	Existing
Impact Fee:	Default Impact Fee
Trip Generation:	Default Trip Generation
Trip Distribution:	Default Trip Distribution
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

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Pinole General Plan (P06-130)
Existing AM Peak Hour
Dowling Associates, Inc.

Turning Movement Report

Volume	Northbound			Southbound			Eastbound			Westbound			Total
Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Volume
#1 Del Monte Dr/eSan Pablo Ave													
Base	0	2	1	68	3	76	118	390	3	7	1106	17	1791
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	2	1	68	3	76	118	390	3	7	1106	17	1791
#2 Pinole Shores Dr/ San Pablo Ave													
Base	25	0	19	131	0	35	20	401	3	13	1072	54	1773
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	25	0	19	131	0	35	20	401	3	13	1072	54	1773
#3 Sunnyview Dr/ San Pablo Ave													
Base	17	9	9	90	11	21	21	496	40	17	992	21	1744
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	17	9	9	90	11	21	21	496	40	17	992	21	1744
#4 Appian Wy-Pinon Ave/ San Pablo Ave													
Base	104	65	91	39	75	8	7	372	195	273	1051	34	2314
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	104	65	91	39	75	8	7	372	195	273	1051	34	2314
#5 Tennent Ave/ San Pablo Ave													
Base	20	52	196	38	34	14	11	198	189	55	1272	63	2142
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	20	52	196	38	34	14	11	198	189	55	1272	63	2142
#6 Pinole Valley Rd/ San Pablo Ave													
Base	15	98	61	4	2	2	8	379	19	144	1370	17	2119
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	15	98	61	4	2	2	8	379	19	144	1370	17	2119
#7 Tennent Ave/ Pinole Valley Rd													
Base	80	221	186	8	270	44	37	88	65	140	38	14	1191
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	80	221	186	8	270	44	37	88	65	140	38	14	1191
#8 Pinole Valley Rd/ Henry Ave													
Base	46	503	36	8	628	20	25	4	57	55	8	11	1401
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	46	503	36	8	628	20	25	4	57	55	8	11	1401
#9 Pinole Valley Rd/ I-80 WB ramps													
Base	532	454	0	0	377	243	0	0	0	236	335	90	2267
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	532	454	0	0	377	243	0	0	0	236	335	90	2267

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Pinole General Plan (P06-130)
Existing AM Peak Hour
Dowling Associates, Inc.

Volume	Northbound			Southbound			Eastbound			Westbound			Total
Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Volume
#10 Pinole Valley Rd/ I-80 EB ramps													
Base	0	945	325	85	519	0	191	1	462	0	0	0	2528
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	945	325	85	519	0	191	1	462	0	0	0	2528
#11 Pinole Valley Rd/ Estates Ave													
Base	11	893	12	96	812	73	107	6	10	10	14	270	2314
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	11	893	12	96	812	73	107	6	10	10	14	270	2314
#12 Pinole Valley Rd/ Ramona St													
Base	27	504	49	62	372	62	88	1	17	74	9	82	1347
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	27	504	49	62	372	62	88	1	17	74	9	82	1347
#13 Appian Wy/ Mann Dr													
Base	169	361	0	0	806	97	71	0	230	0	0	0	1734
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	169	361	0	0	806	97	71	0	230	0	0	0	1734
#14 Appian Wy/ Tara Hills Dr-Canyon Dr													
Base	621	593	69	13	862	80	109	2	572	211	20	21	3173
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	621	593	69	13	862	80	109	2	572	211	20	21	3173
#15 Appian Way/ I-80 WB ramps													
Base	456	896	0	0	885	853	0	0	0	418	1	259	3768
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	456	896	0	0	885	853	0	0	0	418	1	259	3768
#16 Appian Way/ I-80 EB ramps													
Base	0	905	430	0	957	330	375	2	251	0	0	0	3250
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	905	430	0	957	330	375	2	251	0	0	0	3250
#17 Appian Wy/ Fitzgerald Dr-Sara Dr													
Base	169	884	23	132	697	336	236	25	115	138	116	271	3142
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	169	884	23	132	697	336	236	25	115	138	116	271	3142
#18 Oak Ridge Ln/ San Pablo Ave													
Base	27	0	16	0	0	0	0	378	10	16	1339	0	1786
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	27	0	16	0	0	0	0	378	10	16	1339	0	1786

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Pinole General Plan (P06-130)
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Volume	Northbound			Southbound			Eastbound			Westbound			Total
Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Volume
#19 Fernandez Ave/ San Pablo Ave													
Base	3	0	3	1	0	2	1	406	7	40	1385	1	1849
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	3	0	3	1	0	2	1	406	7	40	1385	1	1849
#20 John St/ San Pablo Ave													
Base	0	0	3	0	0	0	0	388	3	0	1566	0	1960
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	3	0	0	0	0	388	3	0	1566	0	1960
#21													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0

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--------------------------------------------------------------------------------
                        Pinole General Plan (P06-130)
                            Existing AM Peak Hour
                            Dowling Associates, Inc.
--------------------------------------------------------------------------------
                           Impact Analysis Report
                              Level Of Service

Intersection                             Base           Future       Change
                                      Del/   V/       Del/   V/        in
                                  LOS Veh    C    LOS Veh    C
#  1 Del Monte Dr/eSan Pablo Ave     A xxxxx 0.498   A xxxxx 0.498  + 0.000 V/C

#  2 Pinole Shores Dr/ San Pablo Av  A xxxxx 0.441   A xxxxx 0.441  + 0.000 V/C

#  3 Sunnyview Dr/ San Pablo Ave     A xxxxx 0.388   A xxxxx 0.388  + 0.000 V/C

#  4 Appian Wy-Pinon Ave/ San Pablo  A xxxxx 0.433   A xxxxx 0.433  + 0.000 V/C

#  5 Tennent Ave/ San Pablo Ave      A xxxxx 0.551   A xxxxx 0.551  + 0.000 V/C

#  6 Pinole Valley Rd/ San Pablo Av  A xxxxx 0.569   A xxxxx 0.569  + 0.000 V/C

#  7 Tennent Ave/ Pinole Valley Rd   A xxxxx 0.416   A xxxxx 0.416  + 0.000 V/C

#  8 Pinole Valley Rd/ Henry Ave     A xxxxx 0.407   A xxxxx 0.407  + 0.000 V/C

#  9 Pinole Valley Rd/ I-80 WB ramp  A xxxxx 0.543   A xxxxx 0.543  + 0.000 V/C

# 10 Pinole Valley Rd/ I-80 EB ramp  B xxxxx 0.687   B xxxxx 0.687  + 0.000 V/C

# 11 Pinole Valley Rd/ Estates Ave   A xxxxx 0.482   A xxxxx 0.482  + 0.000 V/C

# 12 Pinole Valley Rd/ Ramona St     A xxxxx 0.303   A xxxxx 0.303  + 0.000 V/C

# 13 Appian Wy/ Mann Dr              A xxxxx 0.512   A xxxxx 0.512  + 0.000 V/C

# 14 Appian Wy/ Tara Hills Dr-Canyo  B xxxxx 0.673   B xxxxx 0.673  + 0.000 V/C

# 15 Appian Way/ I-80 WB ramps       B xxxxx 0.673   B xxxxx 0.673  + 0.000 V/C

# 16 Appian Way/ I-80 EB ramps       A xxxxx 0.405   A xxxxx 0.405  + 0.000 V/C

# 17 Appian Wy/ Fitzgerald Dr-Sara   A xxxxx 0.500   A xxxxx 0.500  + 0.000 V/C

# 18 Oak Ridge Ln/ San Pablo Ave     A xxxxx 0.414   A xxxxx 0.414  + 0.000 V/C

# 19 Fernandez Ave/ San Pablo Ave    A xxxxx 0.412   A xxxxx 0.412  + 0.000 V/C

# 20 John St/ San Pablo Ave          A xxxxx 0.437   A xxxxx 0.437  + 0.000 V/C

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                        Pinole General Plan (P06-130)
                            Existing AM Peak Hour
                            Dowling Associates, Inc.
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
********************************************************************************
Intersection #1 Del Monte Dr/eSan Pablo Ave
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.498
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        45                Level Of Service:                  A
********************************************************************************
Street Name:           Del Monte Dr                     San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Split Phase      Split Phase       Protected        Protected
Rights:          Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  0  1  0    0  0  1! 0  0    1  0  2  0  1    1  0  2  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 17 Oct 2006 << 7:15 to 8:15 AM
Base Vol:       0    2     1    68    3    76   118  390     3     7 1106    17
Growth Adj:  1.00 1.00  1.00 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    2     1    68    3    76   118  390     3     7 1106    17
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0    2     1    68    3    76   118  390     3     7 1106    17
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0    2     1    68    3    76   118  390     3     7 1106    17
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0    17
RTOR Vol:       0    2     1    68    3    76   118  390     3     7 1106     0
PCE Adj:     1.00 1.00  1.00 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    0    2     1    68    3    76   118  390     3     7 1106     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650 1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  1.00 1.00  1.00 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 0.67  0.33 0.46 0.02  0.52  1.00 2.00  1.00  1.00 2.00  1.00
Final Sat.:     0 1100   550  763   34   853  1650 3300  1650  1650 3300  1650
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.00  0.00 0.09 0.09  0.09  0.07 0.12  0.00  0.00 0.34  0.00
Crit Volume:        3                     147   118                    553
Crit Moves:       ****                   ****  ****                   ****
********************************************************************************

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                         Pinole General Plan (P06-130)
                             Existing AM Peak Hour
                            Dowling Associates, Inc.
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
********************************************************************************
Intersection #2 Pinole Shores Dr/ San Pablo Ave
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.441
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        33                Level Of Service:                  A
********************************************************************************
Street Name:         Pinole Shores Dr                  San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted        Protected        Protected
Rights:            Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1! 0  0    1  0  0  0  1    1  0  1  1  0    1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 17 Oct 2006 << 7:15 to 8:15 AM
Base Vol:      25    0    19   131    0    35    20  401     3    13 1072    54
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   25    0    19   131    0    35    20  401     3    13 1072    54
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    25    0    19   131    0    35    20  401     3    13 1072    54
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   25    0    19   131    0    35    20  401     3    13 1072    54
RTOR Reduct:    0    0     0     0    0    20     0    0     0     0    0     0
RTOR Vol:      25    0    19   131    0    15    20  401     3    13 1072    54
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   25    0    19   131    0    15    20  401     3    13 1072    54
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.57 0.00  0.43  1.00 0.00  1.00  1.00 1.99  0.01  1.00 1.90  0.10
Final Sat.:   977    0   743  1720    0  1720  1720 3414    26  1720 3275   165
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.03 0.00  0.03  0.08 0.00  0.01  0.01 0.12  0.12  0.01 0.33  0.33
Crit Volume:               44   131               20                   563
Crit Moves:              ****  ****             ****                  ****
********************************************************************************
```

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                         Pinole General Plan (P06-130)
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                            Dowling Associates, Inc.
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
********************************************************************************
Intersection #3 Sunnyview Dr/ San Pablo Ave
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.388
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        30                Level Of Service:                  A
********************************************************************************
Street Name:         Sunnyview Dr                      San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted        Protected        Protected
Rights:            Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    1  0  1  1  0    1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 17 Oct 2006 << 7:30 to 8:30 AM
Base Vol:      17    9     9    90   11    21    21  496    40    17  992    21
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   17    9     9    90   11    21    21  496    40    17  992    21
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    17    9     9    90   11    21    21  496    40    17  992    21
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   17    9     9    90   11    21    21  496    40    17  992    21
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:      17    9     9    90   11    21    21  496    40    17  992    21
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   17    9     9    90   11    21    21  496    40    17  992    21
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.48 0.26  0.26  0.74 0.09  0.17  1.00 1.85  0.15  1.00 1.96  0.04
Final Sat.:   835  442   442  1269  155   296  1720 3183   257  1720 3369    71
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.02 0.02  0.02  0.07 0.07  0.07  0.01 0.16  0.16  0.01 0.29  0.29
Crit Volume:   17                        122    21                         507
Crit Moves:  ****                       ****  ****                        ****
********************************************************************************
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                         Pinole General Plan (P06-130)
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                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
********************************************************************************
Intersection #4 Appian Wy-Pinon Ave/ San Pablo Ave
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.433
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        33                Level Of Service:                  A
********************************************************************************
Street Name:       Appian Wy-Pinon Ave                 San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted        Protected        Protected
Rights:            Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  0  1  0    1  0  0  1  0    1  0  2  0  1    1  0  1  1  0
------------||---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 17 Oct 2006 << 7:15 to 8:15 AM
Base Vol:     104   65    91    39   75     8     7  372   195   273 1051    34
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  104   65    91    39   75     8     7  372   195   273 1051    34
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   104   65    91    39   75     8     7  372   195   273 1051    34
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  104   65    91    39   75     8     7  372   195   273 1051    34
RTOR Reduct:    0    0     0     0    0     0     0    0   104     0    0     0
RTOR Vol:     104   65    91    39   75     8     7  372    91   273 1051    34
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  104   65    91    39   75     8     7  372    91   273 1051    34
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.42  0.58  1.00 0.90  0.10  1.00 2.00  1.00  1.00 1.94  0.06
Final Sat.:  1720  717  1003  1720 1554   166  1720 3440  1720  1720 3332   108
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.06 0.09  0.09  0.02 0.05  0.05  0.00 0.11  0.05  0.16 0.32  0.32
Crit Volume:             156    39                 7                   543
Crit Moves:             ****  ****              ****                  ****
********************************************************************************
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                         Pinole General Plan (P06-130)
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                            Dowling Associates, Inc.
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
********************************************************************************
Intersection #5 Tennent Ave/ San Pablo Ave
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.551
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        32                Level Of Service:                  A
********************************************************************************
Street Name:           Tennent Ave                         San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted        Permitted        Permitted
Rights:            Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  0  1  0    0  0  1! 0  0    0  1  1  0  1    0  1  0  1  0
------------||---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 12 Oct 2006 << 7:15 to 8:15 AM
Base Vol:      20   52   196    38   34    14    11  198   189    55 1272    63
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   20   52   196    38   34    14    11  198   189    55 1272    63
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    20   52   196    38   34    14    11  198   189    55 1272    63
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   20   52   196    38   34    14    11  198   189    55 1272    63
RTOR Reduct:    0    0     0     0    0     0     0    0    20     0    0     0
RTOR Vol:      20   52   196    38   34    14    11  198   169    55 1272    63
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  6.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   20   52   196    38   34    14    66  198   169    55 1272    63
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.21  0.79  0.44 0.40  0.16  0.86 1.14  1.00  0.08 1.83  0.09
Final Sat.:  1800  377  1423   795  712   293  1543 2057  1800   142 3294   163
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.01 0.14  0.14  0.05 0.05  0.05  0.01 0.10  0.09  0.39 0.39  0.39
Crit Volume:      248    38                11                   695
Crit Moves:      ****  ****              ****                  ****
********************************************************************************
```


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--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
********************************************************************************
Intersection #6 Pinole Valley Rd/ San Pablo Ave
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.569
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        33                Level Of Service:                  A
********************************************************************************
Street Name:         Pinole Valley Rd                  San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted        Permitted        Permitted
Rights:             Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    0  1  0  1  0    0  1  0  1  0
------------||---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 12 Oct 2006 << 7:15 to 8:15 AM
Base Vol:      15   98    61     4    2     2     8  379    19   144 1370    17
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   15   98    61     4    2     2     8  379    19   144 1370    17
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    15   98    61     4    2     2     8  379    19   144 1370    17
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   15   98    61     4    2     2     8  379    19   144 1370    17
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:      15   98    61     4    2     2     8  379    19   144 1370    17
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  6.00 1.00  1.00  2.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   15   98    61     4    2     2    48  379    19   288 1370    17
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.09 0.56  0.35  0.50 0.25  0.25  0.04 1.87  0.09  0.21 1.77  0.02
Final Sat.:   155 1014   631   900  450   450    79 3368   153   374 3190    37
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.10 0.10  0.10  0.00 0.00  0.00  0.10 0.11  0.12  0.39 0.43  0.47
Crit Volume:             174     4                 8                         838
Crit Moves:             ****  ****              ****                        ****
********************************************************************************
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                         Pinole General Plan (P06-130)
                             Existing AM Peak Hour
                             Dowling Associates, Inc.
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
********************************************************************************
Intersection #7 Tennent Ave/ Pinole Valley Rd
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.416
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        39                Level Of Service:                  A
********************************************************************************
Street Name:           Tennent Ave                    Pinole Valley Rd
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  1  0  1    1  0  0  1  0    1  0  0  1  0    1  0  1  0  1
------------||---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 12 Oct 2006 << 7:45 to 8:45 AM
Base Vol:      80  221   186     8  270    44    37   88    65   140   38    14
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   80  221   186     8  270    44    37   88    65   140   38    14
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    80  221   186     8  270    44    37   88    65   140   38    14
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   80  221   186     8  270    44    37   88    65   140   38    14
RTOR Reduct:    0    0   140     0    0     0     0    0     0     0    0     8
RTOR Vol:      80  221    46     8  270    44    37   88    65   140   38     6
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   80  221    46     8  270    44    37   88    65   140   38     6
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 1.00  1.00  1.00 0.86  0.14  1.00 0.58  0.42  1.00 1.00  1.00
Final Sat.:  1650 1650  1650  1650 1419   231  1650  949   701  1650 1650  1650
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.05 0.13  0.03  0.00 0.19  0.19  0.02 0.09  0.09  0.08 0.02  0.00
Crit Volume:   80                          314              153   140
Crit Moves:  ****                         ****             ****  ****
********************************************************************************
```

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                         Pinole General Plan (P06-130)
                             Existing AM Peak Hour
                             Dowling Associates, Inc.
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
********************************************************************************
Intersection #8 Pinole Valley Rd/ Henry Ave
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.407
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        38                Level Of Service:                  A
********************************************************************************
Street Name:         Pinole Valley Rd                     Henry Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  1  0  1    1  0  1  1  0    0  0  1! 0  0    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 19 Nov 2008 << Volumes from Alta Bates Study
Base Vol:      46  503    36     8  628    20    25    4    57    55    8    11
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   46  503    36     8  628    20    25    4    57    55    8    11
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    46  503    36     8  628    20    25    4    57    55    8    11
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   46  503    36     8  628    20    25    4    57    55    8    11
RTOR Reduct:    0    0    36     0    0     0     0    0     0     0    0     0
RTOR Vol:      46  503     0     8  628    20    25    4    57    55    8    11
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   46  503     0     8  628    20    25    4    57    55    8    11
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 1.00  1.00  1.00 1.94  0.06  0.29 0.05  0.66  0.74 0.11  0.15
Final Sat.:  1650 1650  1650  1650 3198   102   480   77  1094  1226  178   245
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.03 0.30  0.00  0.00 0.20  0.20  0.05 0.05  0.05  0.04 0.04  0.04
Crit Volume:       503            8                          86                74
Crit Moves:       ****        ****                       ****              ****
********************************************************************************
```

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Existing AM                Tue Apr 20, 2010 11:53:57                Page 12-1
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                         Pinole General Plan (P06-130)
                             Existing AM Peak Hour
                             Dowling Associates, Inc.
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
********************************************************************************
Intersection #9 Pinole Valley Rd/ I-80 WB ramps
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.543
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        50                Level Of Service:                  A
********************************************************************************
Street Name:         Pinole Valley Rd                   I-80 WB ramps
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        2  0  1  0  0    0  0  1  1  0    0  0  0  0  0    0  1  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 19 Nov 2008 << Volumes from Alta Bates study
Base Vol:     532  454     0     0  377   243     0    0     0   236  335    90
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  532  454     0     0  377   243     0    0     0   236  335    90
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   532  454     0     0  377   243     0    0     0   236  335    90
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  532  454     0     0  377   243     0    0     0   236  335    90
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:     532  454     0     0  377   243     0    0     0   236  335    90
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  532  454     0     0  377   243     0    0     0   236  335    90
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  0.91 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       2.00 1.00  0.00  0.00 1.22  0.78  0.00 0.00  0.00  0.71 1.02  0.27
Final Sat.:  3127 1720     0     0 2092  1348     0    0     0  1228 1743   468
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.17 0.26  0.00  0.00 0.18  0.18  0.00 0.00  0.00  0.19 0.19  0.19
Crit Volume:  266                          310          0              331
Crit Moves:  ****                       ****                       ****
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                         Pinole General Plan (P06-130)
                             Existing AM Peak Hour
                             Dowling Associates, Inc.
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
********************************************************************************
Intersection #10 Pinole Valley Rd/ I-80 EB ramps
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.687
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        73                Level Of Service:                  B
********************************************************************************
Street Name:         Pinole Valley Rd                   I-80 EB ramps
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1  1  0    1  0  2  0  0    0  1  0  0  1    0  0  0  0  0
------------||---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 19 Nov 2008 << Volumes from Alta Bates study
Base Vol:       0  945   325    85  519     0   191    1   462     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0  945   325    85  519     0   191    1   462     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0  945   325    85  519     0   191    1   462     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0  945   325    85  519     0   191    1   462     0    0     0
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:       0  945   325    85  519     0   191    1   462     0    0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    0  945   325    85  519     0   191    1   462     0    0     0
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 1.49  0.51  1.00 2.00  0.00  0.99 0.01  1.00  0.00 0.00  0.00
Final Sat.:     0 2560   880  1720 3440     0  1711    9  1720     0    0     0
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.37  0.37  0.05 0.15  0.00  0.11 0.11  0.27  0.00 0.00  0.00
Crit Volume:             635    85                          462          0
Crit Moves:             ****  ****                        ****
********************************************************************************
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Existing AM                Tue Apr 20, 2010 11:53:57                Page 14-1
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                         Pinole General Plan (P06-130)
                             Existing AM Peak Hour
                             Dowling Associates, Inc.
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
********************************************************************************
Intersection #11 Pinole Valley Rd/ Estates Ave
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.482
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        36                Level Of Service:                  A
********************************************************************************
Street Name:         Pinole Valley Rd                   Estates Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Permitted        Permitted
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  1  1  0    1  0  1  1  0    0  1  0  0  1    0  1  0  0  1
------------||---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 19 Nov 2008 << Volumes from Alta Bates study
Base Vol:      11  893    12    96  812    73   107    6    10    10   14   270
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   11  893    12    96  812    73   107    6    10    10   14   270
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    11  893    12    96  812    73   107    6    10    10   14   270
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   11  893    12    96  812    73   107    6    10    10   14   270
RTOR Reduct:    0    0     0     0    0     0     0    0    10     0    0    96
RTOR Vol:      11  893    12    96  812    73   107    6     0    10   14   174
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   11  893    12    96  812    73   107    6     0    10   14   174
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 1.97  0.03  1.00 1.84  0.16  0.95 0.05  1.00  0.42 0.58  1.00
Final Sat.:  1720 3394    46  1720 3156   284  1629   91  1720   717 1003  1720
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.01 0.26  0.26  0.06 0.26  0.26  0.07 0.07  0.00  0.01 0.01  0.10
Crit Volume:       453          96              107                          174
Crit Moves:       ****        ****            ****                         ****
********************************************************************************
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                         Pinole General Plan (P06-130)
                             Existing AM Peak Hour
                             Dowling Associates, Inc.
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
********************************************************************************
Intersection #12 Pinole Valley Rd/ Ramona St
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.303
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        21                Level Of Service:                  A
********************************************************************************
Street Name:         Pinole Valley Rd                    Ramona St
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted        Permitted        Permitted
Rights:            Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  1  0  1  0    0  1  0  1  0    0  0  1! 0  0    0  1  0  0  1
------------||---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      27  504    49    62  372    62    88    1    17    74    9    82
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   27  504    49    62  372    62    88    1    17    74    9    82
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    27  504    49    62  372    62    88    1    17    74    9    82
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   27  504    49    62  372    62    88    1    17    74    9    82
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0    62
RTOR Vol:      27  504    49    62  372    62    88    1    17    74    9    20
PCE Adj:     2.00 1.00  1.00  2.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   54  504    49   124  372    62    88    1    17    74    9    20
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.10 1.74  0.16  0.29 1.49  0.22  0.83 0.01  0.16  0.89 0.11  1.00
Final Sat.:   176 3134   291   514 2686   400  1494   17   289  1605  195  1800
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.15 0.16  0.17  0.12 0.14  0.16  0.06 0.06  0.06  0.05 0.05  0.01
Crit Volume:             303    62                   106          74
Crit Moves:             ****  ****                 ****        ****
********************************************************************************
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Existing AM                Tue Apr 20, 2010 11:53:57                Page 16-1
--------------------------------------------------------------------------------
                         Pinole General Plan (P06-130)
                             Existing AM Peak Hour
                             Dowling Associates, Inc.
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
********************************************************************************
Intersection #13 Appian Wy/ Mann Dr
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.512
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        38                Level Of Service:                  A
********************************************************************************
Street Name:            Appian Wy                           Mann Dr
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted      Split Phase      Split Phase
Rights:            Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  1  1  0  0    0  0  1  1  0    0  0  1! 0  0    0  0  0  0  0
------------||---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 17 Oct 2006 << 7:30 to 8:30 AM
Base Vol:     169  361     0     0  806    97    71    0   230     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  169  361     0     0  806    97    71    0   230     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   169  361     0     0  806    97    71    0   230     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  169  361     0     0  806    97    71    0   230     0    0     0
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:     169  361     0     0  806    97    71    0   230     0    0     0
PCE Adj:     4.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  676  361     0     0  806    97    71    0   230     0    0     0
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 1.00  0.00  0.00 1.79  0.21  0.24 0.00  0.76  0.00 0.00  0.00
Final Sat.:  1800 1800     0     0 3213   387   425    0  1375     0    0     0
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.09 0.20  0.00  0.00 0.25  0.25  0.17 0.00  0.17  0.00 0.00  0.00
Crit Volume:  169                        452              301          0
Crit Moves:  ****                       ****             ****
********************************************************************************
```


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                         Pinole General Plan (P06-130)
                             Existing AM Peak Hour
                            Dowling Associates, Inc.
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
********************************************************************************
Intersection #14 Appian Wy/ Tara Hills Dr-Canyon Dr
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.673
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        70                Level Of Service:                  B
********************************************************************************
Street Name:            Appian Wy                  Tara Hills Dr-Canyon Dr
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        2  0  1  1  0    1  0  2  0  1    0  1  0  0  2    0  1  1  0  1
------------||---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 21 Oct 2006 << 7:45 to 8:45 AM
Base Vol:     621  593    69    13  862    80   109    2   572   211   20    21
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  621  593    69    13  862    80   109    2   572   211   20    21
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   621  593    69    13  862    80   109    2   572   211   20    21
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  621  593    69    13  862    80   109    2   572   211   20    21
RTOR Reduct:    0    0     0     0    0    80     0    0   342     0    0    13
RTOR Vol:     621  593    69    13  862     0   109    2   230   211   20     8
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  621  593    69    13  862     0   109    2   230   211   20     8
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  0.91 1.00  1.00  1.00 1.00  1.00  1.00 1.00  0.91  1.00 1.00  1.00
Lanes:       2.00 1.79  0.21  1.00 2.00  1.00  0.98 0.02  2.00  1.00 1.00  1.00
Final Sat.:  3000 2956   344  1650 3300  1650  1620   30  3000  1650 1650  1650
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.21 0.20  0.20  0.01 0.26  0.00  0.07 0.07  0.08  0.13 0.01  0.00
Crit Volume:  311                   431                    115   211
Crit Moves:  ****                  ****                   ****  ****
********************************************************************************
```

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                         Pinole General Plan (P06-130)
                             Existing AM Peak Hour
                            Dowling Associates, Inc.
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
********************************************************************************
Intersection #15 Appian Way/ I-80 WB ramps
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.673
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        70                Level Of Service:                  B
********************************************************************************
Street Name:            Appian Way                     I-80 WB ramps
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Split Phase      Split Phase
Rights:           Include          Ignore          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  2  0  0    0  0  2  0  1    0  0  0  0  0    1  1  0  0  1
------------||---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 21 Oct 2006 << 7:30 to 8:30 Am
Base Vol:     456  896     0     0  885   853     0    0     0   418    1   259
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  456  896     0     0  885   853     0    0     0   418    1   259
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   456  896     0     0  885   853     0    0     0   418    1   259
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  456  896     0     0  885   853     0    0     0   418    1   259
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:     456  896     0     0  885   853     0    0     0   418    1   259
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  456  896     0     0  885   853     0    0     0   418    1   259
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  0.91 1.00  1.00
Lanes:       1.00 2.00  0.00  0.00 2.00  1.00  0.00 0.00  0.00  1.99 0.01  1.00
Final Sat.:  1720 3440     0     0 3440  1720     0    0     0  3119    8  1720
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.27 0.26  0.00  0.00 0.26  0.50  0.00 0.00  0.00  0.13 0.12  0.15
Crit Volume:  456                   443                    0                   259
Crit Moves:  ****                  ****                                       ****
********************************************************************************
```

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                         Pinole General Plan (P06-130)
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                            Dowling Associates, Inc.
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
********************************************************************************
Intersection #16 Appian Way/ I-80 EB ramps
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.405
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        31                Level Of Service:                  A
********************************************************************************
Street Name:            Appian Way                     I-80 EB ramps
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted      Split Phase      Split Phase
Rights:             Include          Ignore          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1  1  1    0  0  2  0  1    1  1  0  0  1    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 21 Oct 2006 << 7:30 to 8:30 AM
Base Vol:       0  905   430     0  957   330   375    2   251     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0  905   430     0  957   330   375    2   251     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0  905   430     0  957   330   375    2   251     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0  905   430     0  957   330   375    2   251     0    0     0
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:       0  905   430     0  957   330   375    2   251     0    0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    0  905   430     0  957   330   375    2   251     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  0.91  1.00 1.00  1.00  0.91 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 2.00  1.00  0.00 2.00  1.00  1.99 0.01  1.00  0.00 0.00  0.00
Final Sat.:     0 3600  1636     0 3600  1800  3255   19  1800     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.25  0.26  0.00 0.27  0.18  0.12 0.10  0.14  0.00 0.00  0.00
Crit Volume:    0                   478                    251          0
Crit Moves:  ****                ****                   ****
********************************************************************************
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                         Pinole General Plan (P06-130)
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                            Dowling Associates, Inc.
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
********************************************************************************
Intersection #17 Appian Wy/ Fitzgerald Dr-Sara Dr
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.500
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        46                Level Of Service:                  A
********************************************************************************
Street Name:            Appian Way                  Fitzgerald Dr-Sara Dr
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Split Phase      Split Phase
Rights:           Include            Ovl           Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        2  0  1  1  0    1  0  2  0  2    2  1  0  0  1    1  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 21 Oct 2006 << 7:45 to 8:45 AM
Base Vol:     169  884    23   132  697   336   236   25   115   138  116   271
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  169  884    23   132  697   336   236   25   115   138  116   271
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   169  884    23   132  697   336   236   25   115   138  116   271
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  169  884    23   132  697   336   236   25   115   138  116   271
RTOR Reduct:    0    0     0     0    0    90     0    0    93     0    0   132
RTOR Vol:     169  884    23   132  697   246   236   25    22   138  116   139
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  169  884    23   132  697   246   236   25    22   138  116   139
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  0.91 1.00  1.00  1.00 1.00  0.91  0.87 1.00  1.00  1.00 1.00  1.00
Lanes:       2.00 1.95  0.05  1.00 2.00  2.00  2.71 0.29  1.00  1.00 1.00  1.00
Final Sat.:  3000 3216    84  1650 3300  3000  3894  474  1650  1650 1650  1650
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.06 0.27  0.27  0.08 0.21  0.08  0.06 0.05  0.01  0.08 0.07  0.08
Crit Volume:      454         132                 87                        139
Crit Moves:      ****        ****                ****                       ****
********************************************************************************
```


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                            Dowling Associates, Inc.
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
********************************************************************************
Intersection #18 Oak Ridge Ln/ San Pablo Ave
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.414
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        39                Level Of Service:                  A
********************************************************************************
Street Name:           Oak Ridge Ln                    San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:       Split Phase      Split Phase       Protected        Protected
Rights:          Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1! 0  0    0  0  0  0  0    0  0  1  1  0    1  0  2  0  0
------------||---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 12 Oct 2006 << 7:15 to 8:15 AM
Base Vol:      27    0    16     0    0     0     0  378    10    16 1339     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   27    0    16     0    0     0     0  378    10    16 1339     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    27    0    16     0    0     0     0  378    10    16 1339     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   27    0    16     0    0     0     0  378    10    16 1339     0
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:      27    0    16     0    0     0     0  378    10    16 1339     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   27    0    16     0    0     0     0  378    10    16 1339     0
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.63 0.00  0.37  0.00 0.00  0.00  0.00 1.95  0.05  1.00 2.00  0.00
Final Sat.:  1080    0   640     0    0     0     0 3351    89  1720 3440     0
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.03 0.00  0.03  0.00 0.00  0.00  0.00 0.11  0.11  0.01 0.39  0.00
Crit Volume:               43           0           0                   670
Crit Moves:               ****                    ****                   ****
********************************************************************************
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Existing AM                Tue Apr 20, 2010 11:53:57                Page 22-1
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                            Dowling Associates, Inc.
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
********************************************************************************
Intersection #19 Fernandez Ave/ San Pablo Ave
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.412
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        24                Level Of Service:                  A
********************************************************************************
Street Name:          Fernandez Ave                    San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:        Permitted        Permitted        Permitted        Permitted
Rights:          Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    0  1  0  1  0    0  1  0  1  0
------------||---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 12 Oct 2006 << 7:15 to 8:15 AM
Base Vol:       3    0     3     1    0     2     1  406     7    40 1385     1
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    3    0     3     1    0     2     1  406     7    40 1385     1
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     3    0     3     1    0     2     1  406     7    40 1385     1
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    3    0     3     1    0     2     1  406     7    40 1385     1
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:       3    0     3     1    0     2     1  406     7    40 1385     1
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  6.00 1.00  1.00  2.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    3    0     3     1    0     2     6  406     7    80 1385     1
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.50 0.00  0.50  0.33 0.00  0.67  0.01 1.96  0.03  0.05 1.94  0.01
Final Sat.:   900    0   900   600    0  1200     9 3531    60   104 3494     2
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.00  0.00  0.00 0.00  0.00  0.11 0.11  0.12  0.39 0.40  0.41
Crit Volume:                6     1                1                         733
Crit Moves:               ****  ****             ****                      ****
********************************************************************************
```


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                         Pinole General Plan (P06-130)
                             Existing AM Peak Hour
                            Dowling Associates, Inc.
-------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #20 John St/ San Pablo Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.437
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        26                Level Of Service:                  A
*******************************************************************************
Street Name:             John St                        San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted        Permitted        Permitted
Rights:            Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  0  0  1    0  0  0  0  0    0  0  1  1  0    0  0  2  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 12 Oct 2006 << Volumes from San Pablo Ave RSTP
Base Vol:       0    0     3     0    0     0     0  388     3     0 1566     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     3     0    0     0     0  388     3     0 1566     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0    0     3     0    0     0     0  388     3     0 1566     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0    0     3     0    0     0     0  388     3     0 1566     0
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:       0    0     3     0    0     0     0  388     3     0 1566     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    0    0     3     0    0     0     0  388     3     0 1566     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 0.00  1.00  0.00 0.00  0.00  0.00 1.98  0.02  0.00 2.00  0.00
Final Sat.:     0    0  1800     0    0     0     0 3572    28     0 3600     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.11  0.11  0.00 0.44  0.00
Crit Volume:                3     0                 0                    783
Crit Moves:              ****                   ****                   ****
*******************************************************************************

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Existing PM                Tue Apr 20, 2010 11:54:01                Page 1-1
-------------------------------------------------------------------------------
                         Pinoole General Plan (P06-130)
                             Existing PM Peak Hour
                            Dowling Associates, Inc.
-------------------------------------------------------------------------------
                                Scenario Report
Scenario:              Existing PM

Command:               ExPM
Volume:                Existing PM
Geometry:              Existing
Impact Fee:            Default Impact Fee
Trip Generation:       Default Trip Generation
Trip Distribution:     Default Trip Distribution
Paths:                 Default Path
Routes:                Default Route
Configuration:         Default Configuration

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Existing PM Tue Apr 20, 2010 11:54:01 Page 2-1

Pinoole General Plan (P06-130)
Existing PM Peak Hour
Dowling Associates, Inc.

Turning Movement Report

Volume Type	Northbound Left	Thru	Right	Southbound Left	Thru	Right	Eastbound Left	Thru	Right	Westbound Left	Thru	Right	Total Volume
#1 Del Monte Dr/eSan Pablo Ave													
Base	4	2	14	50	2	72	192	974	31	35	501	24	1901
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	4	2	14	50	2	72	192	974	31	35	501	24	1901
#2 Pinole Shores Dr/ San Pablo Ave													
Base	3	0	8	66	0	17	34	973	19	12	562	86	1780
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	3	0	8	66	0	17	34	973	19	12	562	86	1780
#3 Sunnyview Dr/ San Pablo Ave													
Base	23	7	25	82	10	25	63	945	33	36	602	49	1900
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	23	7	25	82	10	25	63	945	33	36	602	49	1900
#4 Appian Wy-Pinon Ave/ San Pablo Ave													
Base	310	96	237	40	42	25	18	840	149	223	357	41	2378
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	310	96	237	40	42	25	18	840	149	223	357	41	2378
#5 Tennent Ave/ San Pablo Ave													
Base	83	64	57	46	35	24	28	915	198	94	530	53	2127
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	83	64	57	46	35	24	28	915	198	94	530	53	2127
#6 Pinole Valley Rd/ San Pablo Ave													
Base	31	9	286	4	7	7	10	1027	6	127	621	4	2139
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	31	9	286	4	7	7	10	1027	6	127	621	4	2139
#7 Tennent Ave/ Pinole Valley Rd													
Base	9	303	303	14	361	4	3	2	9	150	8	9	1175
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	9	303	303	14	361	4	3	2	9	150	8	9	1175
#8 Pinole Valley Rd/ Henry Ave													
Base	77	514	92	12	441	6	4	6	39	55	3	11	1260
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	77	514	92	12	441	6	4	6	39	55	3	11	1260
#9 Pinole Valley Rd/ I-80 WB ramps													
Base	504	583	0	0	342	219	0	0	0	303	0	80	2031
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	504	583	0	0	342	219	0	0	0	303	0	80	2031

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Existing PM Tue Apr 20, 2010 11:54:01 Page 2-2

Pinoole General Plan (P06-130)
Existing PM Peak Hour
Dowling Associates, Inc.

Volume Type	Northbound Left	Thru	Right	Southbound Left	Thru	Right	Eastbound Left	Thru	Right	Westbound Left	Thru	Right	Total Volume
#10 Pinole Valley Rd/ I-80 EB ramps													
Base	0	702	306	78	569	0	447	48	637	0	0	0	2787
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	702	306	78	569	0	447	48	637	0	0	0	2787
#11 Pinole Valley Rd/ Estates Ave													
Base	20	690	16	209	810	187	192	12	11	12	12	126	2297
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	20	690	16	209	810	187	192	12	11	12	12	126	2297
#12 Pinole Valley Rd/ Ramona St													
Base	10	404	22	138	568	14	42	4	6	20	6	54	1288
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	10	404	22	138	568	14	42	4	6	20	6	54	1288
#13 Appian Wy/ Mann Dr													
Base	231	767	0	0	404	66	36	0	94	0	0	0	1598
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	231	767	0	0	404	66	36	0	94	0	0	0	1598
#14 Appian Wy/ Tara Hills Dr-Canyon Dr													
Base	630	707	117	8	509	64	178	36	685	100	30	8	3072
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	630	707	117	8	509	64	178	36	685	100	30	8	3072
#15 Appian Way/ I-80 WB ramps													
Base	342	1082	0	0	756	476	0	0	0	515	9	316	3496
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	342	1082	0	0	756	476	0	0	0	515	9	316	3496
#16 Appian Way/ I-80 EB ramps													
Base	0	820	887	0	973	293	568	257	247	0	0	0	4045
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	820	887	0	973	293	568	257	247	0	0	0	4045
#17 Appian Wy/ Fitzgerald Dr-Sara Dr													
Base	310	723	22	92	577	604	908	49	329	32	61	54	3761
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	310	723	22	92	577	604	908	49	329	32	61	54	3761
#18 Oak Ridge Ln/ San Pablo Ave													
Base	16	0	12	0	0	0	0	1107	11	16	634	0	1796
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	16	0	12	0	0	0	0	1107	11	16	634	0	1796

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Existing PM Tue Apr 20, 2010 11:54:01 Page 2-3

Pinoole General Plan (P06-130)
Existing PM Peak Hour
Dowling Associates, Inc.

Volume Type	Northbound Left	Thru	Right	Southbound Left	Thru	Right	Eastbound Left	Thru	Right	Westbound Left	Thru	Right	Total Volume
#19 Fernandez Ave/ San Pablo Ave													
Base	16	2	33	18	0	21	14	952	21	21	616	12	1726
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	16	2	33	18	0	21	14	952	21	21	616	12	1726
#20 John St/ San Pablo Ave													
Base	0	0	23	0	0	0	0	1305	3	0	766	0	2097
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	23	0	0	0	0	1305	3	0	766	0	2097
#21													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0

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Existing PM Tue Apr 20, 2010 11:54:01 Page 3-1

Pinoole General Plan (P06-130)
Existing PM Peak Hour
Dowling Associates, Inc.

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Del/ Veh	V/ C	Future LOS	Del/ Veh	V/ C	Change in V/C
# 1 Del Monte Dr/eSan Pablo Ave	A	xxxxx	0.404	A	xxxxx	0.404	+ 0.000
# 2 Pinole Shores Dr/ San Pablo Av	A	xxxxx	0.340	A	xxxxx	0.340	+ 0.000
# 3 Sunnyview Dr/ San Pablo Ave	A	xxxxx	0.385	A	xxxxx	0.385	+ 0.000
# 4 Appian Wy-Pinon Ave/ San Pablo	A	xxxxx	0.593	A	xxxxx	0.593	+ 0.000
# 5 Tennent Ave/ San Pablo Ave	A	xxxxx	0.427	A	xxxxx	0.427	+ 0.000
# 6 Pinole Valley Rd/ San Pablo Av	A	xxxxx	0.552	A	xxxxx	0.552	+ 0.000
# 7 Tennent Ave/ Pinole Valley Rd	A	xxxxx	0.324	A	xxxxx	0.324	+ 0.000
# 8 Pinole Valley Rd/ Henry Ave	A	xxxxx	0.390	A	xxxxx	0.390	+ 0.000
# 9 Pinole Valley Rd/ I-80 WB ramp	A	xxxxx	0.515	A	xxxxx	0.515	+ 0.000
# 10 Pinole Valley Rd/ I-80 EB ramp	C	xxxxx	0.709	C	xxxxx	0.709	+ 0.000
# 11 Pinole Valley Rd/ Estates Ave	A	xxxxx	0.452	A	xxxxx	0.452	+ 0.000
# 12 Pinole Valley Rd/ Ramona St	A	xxxxx	0.241	A	xxxxx	0.241	+ 0.000
# 13 Appian Wy/ Mann Dr	A	xxxxx	0.498	A	xxxxx	0.498	+ 0.000
# 14 Appian Wy/ Tara Hills Dr-Canyo	A	xxxxx	0.555	A	xxxxx	0.555	+ 0.000
# 15 Appian Way/ I-80 WB ramps	B	xxxxx	0.602	B	xxxxx	0.602	+ 0.000
# 16 Appian Way/ I-80 EB ramps	A	xxxxx	0.600	A	xxxxx	0.600	+ 0.000
# 17 Appian Wy/ Fitzgerald Dr-Sara	A	xxxxx	0.541	A	xxxxx	0.541	+ 0.000
# 18 Oak Ridge Ln/ San Pablo Ave	A	xxxxx	0.351	A	xxxxx	0.351	+ 0.000
# 19 Fernandez Ave/ San Pablo Ave	A	xxxxx	0.336	A	xxxxx	0.336	+ 0.000
# 20 John St/ San Pablo Ave	A	xxxxx	0.376	A	xxxxx	0.376	+ 0.000

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Existing PM                Tue Apr 20, 2010 11:54:02                Page 4-1
--------------------------------------------------------------------------------
                        Pinoole General Plan (P06-130)
                             Existing PM Peak Hour
                             Dowling Associates, Inc.
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
********************************************************************************
Intersection #1 Del Monte Dr/eSan Pablo Ave
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.404
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        38                Level Of Service:                  A
********************************************************************************
Street Name:           Del Monte Dr                    San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Split Phase      Split Phase       Protected        Protected
Rights:          Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    1  0  2  0  1    1  0  2  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 17 Oct 2006 << 4:45 to 5:45 PM
Base Vol:       4    2    14    50    2    72   192  974    31    35  501    24
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    4    2    14    50    2    72   192  974    31    35  501    24
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     4    2    14    50    2    72   192  974    31    35  501    24
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    4    2    14    50    2    72   192  974    31    35  501    24
RTOR Reduct:    0    0     0     0    0     0     0    0     4     0    0    24
RTOR Vol:       4    2    14    50    2    72   192  974    27    35  501     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    4    2    14    50    2    72   192  974    27    35  501     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.20 0.10  0.70  0.40 0.02  0.58  1.00 2.00  1.00  1.00 2.00  1.00
Final Sat.:   330  165  1155   665   27   958  1650 3300  1650  1650 3300  1650
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.01 0.01  0.01  0.08 0.08  0.08  0.12 0.30  0.02  0.02 0.15  0.00
Crit Volume:        20              124              487          35
Crit Moves:       ****             ****             ****        ****
********************************************************************************
```

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Existing PM                Tue Apr 20, 2010 11:54:02                Page 5-1
--------------------------------------------------------------------------------
                        Pinoole General Plan (P06-130)
                             Existing PM Peak Hour
                             Dowling Associates, Inc.
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
********************************************************************************
Intersection #2 Pinole Shores Dr/ San Pablo Ave
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.340
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        28                Level Of Service:                  A
********************************************************************************
Street Name:         Pinole Shores Dr                  San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Permitted        Permitted        Protected        Protected
Rights:          Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1! 0  0    1  0  0  0  1    1  0  1  1  0    1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 17 Oct 2006 << 4:15 to 5:15 PM
Base Vol:       3    0     8    66    0    17    34  973    19    12  562    86
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    3    0     8    66    0    17    34  973    19    12  562    86
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     3    0     8    66    0    17    34  973    19    12  562    86
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    3    0     8    66    0    17    34  973    19    12  562    86
RTOR Reduct:    0    0     0     0    0    17     0    0     0     0    0     0
RTOR Vol:       3    0     8    66    0     0    34  973    19    12  562    86
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    3    0     8    66    0     0    34  973    19    12  562    86
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.27 0.00  0.73  1.00 0.00  1.00  1.00 1.96  0.04  1.00 1.73  0.27
Final Sat.:   469    0  1251  1720    0  1720  1720 3374    66  1720 2983   457
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.01 0.00  0.01  0.04 0.00  0.00  0.02 0.29  0.29  0.01 0.19  0.19
Crit Volume:            11    66                   496          12
Crit Moves:            ****  ****                 ****        ****
********************************************************************************
```


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Existing PM                Tue Apr 20, 2010 11:54:02                Page 6-1
--------------------------------------------------------------------------------
                        Pinoole General Plan (P06-130)
                             Existing PM Peak Hour
                             Dowling Associates, Inc.
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
********************************************************************************
Intersection #3 Sunnyview Dr/ San Pablo Ave
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.385
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        30                Level Of Service:                  A
********************************************************************************
Street Name:           Sunnyview Dr                     San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted        Protected        Protected
Rights:            Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    1  0  1  1  0    1  0  1  1  0
------------||---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 17 Oct 2006 << 4:45 to 5:45 PM
Base Vol:      23    7    25    82   10    25    63  945    33    36  602    49
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   23    7    25    82   10    25    63  945    33    36  602    49
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    23    7    25    82   10    25    63  945    33    36  602    49
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   23    7    25    82   10    25    63  945    33    36  602    49
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:      23    7    25    82   10    25    63  945    33    36  602    49
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   23    7    25    82   10    25    63  945    33    36  602    49
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.42 0.13  0.45  0.70 0.09  0.21  1.00 1.93  0.07  1.00 1.85  0.15
Final Sat.:   719  219   782  1205  147   368  1720 3324   116  1720 3181   259
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.03 0.03  0.03  0.07 0.07  0.07  0.04 0.28  0.28  0.02 0.19  0.19
Crit Volume:              55    82                   489          36
Crit Moves:              ****  ****                 ****        ****
********************************************************************************
```

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Existing PM                Tue Apr 20, 2010 11:54:02                Page 7-1
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                        Pinoole General Plan (P06-130)
                             Existing PM Peak Hour
                             Dowling Associates, Inc.
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
********************************************************************************
Intersection #4 Appian Wy-Pinon Ave/ San Pablo Ave
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.593
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        46                Level Of Service:                  A
********************************************************************************
Street Name:       Appian Wy-Pinon Ave                  San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted        Protected        Protected
Rights:            Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  0  1  0    1  0  0  1  0    1  0  2  0  1    1  0  1  1  0
------------||---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 17 Oct 2006 << 4:45 to 5:45 PM
Base Vol:     310   96   237    40   42    25    18  840   149   223  357    41
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  310   96   237    40   42    25    18  840   149   223  357    41
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   310   96   237    40   42    25    18  840   149   223  357    41
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  310   96   237    40   42    25    18  840   149   223  357    41
RTOR Reduct:    0    0     0     0    0     0     0    0   149     0    0     0
RTOR Vol:     310   96   237    40   42    25    18  840     0   223  357    41
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  310   96   237    40   42    25    18  840     0   223  357    41
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.29  0.71  1.00 0.63  0.37  1.00 2.00  1.00  1.00 1.79  0.21
Final Sat.:  1720  496  1224  1720 1078   642  1720 3440  1720  1720 3086   354
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.18 0.19  0.19  0.02 0.04  0.04  0.01 0.24  0.00  0.13 0.12  0.12
Crit Volume:  310                          67         420         223
Crit Moves:  ****                        ****       ****        ****
********************************************************************************
```


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                        Pinoole General Plan (P06-130)
                             Existing PM Peak Hour
                             Dowling Associates, Inc.
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
********************************************************************************
Intersection #5 Tennent Ave/ San Pablo Ave
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.427
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        25                Level Of Service:                  A
********************************************************************************
Street Name:           Tennent Ave                     San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted        Permitted        Permitted
Rights:            Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  0  1  0    0  0  1! 0  0    0  1  1  0  1    0  1  0  1  0
------------||---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 12 Oct 2006 << 4:45 to 5:45 PM
Base Vol:      83   64    57    46   35    24    28  915   198    94  530    53
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   83   64    57    46   35    24    28  915   198    94  530    53
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    83   64    57    46   35    24    28  915   198    94  530    53
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   83   64    57    46   35    24    28  915   198    94  530    53
RTOR Reduct:    0    0     0     0    0     0     0    0    83     0    0     0
RTOR Vol:      83   64    57    46   35    24    28  915   115    94  530    53
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  2.00 1.00  1.00  4.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   83   64    57    46   35    24    56  915   115   376  530    53
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.53  0.47  0.44 0.33  0.23  0.12 1.88  1.00  0.48 1.41  0.11
Final Sat.:  1800  952   848   789  600   411   220 3380  1800   857 2544   199
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.05 0.07  0.07  0.06 0.06  0.06  0.13 0.27  0.06  0.11 0.21  0.27
Crit Volume:   83                         105        487          94
Crit Moves:  ****                        ****       ****        ****
********************************************************************************
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                        Pinoole General Plan (P06-130)
                             Existing PM Peak Hour
                             Dowling Associates, Inc.
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
********************************************************************************
Intersection #6 Pinole Valley Rd/ San Pablo Ave
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.552
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        32                Level Of Service:                  A
********************************************************************************
Street Name:         Pinole Valley Rd                  San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted        Permitted        Permitted
Rights:            Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    0  1  0  1  0    0  1  0  1  0
------------||---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 12 Oct 2006 << 4:45 to 5:45 PM
Base Vol:      31    9   286     4    7     7    10 1027     6   127  621     4
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   31    9   286     4    7     7    10 1027     6   127  621     4
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    31    9   286     4    7     7    10 1027     6   127  621     4
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   31    9   286     4    7     7    10 1027     6   127  621     4
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:      31    9   286     4    7     7    10 1027     6   127  621     4
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  4.00 1.00  1.00  6.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   31    9   286     4    7     7    40 1027     6   762  621     4
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.09 0.03  0.88  0.22 0.39  0.39  0.02 1.97  0.01  1.00 0.99  0.01
Final Sat.:   171   50  1579   400  700   700    36 3544    20  1800 1790    10
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.18 0.18  0.18  0.01 0.01  0.01  0.28 0.29  0.30  0.07 0.35  0.39
Crit Volume:      326           4                          536   127
Crit Moves:      ****        ****                        ****  ****
********************************************************************************
```

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                         Pinoole General Plan (P06-130)
                              Existing PM Peak Hour
                              Dowling Associates, Inc.
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
********************************************************************************
Intersection #7 Tennent Ave/ Pinole Valley Rd
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.324
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        34                Level Of Service:                  A
********************************************************************************
Street Name:           Tennent Ave                     Pinole Valley Rd
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  1  0  1    1  0  0  1  0    1  0  0  1  0    1  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 12 Oct 2006 << 5:00 to 6:00 PM
Base Vol:       9  303   303    14  361     4     3    2     9   150    8     9
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    9  303   303    14  361     4     3    2     9   150    8     9
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     9  303   303    14  361     4     3    2     9   150    8     9
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    9  303   303    14  361     4     3    2     9   150    8     9
RTOR Reduct:    0    0   150     0    0     0     0    0     0     0    0     9
RTOR Vol:       9  303   153    14  361     4     3    2     9   150    8     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    9  303   153    14  361     4     3    2     9   150    8     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 1.00  1.00  1.00 0.99  0.01  1.00 0.18  0.82  1.00 1.00  1.00
Final Sat.:  1650 1650  1650  1650 1632    18  1650  300  1350  1650 1650  1650
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.01 0.18  0.09  0.01 0.22  0.22  0.00 0.01  0.01  0.09 0.00  0.00
Crit Volume:    9                         365          11          150
Crit Moves:  ****                        ****        ****        ****
********************************************************************************
```

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                         Pinoole General Plan (P06-130)
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--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
********************************************************************************
Intersection #8 Pinole Valley Rd/ Henry Ave
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.390
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        37                Level Of Service:                  A
********************************************************************************
Street Name:         Pinole Valley Rd                     Henry Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  1  0  1    1  0  1  1  0    0  0  1! 0  0    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 19 Nov 2008 << Volumes from Alta Bates study
Base Vol:      77  514    92    12  441     6     4    6    39    55    3    11
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   77  514    92    12  441     6     4    6    39    55    3    11
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    77  514    92    12  441     6     4    6    39    55    3    11
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   77  514    92    12  441     6     4    6    39    55    3    11
RTOR Reduct:    0    0    55     0    0     0     0    0     0     0    0     0
RTOR Vol:      77  514    37    12  441     6     4    6    39    55    3    11
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   77  514    37    12  441     6     4    6    39    55    3    11
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 1.00  1.00  1.00 1.97  0.03  0.08 0.12  0.80  0.80 0.04  0.16
Final Sat.:  1650 1650  1650  1650 3256    44   135  202  1313  1315   72   263
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.05 0.31  0.02  0.01 0.14  0.14  0.03 0.03  0.03  0.04 0.04  0.04
Crit Volume:       514          12                          49          69
Crit Moves:       ****        ****                       ****        ****
********************************************************************************
```

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                        Pinoole General Plan (P06-130)
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                             Dowling Associates, Inc.
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
********************************************************************************
Intersection #9 Pinole Valley Rd/ I-80 WB ramps
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.515
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        47                Level Of Service:                  A
********************************************************************************
Street Name:         Pinole Valley Rd                   I-80 WB ramps
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        2  0  1  0  0    0  0  1  1  0    0  0  0  0  0    0  1  0  1  0
------------||---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 19 Nov 2008 << Volumes from Alta Bates study
Base Vol:     504  583     0     0  342   219     0    0     0   303    0    80
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  504  583     0     0  342   219     0    0     0   303    0    80
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   504  583     0     0  342   219     0    0     0   303    0    80
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  504  583     0     0  342   219     0    0     0   303    0    80
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:     504  583     0     0  342   219     0    0     0   303    0    80
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  504  583     0     0  342   219     0    0     0   303    0    80
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  0.91 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       2.00 1.00  0.00  0.00 1.22  0.78  0.00 0.00  0.00  1.00 0.58  0.42
Final Sat.:  3127 1720     0     0 2097  1343     0    0     0  1720 1001   719
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.16 0.34  0.00  0.00 0.16  0.16  0.00 0.00  0.00  0.18 0.00  0.11
Crit Volume:       583           0                       0          303
Crit Moves:       ****        ****                                ****
********************************************************************************
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                        Pinoole General Plan (P06-130)
                             Existing PM Peak Hour
                             Dowling Associates, Inc.
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
********************************************************************************
Intersection #10 Pinole Valley Rd/ I-80 EB ramps
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.709
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        78                Level Of Service:                  C
********************************************************************************
Street Name:         Pinole Valley Rd                   I-80 EB ramps
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1  1  0    1  0  2  0  0    0  1  0  0  1    0  0  0  0  0
------------||---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 19 Nov 2008 << Volumes from Alta Bates study
Base Vol:       0  702   306    78  569     0   447   48   637     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0  702   306    78  569     0   447   48   637     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0  702   306    78  569     0   447   48   637     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0  702   306    78  569     0   447   48   637     0    0     0
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:       0  702   306    78  569     0   447   48   637     0    0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    0  702   306    78  569     0   447   48   637     0    0     0
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 1.39  0.61  1.00 2.00  0.00  0.90 0.10  1.00  0.00 0.00  0.00
Final Sat.:     0 2396  1044  1720 3440     0  1553  167  1720     0    0     0
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.29  0.29  0.05 0.17  0.00  0.29 0.29  0.37  0.00 0.00  0.00
Crit Volume:             504    78                          637           0
Crit Moves:              ****  ****                        ****
********************************************************************************
```

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Existing PM                Tue Apr 20, 2010 11:54:02                Page 14-1
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                        Pinoole General Plan (P06-130)
                             Existing PM Peak Hour
                             Dowling Associates, Inc.
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
********************************************************************************
Intersection #11 Pinole Valley Rd/ Estates Ave
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.452
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        34                Level Of Service:                  A
********************************************************************************
Street Name:         Pinole Valley Rd                    Estates Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected         Permitted        Permitted
Rights:           Include          Include           Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  1  1  0    1  0  1  1  0    0  1  0  0  1    0  1  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 19 Nov 2008 << Volumes from Alta Bates study
Base Vol:      20  690    16   209  810   187   192   12    11    12   12   126
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   20  690    16   209  810   187   192   12    11    12   12   126
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    20  690    16   209  810   187   192   12    11    12   12   126
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   20  690    16   209  810   187   192   12    11    12   12   126
RTOR Reduct:    0    0     0     0    0     0     0    0    11     0    0   126
RTOR Vol:      20  690    16   209  810   187   192   12     0    12   12     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   20  690    16   209  810   187   192   12     0    12   12     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 1.95  0.05  1.00 1.62  0.38  0.94 0.06  1.00  0.50 0.50  1.00
Final Sat.:  1720 3362    78  1720 2795   645  1619  101  1720   860  860  1720
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.01 0.21  0.21  0.12 0.29  0.29  0.12 0.12  0.00  0.01 0.01  0.00
Crit Volume:       353         209                   204          12
Crit Moves:       ****        ****                  ****        ****
********************************************************************************
```

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Existing PM                Tue Apr 20, 2010 11:54:02                Page 15-1
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                        Pinoole General Plan (P06-130)
                             Existing PM Peak Hour
                             Dowling Associates, Inc.
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
********************************************************************************
Intersection #12 Pinole Valley Rd/ Ramona St
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.241
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        19                Level Of Service:                  A
********************************************************************************
Street Name:         Pinole Valley Rd                    Ramona St
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Permitted        Permitted         Permitted        Permitted
Rights:           Include          Include           Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  1  0  1  0    0  1  0  1  0    0  0  1! 0  0    0  1  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      10  404    22   138  568    14    42    4     6    20    6    54
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   10  404    22   138  568    14    42    4     6    20    6    54
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    10  404    22   138  568    14    42    4     6    20    6    54
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   10  404    22   138  568    14    42    4     6    20    6    54
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0    54
RTOR Vol:      10  404    22   138  568    14    42    4     6    20    6     0
PCE Adj:     2.00 1.00  1.00  2.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   20  404    22   276  568    14    42    4     6    20    6     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.05 1.85  0.10  0.47 1.50  0.03  0.81 0.08  0.11  0.77 0.23  1.00
Final Sat.:    85 3338   178   854 2688    59  1454  138   208  1385  415  1800
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.12 0.12  0.12  0.16 0.21  0.24  0.03 0.03  0.03  0.01 0.01  0.00
Crit Volume:             223   138                    52          20
Crit Moves:             ****  ****                  ****        ****
********************************************************************************
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                         Pinoole General Plan (P06-130)
                              Existing PM Peak Hour
                              Dowling Associates, Inc.
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
********************************************************************************
Intersection #13 Appian Wy/ Mann Dr
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.498
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        37                Level Of Service:                  A
********************************************************************************
Street Name:            Appian Wy                         Mann Dr
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted      Split Phase      Split Phase
Rights:            Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  1  1  0  0    0  0  1  1  0    0  0  1! 0  0    0  0  0  0  0
------------||---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 17 Oct 2006 << 4:30 to 5:30 PM
Base Vol:     231  767     0     0  404    66    36    0    94     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  231  767     0     0  404    66    36    0    94     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   231  767     0     0  404    66    36    0    94     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  231  767     0     0  404    66    36    0    94     0    0     0
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:     231  767     0     0  404    66    36    0    94     0    0     0
PCE Adj:     2.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  462  767     0     0  404    66    36    0    94     0    0     0
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 1.00  0.00  0.00 1.72  0.28  0.28 0.00  0.72  0.00 0.00  0.00
Final Sat.:  1800 1800     0     0 3094   506   498    0 1302     0    0     0
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.13 0.43  0.00  0.00 0.13  0.13  0.07 0.00  0.07  0.00 0.00  0.00
Crit Volume:       767           0                          130           0
Crit Moves:       ****        ****                        ****
********************************************************************************
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Existing PM                Tue Apr 20, 2010 11:54:02                Page 17-1
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                         Pinoole General Plan (P06-130)
                              Existing PM Peak Hour
                              Dowling Associates, Inc.
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
********************************************************************************
Intersection #14 Appian Wy/ Tara Hills Dr-Canyon Dr
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.555
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        51                Level Of Service:                  A
********************************************************************************
Street Name:            Appian Wy                  Tara Hills Dr-Canyon Dr
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:        Protected        Protected      Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        2  0  1  1  0    1  0  2  0  1    0  1  0  0  2    0  1  1  0  1
------------||---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 21 Oct 2006 << 4:15 to 5:15 PM
Base Vol:     630  707   117     8  509    64   178   36   685   100   30     8
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  630  707   117     8  509    64   178   36   685   100   30     8
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   630  707   117     8  509    64   178   36   685   100   30     8
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  630  707   117     8  509    64   178   36   685   100   30     8
RTOR Reduct:    0    0     0     0    0    64     0    0   347     0    0     8
RTOR Vol:     630  707   117     8  509     0   178   36   339   100   30     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  630  707   117     8  509     0   178   36   339   100   30     0
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  0.91 1.00  1.00  1.00 1.00  1.00  1.00 1.00  0.91  1.00 1.00  1.00
Lanes:       2.00 1.72  0.28  1.00 2.00  1.00  0.83 0.17  2.00  1.00 1.00  1.00
Final Sat.:  3000 2831   469  1650 3300  1650  1372  278  3000  1650 1650  1650
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.21 0.25  0.25  0.00 0.15  0.00  0.13 0.13  0.11  0.06 0.02  0.00
Crit Volume:  315                   255              214         100
Crit Moves:  ****                  ****             ****        ****
********************************************************************************
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                        Pinoole General Plan (P06-130)
                             Existing PM Peak Hour
                             Dowling Associates, Inc.
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
********************************************************************************
Intersection #15 Appian Way/ I-80 WB ramps
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.602
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        57                Level Of Service:                  B
********************************************************************************
Street Name:            Appian Way                     I-80 WB ramps
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Split Phase      Split Phase
Rights:           Include          Ignore          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  2  0  0    0  0  2  0  1    0  0  0  0  0    1  1  0  0  1
------------||---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 21 Oct 2006 << 4:30 to 5:30 PM
Base Vol:     342 1082     0     0  756   476     0    0     0   515    9   316
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  342 1082     0     0  756   476     0    0     0   515    9   316
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   342 1082     0     0  756   476     0    0     0   515    9   316
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  342 1082     0     0  756   476     0    0     0   515    9   316
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:     342 1082     0     0  756   476     0    0     0   515    9   316
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  342 1082     0     0  756   476     0    0     0   515    9   316
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  0.91 1.00  1.00
Lanes:       1.00 2.00  0.00  0.00 2.00  1.00  0.00 0.00  0.00  1.97 0.03  1.00
Final Sat.:  1720 3440     0     0 3440  1720     0    0     0  3073   59  1720
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.20 0.31  0.00  0.00 0.22  0.28  0.00 0.00  0.00  0.17 0.15  0.18
Crit Volume:  342                   378                 0                    316
Crit Moves:  ****                  ****                                     ****
********************************************************************************
```



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Existing PM                Tue Apr 20, 2010 11:54:02                Page 19-1
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                        Pinoole General Plan (P06-130)
                             Existing PM Peak Hour
                             Dowling Associates, Inc.
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
********************************************************************************
Intersection #16 Appian Way/ I-80 EB ramps
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.600
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        46                Level Of Service:                  A
********************************************************************************
Street Name:            Appian Way                     I-80 EB ramps
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:        Permitted        Permitted       Split Phase      Split Phase
Rights:           Include          Ignore          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1  1  1    0  0  2  0  1    1  1  0  0  1    0  0  0  0  0
------------||---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 21 Oct 2006 << 4:45 to 5:45 PM
Base Vol:       0  820   887     0  973   293   568  257   247     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0  820   887     0  973   293   568  257   247     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0  820   887     0  973   293   568  257   247     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0  820   887     0  973   293   568  257   247     0    0     0
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:       0  820   887     0  973   293   568  257   247     0    0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    0  820   887     0  973   293   568  257   247     0    0     0
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  0.91  1.00 1.00  1.00  0.91 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 1.44  1.56  0.00 2.00  1.00  1.38 0.62  1.00  0.00 0.00  0.00
Final Sat.:     0 2594  2551     0 3600  1800  2253 1121  1800     0    0     0
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.32  0.35  0.00 0.27  0.16  0.25 0.23  0.14  0.00 0.00  0.00
Crit Volume:             569     0              412                      0
Crit Moves:             ****  ****             ****
********************************************************************************
```

```
Existing PM                Tue Apr 20, 2010 11:54:02                Page 20-1
-------------------------------------------------------------------------------
                        Pinoole General Plan (P06-130)
                             Existing PM Peak Hour
                             Dowling Associates, Inc.
-------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #17 Appian Wy/ Fitzgerald Dr-Sara Dr
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.541
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        50                Level Of Service:                  A
*******************************************************************************
Street Name:            Appian Way                  Fitzgerald Dr-Sara Dr
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Split Phase      Split Phase
Rights:           Include           Ovl            Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        2  0  1  1  0    1  0  2  0  2    2  1  0  0  1    1  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 21 Oct 2006 << 5:00 to 6:00 PM
Base Vol:     310  723    22    92  577   604   908   49   329    32   61    54
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  310  723    22    92  577   604   908   49   329    32   61    54
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   310  723    22    92  577   604   908   49   329    32   61    54
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  310  723    22    92  577   604   908   49   329    32   61    54
RTOR Reduct:    0    0     0     0    0   348     0    0   171     0    0    54
RTOR Vol:     310  723    22    92  577   256   908   49   159    32   61     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  310  723    22    92  577   256   908   49   159    32   61     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  0.91 1.00  1.00  1.00 1.00  0.91  0.87 1.00  1.00  1.00 1.00  1.00
Lanes:       2.00 1.94  0.06  1.00 2.00  2.00  2.85 0.15  1.00  1.00 1.00  1.00
Final Sat.:  3000 3203    97  1650 3300  3000  4086  253  1650  1650 1650  1650
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.10 0.23  0.23  0.06 0.17  0.09  0.22 0.19  0.10  0.02 0.04  0.00
Crit Volume:             373    92              319                    61
Crit Moves:             ****  ****             ****                  ****
*******************************************************************************
```



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Existing PM                Tue Apr 20, 2010 11:54:02                Page 21-1
-------------------------------------------------------------------------------
                        Pinoole General Plan (P06-130)
                             Existing PM Peak Hour
                             Dowling Associates, Inc.
-------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #18 Oak Ridge Ln/ San Pablo Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.351
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        35                Level Of Service:                  A
*******************************************************************************
Street Name:           Oak Ridge Ln                     San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Split Phase      Split Phase       Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1! 0  0    0  0  0  0  0    0  0  1  1  0    1  0  2  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 12 Oct 2006 << 4:45 to 5:45 PM
Base Vol:      16    0    12     0    0     0     0 1107    11    16  634     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   16    0    12     0    0     0     0 1107    11    16  634     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    16    0    12     0    0     0     0 1107    11    16  634     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   16    0    12     0    0     0     0 1107    11    16  634     0
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:      16    0    12     0    0     0     0 1107    11    16  634     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   16    0    12     0    0     0     0 1107    11    16  634     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.57 0.00  0.43  0.00 0.00  0.00  0.00 1.98  0.02  1.00 2.00  0.00
Final Sat.:   983    0   737     0    0     0     0 3406    34  1720 3440     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.02 0.00  0.02  0.00 0.00  0.00  0.00 0.32  0.33  0.01 0.18  0.00
Crit Volume:              28          0                    559    16
Crit Moves:             ****                             ****  ****
*******************************************************************************
```

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Existing PM                Tue Apr 20, 2010 11:54:02                Page 22-1
--------------------------------------------------------------------------------
                        Pinoole General Plan (P06-130)
                             Existing PM Peak Hour
                            Dowling Associates, Inc.
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
********************************************************************************
Intersection #19 Fernandez Ave/ San Pablo Ave
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.336
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        22                Level Of Service:                  A
********************************************************************************
Street Name:          Fernandez Ave                    San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted        Permitted        Permitted
Rights:            Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    0  1  0  1  0    0  1  0  1  0
------------||---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 12 Oct 2006 << 4:45 to 5:45 PM
Base Vol:      16    2    33    18    0    21    14  952    21    21  616    12
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   16    2    33    18    0    21    14  952    21    21  616    12
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    16    2    33    18    0    21    14  952    21    21  616    12
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   16    2    33    18    0    21    14  952    21    21  616    12
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:      16    2    33    18    0    21    14  952    21    21  616    12
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  4.00 1.00  1.00  4.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   16    2    33    18    0    21    56  952    21    84  616    12
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.31 0.04  0.65  0.46 0.00  0.54  0.03 1.93  0.04  0.07 1.90  0.03
Final Sat.:   565   71  1165   831    0   969    53 3473    73   129 3410    61
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.03 0.03  0.03  0.02 0.00  0.02  0.26 0.27  0.29  0.16 0.18  0.20
Crit Volume:              51    18                          514    21
Crit Moves:              ****  ****                        ****  ****
********************************************************************************
```



```
Existing PM                Tue Apr 20, 2010 11:54:02                Page 23-1
--------------------------------------------------------------------------------
                        Pinoole General Plan (P06-130)
                             Existing PM Peak Hour
                            Dowling Associates, Inc.
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
********************************************************************************
Intersection #20 John St/ San Pablo Ave
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.376
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        23                Level Of Service:                  A
********************************************************************************
Street Name:             John St                          San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted        Permitted        Permitted
Rights:            Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  0  0  1    0  0  0  0  0    0  0  1  1  0    0  0  2  0  0
------------||---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 12 Oct 2006 << Volumes from San Pablo Ave RSTP
Base Vol:       0    0    23     0    0     0     0 1305     3     0  766     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0    23     0    0     0     0 1305     3     0  766     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0    0    23     0    0     0     0 1305     3     0  766     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0    0    23     0    0     0     0 1305     3     0  766     0
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:       0    0    23     0    0     0     0 1305     3     0  766     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    0    0    23     0    0     0     0 1305     3     0  766     0
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 0.00  1.00  0.00 0.00  0.00  0.00 1.99  0.01  0.00 2.00  0.00
Final Sat.:     0    0  1800     0    0     0     0 3592     8     0 3600     0
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.00  0.01  0.00 0.00  0.00  0.00 0.36  0.36  0.00 0.21  0.00
Crit Volume:              23     0                           654     0
Crit Moves:              ****                              ****  ****
********************************************************************************
```

Cumulative AM Tue Apr 20, 2010 11:54:06 Page 1-1

Pinole General Plan (P06-130)
2030 AM Cumulative Conditions
Dowling Associates, Inc.

Scenario Report

Scenario:	Cumulative AM
Command:	Cumulative AM
Volume:	Cumulative AM
Geometry:	Cumulatiive
Impact Fee:	Default Impact Fee
Trip Generation:	Default Trip Generation
Trip Distribution:	Default Trip Distribution
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

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Cumulative AM Tue Apr 20, 2010 11:54:06 Page 2-1

Pinole General Plan (P06-130)
2030 AM Cumulative Conditions
Dowling Associates, Inc.

Turning Movement Report

Volume	Northbound			Southbound			Eastbound			Westbound			Total
Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Volume
#1 Del Monte Dr/eSan Pablo Ave													
Base	0	2	1	72	3	76	118	791	3	7	1482	21	2576
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	2	1	72	3	76	118	791	3	7	1482	21	2576
#2 Pinole Shores Dr/ San Pablo Ave													
Base	25	0	19	135	0	40	29	793	3	13	1454	54	2565
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	25	0	19	135	0	40	29	793	3	13	1454	54	2565
#3 Sunnyview Dr/ San Pablo Ave													
Base	17	9	9	95	11	26	32	887	40	17	1370	21	2534
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	17	9	9	95	11	26	32	887	40	17	1370	21	2534
#4 Appian Wy-Pinon Ave/ San Pablo Ave													
Base	124	97	508	71	75	8	7	766	195	401	1395	60	3707
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	124	97	508	71	75	8	7	766	195	401	1395	60	3707
#5 Tennent Ave/ San Pablo Ave													
Base	21	52	259	45	34	15	12	981	228	55	1783	63	3548
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	21	52	259	45	34	15	12	981	228	55	1783	63	3548
#6 Pinole Valley Rd/ San Pablo Ave													
Base	15	98	101	9	2	2	8	1237	22	519	1881	17	3911
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	15	98	101	9	2	2	8	1237	22	519	1881	17	3911
#7 Tennent Ave/ Pinole Valley Rd													
Base	80	223	220	8	270	44	37	88	65	456	38	33	1562
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	80	223	220	8	270	44	37	88	65	456	38	33	1562
#8 Pinole Valley Rd/ Henry Ave													
Base	253	541	36	8	629	335	25	4	57	55	8	11	1962
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	253	541	36	8	629	335	25	4	57	55	8	11	1962
#9 Pinole Valley Rd/ I-80 WB ramps													
Base	532	458	0	0	377	243	0	0	0	287	406	377	2680
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	532	458	0	0	377	243	0	0	0	287	406	377	2680

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Cumulative AM Tue Apr 20, 2010 11:54:06 Page 2-2

Pinole General Plan (P06-130)
2030 AM Cumulative Conditions
Dowling Associates, Inc.

Volume Type	Northbound Left	Thru	Right	Southbound Left	Thru	Right	Eastbound Left	Thru	Right	Westbound Left	Thru	Right	Total Volume
#10 Pinole Valley Rd/ I-80 EB ramps													
Base	0	948	326	85	556	0	191	1	490	0	0	0	2597
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	948	326	85	556	0	191	1	490	0	0	0	2597
#11 Pinole Valley Rd/ Estates Ave													
Base	11	893	16	98	886	73	107	6	11	17	14	274	2406
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	11	893	16	98	886	73	107	6	11	17	14	274	2406
#12 Pinole Valley Rd/ Ramona St													
Base	27	504	49	62	451	62	88	1	21	116	9	85	1475
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	27	504	49	62	451	62	88	1	21	116	9	85	1475
#13 Appian Wy/ Mann Dr													
Base	172	705	4	0	911	97	71	0	232	0	0	0	2192
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	172	705	4	0	911	97	71	0	232	0	0	0	2192
#14 Appian Wy/ Tara Hills Dr-Canyon Dr													
Base	621	893	70	17	905	80	110	2	572	585	34	101	3990
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	621	893	70	17	905	80	110	2	572	585	34	101	3990
#15 Appian Way/ I-80 WB ramps													
Base	481	1144	0	0	1299	853	0	0	0	742	1	308	4828
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	481	1144	0	0	1299	853	0	0	0	742	1	308	4828
#16 Appian Way/ I-80 EB ramps													
Base	0	1009	519	0	1707	330	559	3	275	0	0	0	4402
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1009	519	0	1707	330	559	3	275	0	0	0	4402
#17 Appian Wy/ Fitzgerald Dr-Sara Dr													
Base	277	1102	23	132	994	917	264	25	115	214	345	61	4469
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	277	1102	23	132	994	917	264	25	115	214	345	61	4469
#18 Oak Ridge Ln/ San Pablo Ave													
Base	27	0	16	0	0	0	0	1205	10	16	1864	0	3138
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	27	0	16	0	0	0	0	1205	10	16	1864	0	3138

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Pinole General Plan (P06-130)
2030 AM Cumulative Conditions
Dowling Associates, Inc.

Volume Type	Northbound Left	Thru	Right	Southbound Left	Thru	Right	Eastbound Left	Thru	Right	Westbound Left	Thru	Right	Total Volume
#19 Fernandez Ave/ San Pablo Ave													
Base	7	0	8	1	0	2	1	1257	15	41	1889	1	3222
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	7	0	8	1	0	2	1	1257	15	41	1889	1	3222
#20 John St/ San Pablo Ave													
Base	0	0	3	0	0	0	0	1291	3	0	2461	0	3758
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	3	0	0	0	0	1291	3	0	2461	0	3758
#21													
Base	10	5	10	12	5	10	20	1240	10	10	1849	11	3192
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	10	5	10	12	5	10	20	1240	10	10	1849	11	3192

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Cumulative AM              Tue Apr 20, 2010 11:54:06                 Page 3-1
-------------------------------------------------------------------------------
                        Pinole General Plan (P06-130)
                        2030 AM Cumulative Conditions
                          Dowling Associates, Inc.
-------------------------------------------------------------------------------
                           Impact Analysis Report
                              Level Of Service

Intersection                              Base           Future       Change
                                       Del/   V/       Del/   V/        in
                                   LOS Veh    C    LOS Veh    C
#  1 Del Monte Dr/eSan Pablo Ave     B xxxxx 0.614   B xxxxx 0.614  + 0.000 V/C

#  2 Pinole Shores Dr/ San Pablo Av  A xxxxx 0.559   A xxxxx 0.559  + 0.000 V/C

#  3 Sunnyview Dr/ San Pablo Ave     A xxxxx 0.510   A xxxxx 0.510  + 0.000 V/C

#  4 Appian Wy-Pinon Ave/ San Pablo  D xxxxx 0.849   D xxxxx 0.849  + 0.000 V/C

#  5 Tennent Ave/ San Pablo Ave      C xxxxx 0.778   C xxxxx 0.778  + 0.000 V/C

#  6 Pinole Valley Rd/ San Pablo Av  C xxxxx 0.775   C xxxxx 0.775  + 0.000 V/C

#  7 Tennent Ave/ Pinole Valley Rd   B xxxxx 0.608   B xxxxx 0.608  + 0.000 V/C

#  8 Pinole Valley Rd/ Henry Ave     A xxxxx 0.542   A xxxxx 0.542  + 0.000 V/C

#  9 Pinole Valley Rd/ I-80 WB ramp  B xxxxx 0.661   B xxxxx 0.661  + 0.000 V/C

# 10 Pinole Valley Rd/ I-80 EB ramp  C xxxxx 0.705   C xxxxx 0.705  + 0.000 V/C

# 11 Pinole Valley Rd/ Estates Ave   A xxxxx 0.486   A xxxxx 0.486  + 0.000 V/C

# 12 Pinole Valley Rd/ Ramona St     A xxxxx 0.321   A xxxxx 0.321  + 0.000 V/C

# 13 Appian Wy/ Mann Dr              A xxxxx 0.544   A xxxxx 0.544  + 0.000 V/C

# 14 Appian Wy/ Tara Hills Dr-Canyo  E xxxxx 0.913   E xxxxx 0.913  + 0.000 V/C

# 15 Appian Way/ I-80 WB ramps       D xxxxx 0.895   D xxxxx 0.895  + 0.000 V/C

# 16 Appian Way/ I-80 EB ramps       B xxxxx 0.646   B xxxxx 0.646  + 0.000 V/C

# 17 Appian Wy/ Fitzgerald Dr-Sara   B xxxxx 0.697   B xxxxx 0.697  + 0.000 V/C

# 18 Oak Ridge Ln/ San Pablo Ave     A xxxxx 0.567   A xxxxx 0.567  + 0.000 V/C

# 19 Fernandez Ave/ San Pablo Ave    B xxxxx 0.603   B xxxxx 0.603  + 0.000 V/C

# 20 John St/ San Pablo Ave          B xxxxx 0.685   B xxxxx 0.685  + 0.000 V/C

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-------------------------------------------------------------------------------
                        Pinole General Plan (P06-130)
                        2030 AM Cumulative Conditions
                          Dowling Associates, Inc.
-------------------------------------------------------------------------------
                       Level Of Service Computation Report
                    CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #1 Del Monte Dr/eSan Pablo Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.614
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        59                Level Of Service:                   B
*******************************************************************************
Street Name:           Del Monte Dr                     San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Split Phase      Split Phase       Protected        Protected
Rights:          Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  0  1  0    0  0  1! 0  0    1  0  2  0  1    1  0  2  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    2     1    72    3    76   118  791     3     7 1482    21
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    2     1    72    3    76   118  791     3     7 1482    21
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0    2     1    72    3    76   118  791     3     7 1482    21
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0    2     1    72    3    76   118  791     3     7 1482    21
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0    21
RTOR Vol:       0    2     1    72    3    76   118  791     3     7 1482     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    0    2     1    72    3    76   118  791     3     7 1482     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 0.67  0.33  0.48 0.02  0.50  1.00 2.00  1.00  1.00 2.00  1.00
Final Sat.:     0 1100   550   787   33   830  1650 3300  1650  1650 3300  1650
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.00  0.00  0.09 0.09  0.09  0.07 0.24  0.00  0.00 0.45  0.00
Crit Volume:         3                     151   118                    741
Crit Moves:       ****                    ****  ****                   ****
*******************************************************************************

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Cumulative AM              Tue Apr 20, 2010 11:54:06                 Page 5-1
-------------------------------------------------------------------------------
                         Pinole General Plan (P06-130)
                         2030 AM Cumulative Conditions
                           Dowling Associates, Inc.
-------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #2 Pinole Shores Dr/ San Pablo Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.559
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        42                Level Of Service:                  A
*******************************************************************************
Street Name:         Pinole Shores Dr                   San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted        Protected        Protected
Rights:            Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1! 0  0    1  0  0  0  1    1  0  1  1  0    1  0  1  1  0
------------||---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      25    0    19   135    0    40    29  793     3    13 1454    54
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   25    0    19   135    0    40    29  793     3    13 1454    54
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    25    0    19   135    0    40    29  793     3    13 1454    54
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   25    0    19   135    0    40    29  793     3    13 1454    54
RTOR Reduct:    0    0     0     0    0    29     0    0     0     0    0     0
RTOR Vol:      25    0    19   135    0    11    29  793     3    13 1454    54
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   25    0    19   135    0    11    29  793     3    13 1454    54
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.57 0.00  0.43  1.00 0.00  1.00  1.00 1.99  0.01  1.00 1.93  0.07
Final Sat.:   977    0   743  1720    0  1720  1720 3427    13  1720 3317   123
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.03 0.00  0.03  0.08 0.00  0.01  0.02 0.23  0.23  0.01 0.44  0.44
Crit Volume:               44   135               29                         754
Crit Moves:              ****  ****              ****                        ****
*******************************************************************************
```

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Cumulative AM              Tue Apr 20, 2010 11:54:06                 Page 6-1
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                         Pinole General Plan (P06-130)
                         2030 AM Cumulative Conditions
                           Dowling Associates, Inc.
-------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #3 Sunnyview Dr/ San Pablo Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.510
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        38                Level Of Service:                  A
*******************************************************************************
Street Name:         Sunnyview Dr                       San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted        Protected        Protected
Rights:            Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    1  0  1  1  0    1  0  1  1  0
------------||---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      17    9     9    95   11    26    32  887    40    17 1370    21
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   17    9     9    95   11    26    32  887    40    17 1370    21
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    17    9     9    95   11    26    32  887    40    17 1370    21
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   17    9     9    95   11    26    32  887    40    17 1370    21
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:      17    9     9    95   11    26    32  887    40    17 1370    21
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   17    9     9    95   11    26    32  887    40    17 1370    21
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.48 0.26  0.26  0.72 0.08  0.20  1.00 1.91  0.09  1.00 1.97  0.03
Final Sat.:   835  442   442  1238  143   339  1720 3292   148  1720 3388    52
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.02 0.02  0.02  0.08 0.08  0.08  0.02 0.27  0.27  0.01 0.40  0.40
Crit Volume:   17                   132          32                         696
Crit Moves:  ****                  ****        ****                        ****
*******************************************************************************
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                         Pinole General Plan (P06-130)
                         2030 AM Cumulative Conditions
                           Dowling Associates, Inc.
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
********************************************************************************
Intersection #4 Appian Wy-Pinon Ave/ San Pablo Ave
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.849
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:       123                Level Of Service:                  D
********************************************************************************
Street Name:       Appian Wy-Pinon Ave                 San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted        Protected        Protected
Rights:            Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  0  1  0    1  0  0  1  0    1  0  2  0  1    1  0  1  1  0
------------||---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     124   97   508    71   75     8     7  766   195   401 1395    60
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  124   97   508    71   75     8     7  766   195   401 1395    60
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   124   97   508    71   75     8     7  766   195   401 1395    60
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  124   97   508    71   75     8     7  766   195   401 1395    60
RTOR Reduct:    0    0     0     0    0     0     0    0   124     0    0     0
RTOR Vol:     124   97   508    71   75     8     7  766    71   401 1395    60
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  124   97   508    71   75     8     7  766    71   401 1395    60
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.16  0.84  1.00 0.90  0.10  1.00 2.00  1.00  1.00 1.92  0.08
Final Sat.:  1720  276  1444  1720 1554   166  1720 3440  1720  1720 3298   142
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.07 0.35  0.35  0.04 0.05  0.05  0.00 0.22  0.04  0.23 0.42  0.42
Crit Volume:             605    71                   383         401
Crit Moves:             ****  ****                 ****        ****
********************************************************************************
```

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Cumulative AM              Tue Apr 20, 2010 11:54:07                 Page 8-1
--------------------------------------------------------------------------------
                         Pinole General Plan (P06-130)
                         2030 AM Cumulative Conditions
                           Dowling Associates, Inc.
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
********************************************************************************
Intersection #5 Tennent Ave/ San Pablo Ave
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.778
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        65                Level Of Service:                  C
********************************************************************************
Street Name:           Tennent Ave                         San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted        Permitted        Permitted
Rights:            Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  0  1  0    0  0  1! 0  0    0  1  1  0  1    0  1  0  1  0
------------||---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      21   52   259    45   34    15    12  981   228    55 1783    63
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   21   52   259    45   34    15    12  981   228    55 1783    63
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    21   52   259    45   34    15    12  981   228    55 1783    63
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   21   52   259    45   34    15    12  981   228    55 1783    63
RTOR Reduct:    0    0     0     0    0     0     0    0    21     0    0     0
RTOR Vol:      21   52   259    45   34    15    12  981   207    55 1783    63
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  6.00 1.00  1.00  4.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   21   52   259    45   34    15    72  981   207   220 1783    63
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.17  0.83  0.48 0.36  0.16  0.15 1.85  1.00  0.06 1.88  0.06
Final Sat.:  1800  301  1499   862  651   287   278 3322  1800   114 3376   110
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.01 0.17  0.17  0.05 0.05  0.05  0.04 0.30  0.12  0.48 0.53  0.57
Crit Volume:      311          45                12                       1033
Crit Moves:      ****         ****              ****                      ****
********************************************************************************
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Cumulative AM              Tue Apr 20, 2010 11:54:07                 Page 9-1
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                         Pinole General Plan (P06-130)
                         2030 AM Cumulative Conditions
                           Dowling Associates, Inc.
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
********************************************************************************
Intersection #6 Pinole Valley Rd/ San Pablo Ave
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.775
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        64                Level Of Service:                  C
********************************************************************************
Street Name:         Pinole Valley Rd                  San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted        Permitted        Permitted
Rights:             Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    0  1  0  1  0    0  1  0  1  0
------------||---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      15   98   101     9    2     2     8 1237    22   519 1881    17
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   15   98   101     9    2     2     8 1237    22   519 1881    17
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    15   98   101     9    2     2     8 1237    22   519 1881    17
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   15   98   101     9    2     2     8 1237    22   519 1881    17
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:      15   98   101     9    2     2     8 1237    22   519 1881    17
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  6.00 1.00  1.00  6.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   15   98   101     9    2     2    48 1237    22  3114 1881    17
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.07 0.46  0.47  0.70 0.15  0.15  0.01 1.96  0.03  1.00 0.99  0.01
Final Sat.:   126  824   850  1246  277   277    23 3516    61  1800 1788    12
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.12 0.12  0.12  0.01 0.01  0.01  0.34 0.35  0.36  0.29 1.05  1.39
Crit Volume:             214     9                          653   519
Crit Moves:             ****  ****                        ****  ****
********************************************************************************
```

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Cumulative AM              Tue Apr 20, 2010 11:54:07                 Page 10-1
--------------------------------------------------------------------------------
                         Pinole General Plan (P06-130)
                         2030 AM Cumulative Conditions
                           Dowling Associates, Inc.
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
********************************************************************************
Intersection #7 Tennent Ave/ Pinole Valley Rd
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.608
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        58                Level Of Service:                  B
********************************************************************************
Street Name:           Tennent Ave                     Pinole Valley Rd
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  1  0  1    1  0  0  1  0    1  0  0  1  0    1  0  1  0  1
------------||---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      80  223   220     8  270    44    37   88    65   456   38    33
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   80  223   220     8  270    44    37   88    65   456   38    33
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    80  223   220     8  270    44    37   88    65   456   38    33
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   80  223   220     8  270    44    37   88    65   456   38    33
RTOR Reduct:    0    0   220     0    0     0     0    0     0     0    0     8
RTOR Vol:      80  223     0     8  270    44    37   88    65   456   38    25
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   80  223     0     8  270    44    37   88    65   456   38    25
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 1.00  1.00  1.00 0.86  0.14  1.00 0.58  0.42  1.00 1.00  1.00
Final Sat.:  1650 1650  1650  1650 1419   231  1650  949   701  1650 1650  1650
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.05 0.14  0.00  0.00 0.19  0.19  0.02 0.09  0.09  0.28 0.02  0.02
Crit Volume:   80                          314              153   456
Crit Moves:  ****                        ****             ****  ****
********************************************************************************
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                         Pinole General Plan (P06-130)
                         2030 AM Cumulative Conditions
                           Dowling Associates, Inc.
-------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #8 Pinole Valley Rd/ Henry Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.542
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        50                Level Of Service:                  A
*******************************************************************************
Street Name:         Pinole Valley Rd                    Henry Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  1  0  1    1  0  1  1  0    0  0  1! 0  0    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     253  541    36     8  629   335    25    4    57    55    8    11
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  253  541    36     8  629   335    25    4    57    55    8    11
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   253  541    36     8  629   335    25    4    57    55    8    11
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  253  541    36     8  629   335    25    4    57    55    8    11
RTOR Reduct:    0    0    36     0    0     0     0    0     0     0    0     0
RTOR Vol:     253  541     0     8  629   335    25    4    57    55    8    11
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  253  541     0     8  629   335    25    4    57    55    8    11
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 1.00  1.00  1.00 1.30  0.70  0.29 0.05  0.66  0.74 0.11  0.15
Final Sat.:  1650 1650  1650  1650 2153  1147   480   77  1094  1226  178   245
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.15 0.33  0.00  0.00 0.29  0.29  0.05 0.05  0.05  0.04 0.04  0.04
Crit Volume:  253                        482                86                74
Crit Moves:  ****                      ****              ****              ****
*******************************************************************************
```

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                         Pinole General Plan (P06-130)
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                           Dowling Associates, Inc.
-------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #9 Pinole Valley Rd/ I-80 WB ramps
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.661
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        67                Level Of Service:                  B
*******************************************************************************
Street Name:         Pinole Valley Rd                    I-80 WB ramps
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        2  0  1  0  0    0  0  1  1  0    0  0  0  0  0    0  1  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     532  458     0     0  377   243     0    0     0   287  406   377
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  532  458     0     0  377   243     0    0     0   287  406   377
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   532  458     0     0  377   243     0    0     0   287  406   377
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  532  458     0     0  377   243     0    0     0   287  406   377
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:     532  458     0     0  377   243     0    0     0   287  406   377
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  532  458     0     0  377   243     0    0     0   287  406   377
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  0.91 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       2.00 1.00  0.00  0.00 1.22  0.78  0.00 0.00  0.00  0.54 0.76  0.70
Final Sat.:  3127 1720     0     0 2092  1348     0    0     0   923 1305  1212
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.17 0.27  0.00  0.00 0.18  0.18  0.00 0.00  0.00  0.31 0.31  0.31
Crit Volume:  266                        310          0                     535
Crit Moves:  ****                      ****                              ****
*******************************************************************************
```

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                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #10 Pinole Valley Rd/ I-80 EB ramps
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.705
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        77                Level Of Service:                  C
*******************************************************************************
Street Name:         Pinole Valley Rd                   I-80 EB ramps
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1  1  0    1  0  2  0  0    0  1  0  0  1    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0  948   326    85  556     0   191    1   490     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0  948   326    85  556     0   191    1   490     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0  948   326    85  556     0   191    1   490     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0  948   326    85  556     0   191    1   490     0    0     0
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:       0  948   326    85  556     0   191    1   490     0    0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    0  948   326    85  556     0   191    1   490     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 1.49  0.51  1.00 2.00  0.00  0.99 0.01  1.00  0.00 0.00  0.00
Final Sat.:     0 2560   880  1720 3440     0  1711    9  1720     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.37  0.37  0.05 0.16  0.00  0.11 0.11  0.28  0.00 0.00  0.00
Crit Volume:       637          85                          490          0
Crit Moves:       ****        ****                         ****
*******************************************************************************
```

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                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #11 Pinole Valley Rd/ Estates Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.486
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        36                Level Of Service:                  A
*******************************************************************************
Street Name:         Pinole Valley Rd                   Estates Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Permitted        Permitted
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  1  1  0    1  0  1  1  0    0  1  0  0  1    0  1  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      11  893    16    98  886    73   107    6    11    17   14   274
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   11  893    16    98  886    73   107    6    11    17   14   274
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    11  893    16    98  886    73   107    6    11    17   14   274
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   11  893    16    98  886    73   107    6    11    17   14   274
RTOR Reduct:    0    0     0     0    0     0     0    0    11     0    0    98
RTOR Vol:      11  893    16    98  886    73   107    6     0    17   14   176
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   11  893    16    98  886    73   107    6     0    17   14   176
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 1.96  0.04  1.00 1.85  0.15  0.95 0.05  1.00  0.55 0.45  1.00
Final Sat.:  1720 3379    61  1720 3178   262  1629   91  1720   943  777  1720
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.01 0.26  0.26  0.06 0.28  0.28  0.07 0.07  0.00  0.02 0.02  0.10
Crit Volume:       455          98                 107                          176
Crit Moves:       ****        ****                ****                         ****
*******************************************************************************
```

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                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
********************************************************************************
Intersection #12 Pinole Valley Rd/ Ramona St
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.321
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        21                Level Of Service:                  A
********************************************************************************
Street Name:         Pinole Valley Rd                    Ramona St
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted        Permitted        Permitted
Rights:            Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  1  0  1  0    0  1  0  1  0    0  0  1! 0  0    0  1  0  0  1
------------||---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      27  504    49    62  451    62    88    1    21   116    9    85
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   27  504    49    62  451    62    88    1    21   116    9    85
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    27  504    49    62  451    62    88    1    21   116    9    85
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   27  504    49    62  451    62    88    1    21   116    9    85
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0    62
RTOR Vol:      27  504    49    62  451    62    88    1    21   116    9    23
PCE Adj:     2.00 1.00  1.00  2.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   54  504    49   124  451    62    88    1    21   116    9    23
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.10 1.74  0.16  0.24 1.57  0.19  0.80 0.01  0.19  0.93 0.07  1.00
Final Sat.:   176 3134   291   435 2815   350  1440   16   344  1670  130  1800
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.15 0.16  0.17  0.14 0.16  0.18  0.06 0.06  0.06  0.07 0.07  0.01
Crit Volume:             303    62               88                   125
Crit Moves:             ****  ****              ****                 ****
********************************************************************************
```

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                         Pinole General Plan (P06-130)
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                           Dowling Associates, Inc.
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
********************************************************************************
Intersection #13 Appian Wy/ Mann Dr
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.544
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        41                Level Of Service:                  A
********************************************************************************
Street Name:           Appian Wy                           Mann Dr
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted      Split Phase      Split Phase
Rights:            Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  1  0  1  0    0  0  1  1  0    0  0  1! 0  0    0  0  0  0  0
------------||---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     172  705     4     0  911    97    71    0   232     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  172  705     4     0  911    97    71    0   232     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   172  705     4     0  911    97    71    0   232     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  172  705     4     0  911    97    71    0   232     0    0     0
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:     172  705     4     0  911    97    71    0   232     0    0     0
PCE Adj:     4.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  688  705     4     0  911    97    71    0   232     0    0     0
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.94 1.05  0.01  0.00 1.81  0.19  0.23 0.00  0.77  0.00 0.00  0.00
Final Sat.:  1696 1893    10     0 3254   346   422    0  1378     0    0     0
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.10 0.37  0.39  0.00 0.28  0.28  0.17 0.00  0.17  0.00 0.00  0.00
Crit Volume:  172                        504              303          0
Crit Moves:  ****                        ****             ****
********************************************************************************
```


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--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
********************************************************************************
Intersection #14 Appian Wy/ Tara Hills Dr-Canyon Dr
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.913
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:       180                Level Of Service:                  E
********************************************************************************
Street Name:            Appian Wy                  Tara Hills Dr-Canyon Dr
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        2  0  1  1  0    1  0  2  0  1    0  1  0  0  2    0  1  1  0  1
------------||---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     621  893    70    17  905    80   110    2   572   585   34   101
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  621  893    70    17  905    80   110    2   572   585   34   101
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   621  893    70    17  905    80   110    2   572   585   34   101
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  621  893    70    17  905    80   110    2   572   585   34   101
RTOR Reduct:    0    0     0     0    0    80     0    0   342     0    0    17
RTOR Vol:     621  893    70    17  905     0   110    2   230   585   34    84
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  621  893    70    17  905     0   110    2   230   585   34    84
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  0.91 1.00  1.00  1.00 1.00  1.00  1.00 1.00  0.91  1.00 1.00  1.00
Lanes:       2.00 1.85  0.15  1.00 2.00  1.00  0.98 0.02  2.00  1.00 1.00  1.00
Final Sat.:  3000 3060   240  1650 3300  1650  1621   29  3000  1650 1650  1650
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.21 0.29  0.29  0.01 0.27  0.00  0.07 0.07  0.08  0.35 0.02  0.05
Crit Volume:  311                   453                    115   585
Crit Moves:  ****                  ****                   ****  ****
********************************************************************************
```



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                         Pinole General Plan (P06-130)
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                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
********************************************************************************
Intersection #15 Appian Way/ I-80 WB ramps
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.895
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:       180                Level Of Service:                  D
********************************************************************************
Street Name:            Appian Way                      I-80 WB ramps
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Split Phase      Split Phase
Rights:           Include           Ignore          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  2  0  0    0  0  2  0  1    0  0  0  0  0    1  1  0  0  1
------------||---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     481 1144     0     0 1299   853     0    0     0   742    1   308
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  481 1144     0     0 1299   853     0    0     0   742    1   308
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   481 1144     0     0 1299   853     0    0     0   742    1   308
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  481 1144     0     0 1299   853     0    0     0   742    1   308
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:     481 1144     0     0 1299   853     0    0     0   742    1   308
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  481 1144     0     0 1299   853     0    0     0   742    1   308
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  0.91 1.00  1.00
Lanes:       1.00 2.00  0.00  0.00 2.00  1.00  0.00 0.00  0.00  1.99 0.01  1.00
Final Sat.:  1720 3440     0     0 3440  1720     0    0     0  3123    5  1720
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.28 0.33  0.00  0.00 0.38  0.50  0.00 0.00  0.00  0.24 0.22  0.18
Crit Volume:  481                   650                    0    372
Crit Moves:  ****                  ****                        ****
********************************************************************************
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                         Pinole General Plan (P06-130)
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                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
********************************************************************************
Intersection #16 Appian Way/ I-80 EB ramps
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.646
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        53                Level Of Service:                  B
********************************************************************************
Street Name:            Appian Way                     I-80 EB ramps
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted      Split Phase      Split Phase
Rights:             Include          Ignore          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1  1  1    0  0  2  0  1    1  1  0  0  1    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0 1009   519     0 1707   330   559    3   275     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0 1009   519     0 1707   330   559    3   275     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0 1009   519     0 1707   330   559    3   275     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0 1009   519     0 1707   330   559    3   275     0    0     0
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:       0 1009   519     0 1707   330   559    3   275     0    0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    0 1009   519     0 1707   330   559    3   275     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  0.91  1.00 1.00  1.00  0.91 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 1.98  1.02  0.00 2.00  1.00  1.99 0.01  1.00  0.00 0.00  0.00
Final Sat.:     0 3566  1667     0 3600  1800  3255   19  1800     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.28  0.31  0.00 0.47  0.18  0.17 0.16  0.15  0.00 0.00  0.00
Crit Volume:    0                   854         281                     0
Crit Moves:  ****                  ****        ****
********************************************************************************
```

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--------------------------------------------------------------------------------
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                   CCTALOS Method (Base Volume Alternative)
********************************************************************************
Intersection #17 Appian Wy/ Fitzgerald Dr-Sara Dr
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.697
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        75                Level Of Service:                  B
********************************************************************************
Street Name:            Appian Way                  Fitzgerald Dr-Sara Dr
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected      Split Phase      Split Phase
Rights:           Include            Ovl          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        2  0  1  1  0    1  0  2  0  2    2  1  0  0  1    1  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     277 1102    23   132  994   917   264   25   115   214  345    61
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  277 1102    23   132  994   917   264   25   115   214  345    61
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   277 1102    23   132  994   917   264   25   115   214  345    61
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  277 1102    23   132  994   917   264   25   115   214  345    61
RTOR Reduct:    0    0     0     0    0   101     0    0   115     0    0    61
RTOR Vol:     277 1102    23   132  994   816   264   25     0   214  345     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  277 1102    23   132  994   816   264   25     0   214  345     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  0.91 1.00  1.00  1.00 1.00  0.91  0.87 1.00  1.00  1.00 1.00  1.00
Lanes:       2.00 1.96  0.04  1.00 2.00  2.00  2.74 0.26  1.00  1.00 1.00  1.00
Final Sat.:  3000 3233    67  1650 3300  3000  3934  428  1650  1650 1650  1650
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.09 0.34  0.34  0.08 0.30  0.27  0.07 0.06  0.00  0.13 0.21  0.00
Crit Volume:      563         132                 96                   345
Crit Moves:      ****        ****                ****                  ****
********************************************************************************
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--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
********************************************************************************
Intersection #18 Oak Ridge Ln/ San Pablo Ave
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.567
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        53                Level Of Service:                  A
********************************************************************************
Street Name:           Oak Ridge Ln                    San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:       Split Phase      Split Phase       Protected        Protected
Rights:          Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1! 0  0    0  0  0  0  0    0  0  1  1  0    1  0  2  0  0
------------||---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      27    0    16     0    0     0     0 1205    10    16 1864     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   27    0    16     0    0     0     0 1205    10    16 1864     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    27    0    16     0    0     0     0 1205    10    16 1864     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   27    0    16     0    0     0     0 1205    10    16 1864     0
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:      27    0    16     0    0     0     0 1205    10    16 1864     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   27    0    16     0    0     0     0 1205    10    16 1864     0
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.63 0.00  0.37  0.00 0.00  0.00  0.00 1.98  0.02  1.00 2.00  0.00
Final Sat.:  1080    0   640     0    0     0     0 3412    28  1720 3440     0
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.03 0.00  0.03  0.00 0.00  0.00  0.00 0.35  0.35  0.01 0.54  0.00
Crit Volume:               43           0           0                   932
Crit Moves:               ****                    ****                   ****
********************************************************************************
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                         Pinole General Plan (P06-130)
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                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
********************************************************************************
Intersection #19 Fernandez Ave/ San Pablo Ave
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.603
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        36                Level Of Service:                  B
********************************************************************************
Street Name:          Fernandez Ave                    San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:       Permitted        Permitted        Permitted        Permitted
Rights:          Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    0  1  0  1  0    0  1  0  1  0
------------||---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       7    0     8     1    0     2     1 1257    15    41 1889     1
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    7    0     8     1    0     2     1 1257    15    41 1889     1
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     7    0     8     1    0     2     1 1257    15    41 1889     1
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    7    0     8     1    0     2     1 1257    15    41 1889     1
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:       7    0     8     1    0     2     1 1257    15    41 1889     1
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  6.00 1.00  1.00  6.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    7    0     8     1    0     2     6 1257    15   246 1889     1
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.47 0.00  0.53  0.33 0.00  0.67  0.01 1.97  0.02  0.04 1.95  0.01
Final Sat.:   840    0   960   600    0  1200     3 3555    42    86 3513     2
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.01 0.00  0.01  0.00 0.00  0.00  0.35 0.35  0.36  0.48 0.54  0.59
Crit Volume:               15     1                 1                        1068
Crit Moves:               ****  ****              ****                       ****
********************************************************************************
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                            Dowling Associates, Inc.
-------------------------------------------------------------------------------
                       Level Of Service Computation Report
                    CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #20 John St/ San Pablo Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.685
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        46                Level Of Service:                  B
*******************************************************************************
Street Name:             John St                        San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted        Permitted        Permitted
Rights:            Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  0  0  1    0  0  0  0  0    0  0  1  1  0    0  0  2  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     3     0    0     0     0 1291     3     0 2461     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     3     0    0     0     0 1291     3     0 2461     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0    0     3     0    0     0     0 1291     3     0 2461     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0    0     3     0    0     0     0 1291     3     0 2461     0
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:       0    0     3     0    0     0     0 1291     3     0 2461     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    0    0     3     0    0     0     0 1291     3     0 2461     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 0.00  1.00  0.00 0.00  0.00  0.00 1.99  0.01  0.00 2.00  0.00
Final Sat.:     0    0  1800     0    0     0     0 3592     8     0 3600     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.36  0.36  0.00 0.68  0.00
Crit Volume:                3     0                 0                   1231
Crit Moves:              ****                   ****                   ****
*******************************************************************************

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Cumulative PM              Tue Apr 20, 2010 11:54:11                Page 1-1
-------------------------------------------------------------------------------
                          Pinole General Plan (P06-130)
                          2030 PM Cumulative Conditions
                            Dowling Associates, Inc.
-------------------------------------------------------------------------------
                                 Scenario Report
Scenario:             Cumulative PM

Command:              Cumulative PM
Volume:               Cumulative PM
Geometry:             Cumulatiive
Impact Fee:           Default Impact Fee
Trip Generation:      Default Trip Generation
Trip Distribution:    Default Trip Distribution
Paths:                Default Path
Routes:               Default Route
Configuration:        Default Configuration

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Cumulative PM Tue Apr 20, 2010 11:54:11 Page 2-1

Pinole General Plan (P06-130)
2030 PM Cumulative Conditions
Dowling Associates, Inc.

Turning Movement Report

Volume Type	Northbound Left	Thru	Right	Southbound Left	Thru	Right	Eastbound Left	Thru	Right	Westbound Left	Thru	Right	Total Volume
#1 Del Monte Dr/eSan Pablo Ave													
Base	4	2	14	62	2	72	192	1307	31	35	1129	39	2889
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	4	2	14	62	2	72	192	1307	31	35	1129	39	2889
#2 Pinole Shores Dr/ San Pablo Ave													
Base	3	0	8	71	0	31	45	1308	19	12	1181	86	2764
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	3	0	8	71	0	31	45	1308	19	12	1181	86	2764
#3 Sunnyview Dr/ San Pablo Ave													
Base	23	7	25	91	10	39	66	1271	33	36	1220	49	2870
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	23	7	25	91	10	39	66	1271	33	36	1220	49	2870
#4 Appian Wy-Pinon Ave/ San Pablo Ave													
Base	322	106	357	75	65	32	18	1155	171	707	934	114	4056
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	322	106	357	75	65	32	18	1155	171	707	934	114	4056
#5 Tennent Ave/ San Pablo Ave													
Base	144	64	88	46	35	27	28	1395	200	164	1572	63	3826
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	144	64	88	46	35	27	28	1395	200	164	1572	63	3826
#6 Pinole Valley Rd/ San Pablo Ave													
Base	31	9	395	5	7	7	10	1552	6	250	1745	8	4025
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	31	9	395	5	7	7	10	1552	6	250	1745	8	4025
#7 Tennent Ave/ Pinole Valley Rd													
Base	9	319	365	37	361	4	3	2	9	244	8	36	1397
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	9	319	365	37	361	4	3	2	9	244	8	36	1397
#8 Pinole Valley Rd/ Henry Ave													
Base	77	515	92	12	515	24	134	16	136	55	3	11	1590
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	77	515	92	12	515	24	134	16	136	55	3	11	1590
#9 Pinole Valley Rd/ I-80 WB ramps													
Base	506	584	0	0	477	219	0	0	0	336	1	80	2203
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	506	584	0	0	477	219	0	0	0	336	1	80	2203

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Cumulative PM Tue Apr 20, 2010 11:54:11 Page 2-2

Pinole General Plan (P06-130)
2030 PM Cumulative Conditions
Dowling Associates, Inc.

Volume Type	Northbound Left	Thru	Right	Southbound Left	Thru	Right	Eastbound Left	Thru	Right	Westbound Left	Thru	Right	Total Volume
#10 Pinole Valley Rd/ I-80 EB ramps													
Base	0	702	399	308	569	0	450	233	639	0	0	0	3300
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	702	399	308	569	0	450	233	639	0	0	0	3300
#11 Pinole Valley Rd/ Estates Ave													
Base	21	706	28	213	810	187	192	13	11	17	12	132	2342
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	21	706	28	213	810	187	192	13	11	17	12	132	2342
#12 Pinole Valley Rd/ Ramona St													
Base	15	444	61	146	568	14	42	4	6	31	8	54	1393
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	15	444	61	146	568	14	42	4	6	31	8	54	1393
#13 Appian Wy/ Mann Dr													
Base	235	898	0	0	845	66	36	0	98	0	0	0	2178
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	235	898	0	0	845	66	36	0	98	0	0	0	2178
#14 Appian Wy/ Tara Hills Dr-Canyon Dr													
Base	630	844	262	31	896	98	178	43	685	100	30	8	3805
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	630	844	262	31	896	98	178	43	685	100	30	8	3805
#15 Appian Way/ I-80 WB ramps													
Base	347	1365	0	0	1116	501	0	0	0	518	9	316	4172
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	347	1365	0	0	1116	501	0	0	0	518	9	316	4172
#16 Appian Way/ I-80 EB ramps													
Base	0	1217	1174	0	1245	535	632	258	247	0	0	0	5308
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1217	1174	0	1245	535	632	258	247	0	0	0	5308
#17 Appian Wy/ Fitzgerald Dr-Sara Dr													
Base	346	913	51	209	696	656	1376	137	489	52	89	89	5103
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	346	913	51	209	696	656	1376	137	489	52	89	89	5103
#18 Oak Ridge Ln/ San Pablo Ave													
Base	16	0	12	0	0	0	0	1589	11	16	1770	0	3414
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	16	0	12	0	0	0	0	1589	11	16	1770	0	3414

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Pinole General Plan (P06-130)
2030 PM Cumulative Conditions
Dowling Associates, Inc.

Volume Type	Northbound Left	Thru	Right	Southbound Left	Thru	Right	Eastbound Left	Thru	Right	Westbound Left	Thru	Right	Total Volume
#19 Fernandez Ave/ San Pablo Ave													
Base	20	2	41	18	0	21	14	1461	21	35	1729	12	3374
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	20	2	41	18	0	21	14	1461	21	35	1729	12	3374
#20 John St/ San Pablo Ave													
Base	0	0	23	0	0	0	0	1942	3	0	2027	0	3995
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	23	0	0	0	0	1942	3	0	2027	0	3995
#21													
Base	10	5	10	18	5	18	10	1578	10	10	1762	12	3448
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	10	5	10	18	5	18	10	1578	10	10	1762	12	3448

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Cumulative PM Tue Apr 20, 2010 11:54:11 Page 3-1

Pinole General Plan (P06-130)
2030 PM Cumulative Conditions
Dowling Associates, Inc.

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Del/ Veh	V/ C	Future LOS	Del/ Veh	V/ C	Change in V/C
# 1 Del Monte Dr/eSan Pablo Ave	A	xxxxx	0.553	A	xxxxx	0.553	+ 0.000
# 2 Pinole Shores Dr/ San Pablo Av	A	xxxxx	0.442	A	xxxxx	0.442	+ 0.000
# 3 Sunnyview Dr/ San Pablo Ave	A	xxxxx	0.502	A	xxxxx	0.502	+ 0.000
# 4 Appian Wy-Pinon Ave/ San Pablo	F	xxxxx	1.060	F	xxxxx	1.060	+ 0.000
# 5 Tennent Ave/ San Pablo Ave	B	xxxxx	0.677	B	xxxxx	0.677	+ 0.000
# 6 Pinole Valley Rd/ San Pablo Av	D	xxxxx	0.833	D	xxxxx	0.833	+ 0.000
# 7 Tennent Ave/ Pinole Valley Rd	A	xxxxx	0.381	A	xxxxx	0.381	+ 0.000
# 8 Pinole Valley Rd/ Henry Ave	A	xxxxx	0.535	A	xxxxx	0.535	+ 0.000
# 9 Pinole Valley Rd/ I-80 WB ramp	A	xxxxx	0.559	A	xxxxx	0.559	+ 0.000
# 10 Pinole Valley Rd/ I-80 EB ramp	D	xxxxx	0.896	D	xxxxx	0.896	+ 0.000
# 11 Pinole Valley Rd/ Estates Ave	A	xxxxx	0.466	A	xxxxx	0.466	+ 0.000
# 12 Pinole Valley Rd/ Ramona St	A	xxxxx	0.276	A	xxxxx	0.276	+ 0.000
# 13 Appian Wy/ Mann Dr	A	xxxxx	0.458	A	xxxxx	0.458	+ 0.000
# 14 Appian Wy/ Tara Hills Dr-Canyo	B	xxxxx	0.676	B	xxxxx	0.676	+ 0.000
# 15 Appian Way/ I-80 WB ramps	C	xxxxx	0.710	C	xxxxx	0.710	+ 0.000
# 16 Appian Way/ I-80 EB ramps	C	xxxxx	0.759	C	xxxxx	0.759	+ 0.000
# 17 Appian Wy/ Fitzgerald Dr-Sara	D	xxxxx	0.824	D	xxxxx	0.824	+ 0.000
# 18 Oak Ridge Ln/ San Pablo Ave	A	xxxxx	0.531	A	xxxxx	0.531	+ 0.000
# 19 Fernandez Ave/ San Pablo Ave	A	xxxxx	0.595	A	xxxxx	0.595	+ 0.000
# 20 John St/ San Pablo Ave	A	xxxxx	0.576	A	xxxxx	0.576	+ 0.000

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Cumulative PM              Tue Apr 20, 2010 11:54:11                 Page 4-1
------------------------------------------------------------------------------
                         Pinole General Plan (P06-130)
                         2030 PM Cumulative Conditions
                           Dowling Associates, Inc.
------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
******************************************************************************
Intersection #1 Del Monte Dr/eSan Pablo Ave
******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.553
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        51                Level Of Service:                  A
******************************************************************************
Street Name:           Del Monte Dr                    San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Split Phase      Split Phase       Protected        Protected
Rights:          Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    1  0  2  0  1    1  0  2  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       4    2    14    62    2    72   192 1307    31    35 1129    39
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    4    2    14    62    2    72   192 1307    31    35 1129    39
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     4    2    14    62    2    72   192 1307    31    35 1129    39
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    4    2    14    62    2    72   192 1307    31    35 1129    39
RTOR Reduct:    0    0     0     0    0     0     0    0     4     0    0    39
RTOR Vol:       4    2    14    62    2    72   192 1307    27    35 1129     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    4    2    14    62    2    72   192 1307    27    35 1129     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.20 0.10  0.70  0.46 0.01  0.53  1.00 2.00  1.00  1.00 2.00  1.00
Final Sat.:   330  165  1155   752   24   874  1650 3300  1650  1650 3300  1650
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.01 0.01  0.01  0.08 0.08  0.08  0.12 0.40  0.02  0.02 0.34  0.00
Crit Volume:        20                     136   192                    564
Crit Moves:       ****                    ****  ****                   ****
******************************************************************************
```

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Cumulative PM              Tue Apr 20, 2010 11:54:12                 Page 5-1
------------------------------------------------------------------------------
                         Pinole General Plan (P06-130)
                         2030 PM Cumulative Conditions
                           Dowling Associates, Inc.
------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
******************************************************************************
Intersection #2 Pinole Shores Dr/ San Pablo Ave
******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.442
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        33                Level Of Service:                  A
******************************************************************************
Street Name:         Pinole Shores Dr                  San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Permitted        Permitted        Protected        Protected
Rights:          Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1! 0  0    1  0  0  0  1    1  0  1  1  0    1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       3    0     8    71    0    31    45 1308    19    12 1181    86
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    3    0     8    71    0    31    45 1308    19    12 1181    86
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     3    0     8    71    0    31    45 1308    19    12 1181    86
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    3    0     8    71    0    31    45 1308    19    12 1181    86
RTOR Reduct:    0    0     0     0    0    31     0    0     0     0    0     0
RTOR Vol:       3    0     8    71    0     0    45 1308    19    12 1181    86
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    3    0     8    71    0     0    45 1308    19    12 1181    86
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.27 0.00  0.73  1.00 0.00  1.00  1.00 1.97  0.03  1.00 1.86  0.14
Final Sat.:   469    0  1251  1720    0  1720  1720 3391    49  1720 3207   233
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.01 0.00  0.01  0.04 0.00  0.00  0.03 0.39  0.39  0.01 0.37  0.37
Crit Volume:                11    71                45                    634
Crit Moves:               ****  ****              ****                   ****
******************************************************************************
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Cumulative PM              Tue Apr 20, 2010 11:54:12                 Page 6-1
--------------------------------------------------------------------------------
                         Pinole General Plan (P06-130)
                         2030 PM Cumulative Conditions
                           Dowling Associates, Inc.
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
********************************************************************************
Intersection #3 Sunnyview Dr/ San Pablo Ave
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.502
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        37                Level Of Service:                  A
********************************************************************************
Street Name:           Sunnyview Dr                     San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted        Protected        Protected
Rights:            Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    1  0  1  1  0    1  0  1  1  0
------------||---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      23    7    25    91   10    39    66 1271    33    36 1220    49
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   23    7    25    91   10    39    66 1271    33    36 1220    49
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    23    7    25    91   10    39    66 1271    33    36 1220    49
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   23    7    25    91   10    39    66 1271    33    36 1220    49
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:      23    7    25    91   10    39    66 1271    33    36 1220    49
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   23    7    25    91   10    39    66 1271    33    36 1220    49
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.42 0.13  0.45  0.65 0.07  0.28  1.00 1.95  0.05  1.00 1.92  0.08
Final Sat.:   719  219   782  1118  123   479  1720 3353    87  1720 3307   133
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.03 0.03  0.03  0.08 0.08  0.08  0.04 0.38  0.38  0.02 0.37  0.37
Crit Volume:   23                  140          66                   635
Crit Moves:  ****                ****        ****                   ****
********************************************************************************
```

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                         Pinole General Plan (P06-130)
                         2030 PM Cumulative Conditions
                           Dowling Associates, Inc.
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
********************************************************************************
Intersection #4 Appian Wy-Pinon Ave/ San Pablo Ave
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         1.060
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:       180                Level Of Service:                  F
********************************************************************************
Street Name:       Appian Wy-Pinon Ave                  San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted        Protected        Protected
Rights:            Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  0  1  0    1  0  0  1  0    1  0  2  0  1    1  0  1  1  0
------------||---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     322  106   357    75   65    32    18 1155   171   707  934   114
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  322  106   357    75   65    32    18 1155   171   707  934   114
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   322  106   357    75   65    32    18 1155   171   707  934   114
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  322  106   357    75   65    32    18 1155   171   707  934   114
RTOR Reduct:    0    0     0     0    0     0     0    0   171     0    0     0
RTOR Vol:     322  106   357    75   65    32    18 1155     0   707  934   114
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  322  106   357    75   65    32    18 1155     0   707  934   114
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.23  0.77  1.00 0.67  0.33  1.00 2.00  1.00  1.00 1.78  0.22
Final Sat.:  1720  394  1326  1720 1153   567  1720 3440  1720  1720 3066   374
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.19 0.27  0.27  0.04 0.06  0.06  0.01 0.34  0.00  0.41 0.30  0.30
Crit Volume:             463    75                   578         707
Crit Moves:             ****  ****                 ****        ****
********************************************************************************
```


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                         Pinole General Plan (P06-130)
                         2030 PM Cumulative Conditions
                           Dowling Associates, Inc.
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
********************************************************************************
Intersection #5 Tennent Ave/ San Pablo Ave
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.677
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        45                Level Of Service:                  B
********************************************************************************
Street Name:           Tennent Ave                     San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted        Permitted        Permitted
Rights:            Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  0  1  0    0  0  1! 0  0    0  1  1  0  1    0  1  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     144   64    88    46   35    27    28 1395   200   164 1572    63
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  144   64    88    46   35    27    28 1395   200   164 1572    63
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   144   64    88    46   35    27    28 1395   200   164 1572    63
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  144   64    88    46   35    27    28 1395   200   164 1572    63
RTOR Reduct:    0    0     0     0    0     0     0    0   144     0    0     0
RTOR Vol:     144   64    88    46   35    27    28 1395    56   984 1572    63
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  6.00 1.00  1.00  6.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  144   64    88    46   35    27   168 1395    56   984 1572    63
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.42  0.58  0.43 0.32  0.25  0.26 1.74  1.00  0.33 1.62  0.05
Final Sat.:  1800  758  1042   767  583   450   471 3129  1800   603 2910    87
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.08 0.08  0.08  0.06 0.06  0.06  0.06 0.45  0.03  0.27 0.54  0.73
Crit Volume:  144                  108              803         164
Crit Moves:  ****                 ****             ****        ****
********************************************************************************
```



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                         Pinole General Plan (P06-130)
                         2030 PM Cumulative Conditions
                           Dowling Associates, Inc.
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
********************************************************************************
Intersection #6 Pinole Valley Rd/ San Pablo Ave
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.833
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        86                Level Of Service:                  D
********************************************************************************
Street Name:         Pinole Valley Rd                  San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted        Permitted        Permitted
Rights:            Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    0  1  0  1  0    0  1  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      31    9   395     5    7     7    10 1552     6   250 1745     8
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   31    9   395     5    7     7    10 1552     6   250 1745     8
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    31    9   395     5    7     7    10 1552     6   250 1745     8
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   31    9   395     5    7     7    10 1552     6   250 1745     8
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:      31    9   395     5    7     7    10 1552     6   250 1745     8
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  6.00 1.00  1.00  6.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   31    9   395     5    7     7    60 1552     6  1500 1745     8
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.07 0.02  0.91  0.26 0.37  0.37  0.01 1.98  0.01  0.66 1.33  0.01
Final Sat.:   128   37  1634   474  663   663    24 3563    13  1195 2396     9
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.24 0.24  0.24  0.01 0.01  0.01  0.42 0.44  0.45  0.21 0.73  0.90
Crit Volume:             435     5                        809   250
Crit Moves:             ****  ****                      ****  ****
********************************************************************************
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                         Pinole General Plan (P06-130)
                         2030 PM Cumulative Conditions
                           Dowling Associates, Inc.
------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
******************************************************************************
Intersection #7 Tennent Ave/ Pinole Valley Rd
******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.381
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        37                Level Of Service:                  A
******************************************************************************
Street Name:           Tennent Ave                     Pinole Valley Rd
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  1  0  1    1  0  0  1  0    1  0  0  1  0    1  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       9  319   365    37  361     4     3    2     9   244    8    36
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    9  319   365    37  361     4     3    2     9   244    8    36
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     9  319   365    37  361     4     3    2     9   244    8    36
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    9  319   365    37  361     4     3    2     9   244    8    36
RTOR Reduct:    0    0   244     0    0     0     0    0     0     0    0    36
RTOR Vol:       9  319   121    37  361     4     3    2     9   244    8     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    9  319   121    37  361     4     3    2     9   244    8     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 1.00  1.00  1.00 0.99  0.01  1.00 0.18  0.82  1.00 1.00  1.00
Final Sat.:  1650 1650  1650  1650 1632    18  1650  300  1350  1650 1650  1650
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.01 0.19  0.07  0.02 0.22  0.22  0.00 0.01  0.01  0.15 0.00  0.00
Crit Volume:    9                         365          11          244
Crit Moves:  ****                        ****        ****        ****
******************************************************************************
```

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                         Pinole General Plan (P06-130)
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                           Dowling Associates, Inc.
------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
******************************************************************************
Intersection #8 Pinole Valley Rd/ Henry Ave
******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.535
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        49                Level Of Service:                  A
******************************************************************************
Street Name:         Pinole Valley Rd                     Henry Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  1  0  1    1  0  1  1  0    0  0  1! 0  0    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      77  515    92    12  515    24   134   16   136    55    3    11
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   77  515    92    12  515    24   134   16   136    55    3    11
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    77  515    92    12  515    24   134   16   136    55    3    11
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   77  515    92    12  515    24   134   16   136    55    3    11
RTOR Reduct:    0    0    55     0    0     0     0    0     0     0    0     0
RTOR Vol:      77  515    37    12  515    24   134   16   136    55    3    11
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   77  515    37    12  515    24   134   16   136    55    3    11
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 1.00  1.00  1.00 1.91  0.09  0.47 0.06  0.47  0.80 0.04  0.16
Final Sat.:  1650 1650  1650  1650 3153   147   773   92   785  1315   72   263
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.05 0.31  0.02  0.01 0.16  0.16  0.17 0.17  0.17  0.04 0.04  0.04
Crit Volume:      515          12                   286                69
Crit Moves:      ****        ****                 ****               ****
******************************************************************************
```

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                         Pinole General Plan (P06-130)
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-------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #9 Pinole Valley Rd/ I-80 WB ramps
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.559
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        52                Level Of Service:                  A
*******************************************************************************
Street Name:         Pinole Valley Rd                   I-80 WB ramps
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        2  0  1  0  0    0  0  1  1  0    0  0  0  0  0    0  1  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     506  584     0     0  477   219     0    0     0   336    1    80
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  506  584     0     0  477   219     0    0     0   336    1    80
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   506  584     0     0  477   219     0    0     0   336    1    80
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  506  584     0     0  477   219     0    0     0   336    1    80
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:     506  584     0     0  477   219     0    0     0   336    1    80
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  506  584     0     0  477   219     0    0     0   336    1    80
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  0.91 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       2.00 1.00  0.00  0.00 1.37  0.63  0.00 0.00  0.00  1.00 0.62  0.38
Final Sat.:  3127 1720     0     0 2358  1082     0    0     0  1720 1060   660
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.16 0.34  0.00  0.00 0.20  0.20  0.00 0.00  0.00  0.20 0.00  0.12
Crit Volume:  253                        348          0         336
Crit Moves:  ****                       ****                   ****
*******************************************************************************
```

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                         Pinole General Plan (P06-130)
                         2030 PM Cumulative Conditions
                           Dowling Associates, Inc.
-------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #10 Pinole Valley Rd/ I-80 EB ramps
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.896
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:       180                Level Of Service:                  D
*******************************************************************************
Street Name:         Pinole Valley Rd                   I-80 EB ramps
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1  1  0    1  0  2  0  0    0  1  0  0  1    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0  702   399   308  569     0   450  233   639     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0  702   399   308  569     0   450  233   639     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0  702   399   308  569     0   450  233   639     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0  702   399   308  569     0   450  233   639     0    0     0
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:       0  702   399   308  569     0   450  233   639     0    0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    0  702   399   308  569     0   450  233   639     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 1.28  0.72  1.00 2.00  0.00  0.66 0.34  1.00  0.00 0.00  0.00
Final Sat.:     0 2193  1247  1720 3440     0  1133  587  1720     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.32  0.32  0.18 0.17  0.00  0.40 0.40  0.37  0.00 0.00  0.00
Crit Volume:             551   308                   683                 0
Crit Moves:             ****  ****                  ****
*******************************************************************************
```


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                         Pinole General Plan (P06-130)
                         2030 PM Cumulative Conditions
                           Dowling Associates, Inc.
-------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #11 Pinole Valley Rd/ Estates Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.466
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        35                Level Of Service:                  A
*******************************************************************************
Street Name:         Pinole Valley Rd                    Estates Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:        Protected        Protected         Permitted        Permitted
Rights:           Include          Include           Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  1  1  0    1  0  1  1  0    0  1  0  0  1    0  1  0  0  1
------------||---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      21  706    28   213  810   187   192   13    11    17   12   132
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   21  706    28   213  810   187   192   13    11    17   12   132
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    21  706    28   213  810   187   192   13    11    17   12   132
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   21  706    28   213  810   187   192   13    11    17   12   132
RTOR Reduct:    0    0     0     0    0     0     0    0    11     0    0   132
RTOR Vol:      21  706    28   213  810   187   192   13     0    17   12     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   21  706    28   213  810   187   192   13     0    17   12     0
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 1.92  0.08  1.00 1.62  0.38  0.94 0.06  1.00  0.59 0.41  1.00
Final Sat.:  1720 3309   131  1720 2795   645  1611  109  1720  1008  712  1720
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.01 0.21  0.21  0.12 0.29  0.29  0.12 0.12  0.00  0.02 0.02  0.00
Crit Volume:       367         213                   205          17
Crit Moves:       ****        ****                  ****        ****
*******************************************************************************
```

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Cumulative PM              Tue Apr 20, 2010 11:54:12                Page 15-1
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                         Pinole General Plan (P06-130)
                         2030 PM Cumulative Conditions
                           Dowling Associates, Inc.
-------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #12 Pinole Valley Rd/ Ramona St
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.276
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        20                Level Of Service:                  A
*******************************************************************************
Street Name:         Pinole Valley Rd                    Ramona St
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:        Permitted        Permitted         Permitted        Permitted
Rights:           Include          Include           Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  1  0  1  0    0  1  0  1  0    0  0  1! 0  0    0  1  0  0  1
------------||---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      15  444    61   146  568    14    42    4     6    31    8    54
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   15  444    61   146  568    14    42    4     6    31    8    54
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    15  444    61   146  568    14    42    4     6    31    8    54
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   15  444    61   146  568    14    42    4     6    31    8    54
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0    54
RTOR Vol:      15  444    61   146  568    14    42    4     6    31    8     0
PCE Adj:     2.00 1.00  1.00  2.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   30  444    61   292  568    14    42    4     6    31    8     0
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.06 1.71  0.23  0.50 1.47  0.03  0.81 0.08  0.11  0.79 0.21  1.00
Final Sat.:   107 3083   410   903 2639    58  1454  138   208  1431  369  1800
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.14 0.14  0.15  0.16 0.22  0.24  0.03 0.03  0.03  0.02 0.02  0.00
Crit Volume:             267   146                          52    31
Crit Moves:             ****  ****                        ****  ****
*******************************************************************************
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                         Pinole General Plan (P06-130)
                         2030 PM Cumulative Conditions
                           Dowling Associates, Inc.
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                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #13 Appian Wy/ Mann Dr
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.458
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        34                Level Of Service:                  A
*******************************************************************************
Street Name:            Appian Wy                         Mann Dr
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted      Split Phase      Split Phase
Rights:            Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  1  1  0  0    0  0  1  1  0    0  0  1! 0  0    0  0  0  0  0
------------||---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     235  898     0     0  845    66    36    0    98     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  235  898     0     0  845    66    36    0    98     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   235  898     0     0  845    66    36    0    98     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  235  898     0     0  845    66    36    0    98     0    0     0
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:     235  898     0     0  845    66    36    0    98     0    0     0
PCE Adj:     4.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  940  898     0     0  845    66    36    0    98     0    0     0
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 1.00  0.00  0.00 1.86  0.14  0.27 0.00  0.73  0.00 0.00  0.00
Final Sat.:  1800 1800     0     0 3339   261   484    0  1316     0    0     0
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.13 0.50  0.00  0.00 0.25  0.25  0.07 0.00  0.07  0.00 0.00  0.00
Crit Volume:  235                        456               134          0
Crit Moves:  ****                       ****              ****
*******************************************************************************
```

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                         Pinole General Plan (P06-130)
                         2030 PM Cumulative Conditions
                           Dowling Associates, Inc.
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #14 Appian Wy/ Tara Hills Dr-Canyon Dr
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.676
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        70                Level Of Service:                  B
*******************************************************************************
Street Name:            Appian Wy                  Tara Hills Dr-Canyon Dr
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:        Protected        Protected      Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        2  0  1  1  0    1  0  2  0  1    0  1  0  0  2    0  1  1  0  1
------------||---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     630  844   262    31  896    98   178   43   685   100   30     8
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  630  844   262    31  896    98   178   43   685   100   30     8
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   630  844   262    31  896    98   178   43   685   100   30     8
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  630  844   262    31  896    98   178   43   685   100   30     8
RTOR Reduct:    0    0     0     0    0    98     0    0   347     0    0     8
RTOR Vol:     630  844   262    31  896     0   178   43   339   100   30     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  630  844   262    31  896     0   178   43   339   100   30     0
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  0.91 1.00  1.00  1.00 1.00  1.00  1.00 1.00  0.91  1.00 1.00  1.00
Lanes:       2.00 1.53  0.47  1.00 2.00  1.00  0.81 0.19  2.00  1.00 1.00  1.00
Final Sat.:  3000 2518   782  1650 3300  1650  1329  321  3000  1650 1650  1650
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.21 0.34  0.34  0.02 0.27  0.00  0.13 0.13  0.11  0.06 0.02  0.00
Crit Volume:  315                        448               221          100
Crit Moves:  ****                       ****              ****         ****
*******************************************************************************
```

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                         Pinole General Plan (P06-130)
                         2030 PM Cumulative Conditions
                           Dowling Associates, Inc.
--------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
********************************************************************************
Intersection #15 Appian Way/ I-80 WB ramps
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.710
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        79                Level Of Service:                  C
********************************************************************************
Street Name:            Appian Way                     I-80 WB ramps
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Split Phase      Split Phase
Rights:           Include          Ignore          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  2  0  0    0  0  2  0  1    0  0  0  0  0    1  1  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     347 1365     0     0 1116   501     0    0     0   518    9   316
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  347 1365     0     0 1116   501     0    0     0   518    9   316
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   347 1365     0     0 1116   501     0    0     0   518    9   316
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  347 1365     0     0 1116   501     0    0     0   518    9   316
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:     347 1365     0     0 1116   501     0    0     0   518    9   316
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  347 1365     0     0 1116   501     0    0     0   518    9   316
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  0.91 1.00  1.00
Lanes:       1.00 2.00  0.00  0.00 2.00  1.00  0.00 0.00  0.00  1.97 0.03  1.00
Final Sat.:  1720 3440     0     0 3440  1720     0    0     0  3074   59  1720
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.20 0.40  0.00  0.00 0.32  0.29  0.00 0.00  0.00  0.17 0.15  0.18
Crit Volume:  347                   558                 0                    316
Crit Moves:  ****                  ****                                     ****
********************************************************************************
```

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                         Pinole General Plan (P06-130)
                         2030 PM Cumulative Conditions
                           Dowling Associates, Inc.
--------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
********************************************************************************
Intersection #16 Appian Way/ I-80 EB ramps
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.759
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        77                Level Of Service:                  C
********************************************************************************
Street Name:            Appian Way                     I-80 EB ramps
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Permitted        Permitted       Split Phase      Split Phase
Rights:           Include          Ignore          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1  1  1    0  0  2  0  1    1  1  0  0  1    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0 1217  1174     0 1245   535   632  258   247     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0 1217  1174     0 1245   535   632  258   247     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0 1217  1174     0 1245   535   632  258   247     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0 1217  1174     0 1245   535   632  258   247     0    0     0
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:       0 1217  1174     0 1245   535   632  258   247     0    0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    0 1217  1174     0 1245   535   632  258   247     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  0.91  1.00 1.00  1.00  0.91 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 1.53  1.47  0.00 2.00  1.00  1.42 0.58  1.00  0.00 0.00  0.00
Final Sat.:     0 2749  2410     0 3600  1800  2324 1044  1800     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.44  0.49  0.00 0.35  0.30  0.27 0.25  0.14  0.00 0.00  0.00
Crit Volume:              797     0              445                      0
Crit Moves:              ****  ****             ****
********************************************************************************
```


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------------------------------------------------------------------------------
                         Pinole General Plan (P06-130)
                         2030 PM Cumulative Conditions
                           Dowling Associates, Inc.
------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
******************************************************************************
Intersection #17 Appian Wy/ Fitzgerald Dr-Sara Dr
******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.824
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:       130                Level Of Service:                  D
******************************************************************************
Street Name:            Appian Way                  Fitzgerald Dr-Sara Dr
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Split Phase      Split Phase
Rights:           Include           Ovl            Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        2  0  1  1  0    1  0  2  0  2    2  1  0  0  1    1  0  1  0  1
------------||---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     346  913    51   209  696   656 1376  137   489    52   89    89
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00 1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  346  913    51   209  696   656 1376  137   489    52   89    89
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00 1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00 1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   346  913    51   209  696   656 1376  137   489    52   89    89
Reduct Vol:     0    0     0     0    0     0    0    0     0     0    0     0
Reduced Vol:  346  913    51   209  696   656 1376  137   489    52   89    89
RTOR Reduct:    0    0     0     0    0   527    0    0   190     0    0    89
RTOR Vol:     346  913    51   209  696   129 1376  137   299    52   89     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00 1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00 1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  346  913    51   209  696   129 1376  137   299    52   89     0
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650 1650 1650  1650  1650 1650  1650
Adjustment:  0.91 1.00  1.00  1.00 1.00  0.91 0.87 1.00  1.00  1.00 1.00  1.00
Lanes:       2.00 1.89  0.11  1.00 2.00  2.00 2.73 0.27  1.00  1.00 1.00  1.00
Final Sat.:  3000 3125   175  1650 3300  3000 3917  448  1650  1650 1650  1650
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.12 0.29  0.29  0.13 0.21  0.04 0.35 0.31  0.18  0.03 0.05  0.00
Crit Volume:             482   209              504                    89
Crit Moves:             ****  ****             ****                  ****
******************************************************************************
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Cumulative PM              Tue Apr 20, 2010 11:54:12                Page 21-1
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                         Pinole General Plan (P06-130)
                         2030 PM Cumulative Conditions
                           Dowling Associates, Inc.
------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
******************************************************************************
Intersection #18 Oak Ridge Ln/ San Pablo Ave
******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.531
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        49                Level Of Service:                  A
******************************************************************************
Street Name:           Oak Ridge Ln                     San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:      Split Phase      Split Phase       Protected        Protected
Rights:          Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1! 0  0    0  0  0  0  0    0  0  1  1  0    1  0  2  0  0
------------||---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      16    0    12     0    0     0     0 1589    11    16 1770     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   16    0    12     0    0     0     0 1589    11    16 1770     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    16    0    12     0    0     0     0 1589    11    16 1770     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   16    0    12     0    0     0     0 1589    11    16 1770     0
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:      16    0    12     0    0     0     0 1589    11    16 1770     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   16    0    12     0    0     0     0 1589    11    16 1770     0
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.57 0.00  0.43  0.00 0.00  0.00  0.00 1.99  0.01  1.00 2.00  0.00
Final Sat.:   983    0   737     0    0     0     0 3416    24  1720 3440     0
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.02 0.00  0.02  0.00 0.00  0.00  0.00 0.47  0.47  0.01 0.51  0.00
Crit Volume:              28                0     0                   885
Crit Moves:              ****                ****                    ****
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Cumulative PM              Tue Apr 20, 2010 11:54:12                Page 22-1
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                         Pinole General Plan (P06-130)
                         2030 PM Cumulative Conditions
                           Dowling Associates, Inc.
------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
******************************************************************************
Intersection #19 Fernandez Ave/ San Pablo Ave
******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.595
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        36                Level Of Service:                  A
******************************************************************************
Street Name:          Fernandez Ave                    San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted        Permitted        Permitted
Rights:            Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    0  1  0  1  0    0  1  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      20    2    41    18    0    21    14 1461    21    35 1729    12
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   20    2    41    18    0    21    14 1461    21    35 1729    12
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    20    2    41    18    0    21    14 1461    21    35 1729    12
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   20    2    41    18    0    21    14 1461    21    35 1729    12
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:      20    2    41    18    0    21    14 1461    21   210 1729    12
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  6.00 1.00  1.00  6.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   20    2    41    18    0    21    84 1461    21   210 1729    12
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.32 0.03  0.65  0.46 0.00  0.54  0.02 1.95  0.03  0.04 1.95  0.01
Final Sat.:   571   57  1171   831    0   969    35 3516    48    79 3499    22
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.04 0.03  0.04  0.02 0.00  0.02  0.40 0.42  0.44  0.44 0.49  0.54
Crit Volume:               63    18                14                        976
Crit Moves:              ****  ****              ****                        ****
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Cumulative PM              Tue Apr 20, 2010 11:54:12                Page 23-1
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                         Pinole General Plan (P06-130)
                         2030 PM Cumulative Conditions
                           Dowling Associates, Inc.
------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
******************************************************************************
Intersection #20 John St/ San Pablo Ave
******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.576
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        34                Level Of Service:                  A
******************************************************************************
Street Name:              John St                          San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted        Permitted        Permitted
Rights:            Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  0  0  1    0  0  0  0  0    0  0  1  1  0    0  0  2  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0    23     0    0     0     0 1942     3     0 2027     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0    23     0    0     0     0 1942     3     0 2027     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0    0    23     0    0     0     0 1942     3     0 2027     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0    0    23     0    0     0     0 1942     3     0 2027     0
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:       0    0    23     0    0     0     0 1942     3     0 2027     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    0    0    23     0    0     0     0 1942     3     0 2027     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 0.00  1.00  0.00 0.00  0.00  0.00 1.99  0.01  0.00 2.00  0.00
Final Sat.:     0    0  1800     0    0     0     0 3594     6     0 3600     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.00  0.01  0.00 0.00  0.00  0.00 0.54  0.54  0.00 0.56  0.00
Crit Volume:               23     0                 0                      1014
Crit Moves:              ****                    ****                      ****
******************************************************************************
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Pinole General Plan (P06-130)
Cumulative Preferred Land Use with Road Diet
AM Peak Hour

Scenario Report

Scenario:	Cumulative AM Preferred Project
Command:	Cumulative AM PP
Volume:	Cumulative AM PP
Geometry:	Cumulative Road Diet
Impact Fee:	Default Impact Fee
Trip Generation:	Default Trip Generation
Trip Distribution:	Default Trip Distribution
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Pinole General Plan (P06-130)
Cumulative Preferred Land Use with Road Diet
AM Peak Hour

Turning Movement Report

Volume	Northbound			Southbound			Eastbound			Westbound			Total
Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Volume
#1 Del Monte Dr/eSan Pablo Ave													
Base	0	1	1	78	2	71	124	650	3	7	1329	16	2282
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	1	78	2	71	124	650	3	7	1329	16	2282
#2 Pinole Shores Dr/ San Pablo Ave													
Base	26	0	17	139	0	44	31	649	4	11	1277	53	2251
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	26	0	17	139	0	44	31	649	4	11	1277	53	2251
#3 Sunnyview Dr/ San Pablo Ave													
Base	19	8	7	104	9	34	37	749	46	11	1193	21	2238
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	19	8	7	104	9	34	37	749	46	11	1193	21	2238
#4 Appian Wy-Pinon Ave/ San Pablo Ave													
Base	213	136	302	68	75	8	7	646	194	262	1085	36	3032
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	213	136	302	68	75	8	7	646	194	262	1085	36	3032
#5 Tennent Ave/ San Pablo Ave													
Base	23	50	293	58	20	16	23	636	234	27	1286	54	2720
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	23	50	293	58	20	16	23	636	234	27	1286	54	2720
#6 Pinole Valley Rd/ San Pablo Ave													
Base	26	96	92	4	9	2	11	834	172	478	1257	8	2989
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	26	96	92	4	9	2	11	834	172	478	1257	8	2989
#7 Tennent Ave/ Pinole Valley Rd													
Base	52	289	228	8	298	26	39	87	64	574	83	61	1809
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	52	289	228	8	298	26	39	87	64	574	83	61	1809
#8 Pinole Valley Rd/ Henry Ave													
Base	294	557	25	18	685	418	48	4	33	16	46	11	2155
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	294	557	25	18	685	418	48	4	33	16	46	11	2155
#9 Pinole Valley Rd/ I-80 WB ramps													
Base	368	581	0	0	342	252	0	0	0	347	564	280	2734
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	368	581	0	0	342	252	0	0	0	347	564	280	2734

Cumulative AM Preferred ProTue Apr 20, 2010 11:54:16 Page 2-2

Pinole General Plan (P06-130)
Cumulative Preferred Land Use with Road Diet
AM Peak Hour

Volume	Northbound				Southbound				Eastbound				Westbound				Total
Type	Left	Thru	Right		Left	Thru	Right		Left	Thru	Right		Left	Thru	Right		Volume
#10 Pinole Valley Rd/ I-80 EB ramps																	
Base	0	949	322		85	570	0		181	0	475		0	0	0		2582
Added	0	0	0		0	0	0		0	0	0		0	0	0		0
Total	0	949	322		85	570	0		181	0	475		0	0	0		2582
#11 Pinole Valley Rd/ Estates Ave																	
Base	13	887	16		95	901	65		101	7	14		15	17	273		2404
Added	0	0	0		0	0	0		0	0	0		0	0	0		0
Total	13	887	16		95	901	65		101	7	14		15	17	273		2404
#12 Pinole Valley Rd/ Ramona St																	
Base	29	495	54		57	470	57		84	1	24		126	11	92		1500
Added	0	0	0		0	0	0		0	0	0		0	0	0		0
Total	29	495	54		57	470	57		84	1	24		126	11	92		1500
#13 Appian Wy/ Mann Dr																	
Base	206	558	4		0	817	80		73	0	225		0	0	0		1963
Added	0	0	0		0	0	0		0	0	0		0	0	0		0
Total	206	558	4		0	817	80		73	0	225		0	0	0		1963
#14 Appian Wy/ Tara Hills Dr-Canyon Dr																	
Base	598	765	78		21	763	110		181	2	456		555	82	115		3726
Added	0	0	0		0	0	0		0	0	0		0	0	0		0
Total	598	765	78		21	763	110		181	2	456		555	82	115		3726
#15 Appian Way/ I-80 WB ramps																	
Base	549	1026	0		0	1007	755		0	0	0		806	1	369		4513
Added	0	0	0		0	0	0		0	0	0		0	0	0		0
Total	549	1026	0		0	1007	755		0	0	0		806	1	369		4513
#16 Appian Way/ I-80 EB ramps																	
Base	0	1027	625		0	1478	337		495	3	277		0	0	0		4242
Added	0	0	0		0	0	0		0	0	0		0	0	0		0
Total	0	1027	625		0	1478	337		495	3	277		0	0	0		4242
#17 Appian Wy/ Fitzgerald Dr-Sara Dr																	
Base	292	1120	20		161	765	808		295	21	89		220	406	69		4266
Added	0	0	0		0	0	0		0	0	0		0	0	0		0
Total	292	1120	20		161	765	808		295	21	89		220	406	69		4266
#18 Oak Ridge Ln/ San Pablo Ave																	
Base	29	0	13		0	0	0		0	889	17		9	1343	0		2300
Added	0	0	0		0	0	0		0	0	0		0	0	0		0
Total	29	0	13		0	0	0		0	889	17		9	1343	0		2300

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Cumulative AM Preferred ProTue Apr 20, 2010 11:54:16 Page 2-3

Pinole General Plan (P06-130)
Cumulative Preferred Land Use with Road Diet
AM Peak Hour

Volume	Northbound				Southbound				Eastbound				Westbound				Total
Type	Left	Thru	Right		Left	Thru	Right		Left	Thru	Right		Left	Thru	Right		Volume
#19 Fernandez Ave/ San Pablo Ave																	
Base	9	0	9		1	0	2		1	936	16		42	1379	0		2395
Added	0	0	0		0	0	0		0	0	0		0	0	0		0
Total	9	0	9		1	0	2		1	936	16		42	1379	0		2395
#20 John St/ San Pablo Ave																	
Base	0	0	3		0	0	0		0	948	3		0	1637	0		2591
Added	0	0	0		0	0	0		0	0	0		0	0	0		0
Total	0	0	3		0	0	0		0	948	3		0	1637	0		2591
#21																	
Base	9	5	10		23	6	20		25	917	12		6	1334	12		2379
Added	0	0	0		0	0	0		0	0	0		0	0	0		0
Total	9	5	10		23	6	20		25	917	12		6	1334	12		2379

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-------------------------------------------------------------------------------
                        Pinole General Plan (P06-130)
                 Cumulative Preferred Land Use with Road Diet
                              AM Peak Hour
-------------------------------------------------------------------------------
                          Impact Analysis Report
                             Level Of Service

Intersection                             Base           Future       Change
                                      Del/   V/       Del/   V/        in
                                  LOS Veh    C    LOS Veh    C
#  1 Del Monte Dr/eSan Pablo Ave     A xxxxx 0.571   A xxxxx 0.571  + 0.000 V/C

#  2 Pinole Shores Dr/ San Pablo Av  A xxxxx 0.510   A xxxxx 0.510  + 0.000 V/C

#  3 Sunnyview Dr/ San Pablo Ave     A xxxxx 0.471   A xxxxx 0.471  + 0.000 V/C

#  4 Appian Wy-Pinon Ave/ San Pablo  B xxxxx 0.634   B xxxxx 0.634  + 0.000 V/C

#  5 Tennent Ave/ San Pablo Ave      E xxxxx 0.980   E xxxxx 0.980  + 0.000 V/C

#  6 Pinole Valley Rd/ San Pablo Av  E xxxxx 0.946   E xxxxx 0.946  + 0.000 V/C

#  7 Tennent Ave/ Pinole Valley Rd   B xxxxx 0.667   B xxxxx 0.667  + 0.000 V/C

#  8 Pinole Valley Rd/ Henry Ave     B xxxxx 0.608   B xxxxx 0.608  + 0.000 V/C

#  9 Pinole Valley Rd/ I-80 WB ramp  B xxxxx 0.684   B xxxxx 0.684  + 0.000 V/C

# 10 Pinole Valley Rd/ I-80 EB ramp  B xxxxx 0.695   B xxxxx 0.695  + 0.000 V/C

# 11 Pinole Valley Rd/ Estates Ave   A xxxxx 0.480   A xxxxx 0.480  + 0.000 V/C

# 12 Pinole Valley Rd/ Ramona St     A xxxxx 0.331   A xxxxx 0.331  + 0.000 V/C

# 13 Appian Wy/ Mann Dr              A xxxxx 0.529   A xxxxx 0.529  + 0.000 V/C

# 14 Appian Wy/ Tara Hills Dr-Canyo  D xxxxx 0.878   D xxxxx 0.878  + 0.000 V/C

# 15 Appian Way/ I-80 WB ramps       D xxxxx 0.870   D xxxxx 0.870  + 0.000 V/C

# 16 Appian Way/ I-80 EB ramps       A xxxxx 0.564   A xxxxx 0.564  + 0.000 V/C

# 17 Appian Wy/ Fitzgerald Dr-Sara   C xxxxx 0.762   C xxxxx 0.762  + 0.000 V/C

# 18 Oak Ridge Ln/ San Pablo Ave     D xxxxx 0.805   D xxxxx 0.805  + 0.000 V/C

# 19 Fernandez Ave/ San Pablo Ave    C xxxxx 0.777   C xxxxx 0.777  + 0.000 V/C

# 20 John St/ San Pablo Ave          E xxxxx 0.911   E xxxxx 0.911  + 0.000 V/C

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Cumulative AM Preferred ProTue Apr 20, 2010 11:54:16                Page 4-1
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                        Pinole General Plan (P06-130)
                 Cumulative Preferred Land Use with Road Diet
                              AM Peak Hour
-------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #1 Del Monte Dr/eSan Pablo Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.571
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        53                Level Of Service:                  A
*******************************************************************************
Street Name:           Del Monte Dr                     San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Split Phase      Split Phase       Protected        Protected
Rights:          Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  0  1  0    0  0  1! 0  0    1  0  2  0  1    1  0  2  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    1     1    78    2    71   124  650     3     7 1329    16
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    1     1    78    2    71   124  650     3     7 1329    16
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0    1     1    78    2    71   124  650     3     7 1329    16
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0    1     1    78    2    71   124  650     3     7 1329    16
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0    16
RTOR Vol:       0    1     1    78    2    71   124  650     3     7 1329     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    0    1     1    78    2    71   124  650     3     7 1329     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 0.50  0.50  0.52 0.01  0.47  1.00 2.00  1.00  1.00 2.00  1.00
Final Sat.:     0  825   825   852   22   776  1650 3300  1650  1650 3300  1650
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.00  0.00  0.09 0.09  0.09  0.08 0.20  0.00  0.00 0.40  0.00
Crit Volume:         2              151         124                   665
Crit Moves:       ****              ****        ****                  ****
*******************************************************************************

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                         Pinole General Plan (P06-130)
                 Cumulative Preferred Land Use with Road Diet
                                AM Peak Hour
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #2 Pinole Shores Dr/ San Pablo Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.510
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        38                Level Of Service:                  A
*******************************************************************************
Street Name:         Pinole Shores Dr                   San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted        Protected        Protected
Rights:            Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1! 0  0    1  0  0  0  1    1  0  1  1  0    1  0  1  1  0
------------||---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      26    0    17   139    0    44    31  649     4    11 1277    53
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   26    0    17   139    0    44    31  649     4    11 1277    53
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    26    0    17   139    0    44    31  649     4    11 1277    53
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   26    0    17   139    0    44    31  649     4    11 1277    53
RTOR Reduct:    0    0     0     0    0    31     0    0     0     0    0     0
RTOR Vol:      26    0    17   139    0    13    31  649     4    11 1277    53
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   26    0    17   139    0    13    31  649     4    11 1277    53
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.60 0.00  0.40  1.00 0.00  1.00  1.00 1.99  0.01  1.00 1.92  0.08
Final Sat.:  1040    0   680  1720    0  1720  1720 3419    21  1720 3303   137
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.03 0.00  0.03  0.08 0.00  0.01  0.02 0.19  0.19  0.01 0.39  0.39
Crit Volume:               43   139               31                   665
Crit Moves:              ****  ****              ****                  ****
*******************************************************************************
```

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-------------------------------------------------------------------------------
                         Pinole General Plan (P06-130)
                 Cumulative Preferred Land Use with Road Diet
                                AM Peak Hour
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #3 Sunnyview Dr/ San Pablo Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.471
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        35                Level Of Service:                  A
*******************************************************************************
Street Name:         Sunnyview Dr                       San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted        Protected        Protected
Rights:            Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    1  0  1  1  0    1  0  1  1  0
------------||---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      19    8     7   104    9    34    37  749    46    11 1193    21
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   19    8     7   104    9    34    37  749    46    11 1193    21
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    19    8     7   104    9    34    37  749    46    11 1193    21
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   19    8     7   104    9    34    37  749    46    11 1193    21
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:      19    8     7   104    9    34    37  749    46    11 1193    21
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   19    8     7   104    9    34    37  749    46    11 1193    21
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.56 0.23  0.21  0.71 0.06  0.23  1.00 1.88  0.12  1.00 1.97  0.03
Final Sat.:   961  405   354  1217  105   398  1720 3241   199  1720 3380    60
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.02 0.02  0.02  0.09 0.09  0.09  0.02 0.23  0.23  0.01 0.35  0.35
Crit Volume:   19                   147          37                   607
Crit Moves:  ****                  ****        ****                  ****
*******************************************************************************
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                         Pinole General Plan (P06-130)
                 Cumulative Preferred Land Use with Road Diet
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-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #4 Appian Wy-Pinon Ave/ San Pablo Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.634
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        51                Level Of Service:                  B
*******************************************************************************
Street Name:       Appian Wy-Pinon Ave                 San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted        Protected        Protected
Rights:            Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  0  1  0    1  0  0  1  0    1  0  2  0  1    1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     213  136   302    68   75     8     7  646   194   262 1085    36
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  213  136   302    68   75     8     7  646   194   262 1085    36
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   213  136   302    68   75     8     7  646   194   262 1085    36
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  213  136   302    68   75     8     7  646   194   262 1085    36
RTOR Reduct:    0    0     0     0    0     0     0    0   194     0    0     0
RTOR Vol:     213  136   302    68   75     8     7  646     0   262 1085    36
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  213  136   302    68   75     8     7  646     0   262 1085    36
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.31  0.69  1.00 0.90  0.10  1.00 2.00  1.00  1.00 1.94  0.06
Final Sat.:  1720  534  1186  1720 1554   166  1720 3440  1720  1720 3330   110
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.12 0.25  0.25  0.04 0.05  0.05  0.00 0.19  0.00  0.15 0.33  0.33
Crit Volume:             438    68                   323         262
Crit Moves:             ****  ****                 ****        ****
*******************************************************************************
```

```
Cumulative AM Preferred ProTue Apr 20, 2010 11:54:17                Page 8-1
-------------------------------------------------------------------------------
                         Pinole General Plan (P06-130)
                 Cumulative Preferred Land Use with Road Diet
                                AM Peak Hour
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #5 Tennent Ave/ San Pablo Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.980
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:       180                Level Of Service:                  E
*******************************************************************************
Street Name:           Tennent Ave                     San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted        Permitted        Permitted
Rights:            Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  0  1  0    1  0  0  1  0    1  0  0  1  0    1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      23   50   293    58   20    16    23  636   234    27 1286    54
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   23   50   293    58   20    16    23  636   234    27 1286    54
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    23   50   293    58   20    16    23  636   234    27 1286    54
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   23   50   293    58   20    16    23  636   234    27 1286    54
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:      23   50   293    58   20    16    23  636   234    27 1286    54
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   23   50   293    58   20    16    23  636   234    27 1286    54
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.15  0.85  1.00 0.56  0.44  1.00 0.73  0.27  1.00 0.96  0.04
Final Sat.:  1800  262  1538  1800 1000   800  1800 1316   484  1800 1727    73
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.01 0.19  0.19  0.03 0.02  0.02  0.01 0.48  0.48  0.02 0.74  0.74
Crit Volume:      343          58                 23                        1340
Crit Moves:      ****         ****               ****                        ****
*******************************************************************************
```


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                         Pinole General Plan (P06-130)
                 Cumulative Preferred Land Use with Road Diet
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-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #6 Pinole Valley Rd/ San Pablo Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.946
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:       180                Level Of Service:                  E
*******************************************************************************
Street Name:         Pinole Valley Rd                  San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted        Permitted        Permitted
Rights:            Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    1  0  0  1  0    1  0  0  1  0
------------||---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      26   96    92     4    9     2    11  834   172   478 1257     8
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   26   96    92     4    9     2    11  834   172   478 1257     8
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    26   96    92     4    9     2    11  834   172   478 1257     8
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   26   96    92     4    9     2    11  834   172   478 1257     8
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:      26   96    92     4    9     2    11  834   172   478 1257     8
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   26   96    92     4    9     2    11  834   172   478 1257     8
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.12 0.45  0.43  0.27 0.60  0.13  1.00 0.83  0.17  1.00 0.99  0.01
Final Sat.:   219  807   774   480 1080   240  1800 1492   308  1800 1789    11
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.12 0.12  0.12  0.01 0.01  0.01  0.01 0.56  0.56  0.27 0.70  0.70
Crit Volume:       214            4                   1006          478
Crit Moves:       ****        ****                   ****        ****
*******************************************************************************
```

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-------------------------------------------------------------------------------
                         Pinole General Plan (P06-130)
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-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #7 Tennent Ave/ Pinole Valley Rd
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.667
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        69                Level Of Service:                  B
*******************************************************************************
Street Name:           Tennent Ave                     Pinole Valley Rd
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Split Phase      Split Phase
Rights:            Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  1  0  1    1  0  0  1  0    1  0  0  1  0    1  0  1  0  1
------------||---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      52  289   228     8  298    26    39   87    64   574   83    61
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   52  289   228     8  298    26    39   87    64   574   83    61
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    52  289   228     8  298    26    39   87    64   574   83    61
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   52  289   228     8  298    26    39   87    64   574   83    61
RTOR Reduct:    0    0   228     0    0     0     0    0     0     0    0     8
RTOR Vol:      52  289     0     8  298    26    39   87    64   574   83    53
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   52  289     0     8  298    26    39   87    64   574   83    53
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 1.00  1.00  1.00 0.92  0.08  1.00 0.58  0.42  1.00 1.00  1.00
Final Sat.:  1650 1650  1650  1650 1518   132  1650  951   699  1650 1650  1650
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.03 0.18  0.00  0.00 0.20  0.20  0.02 0.09  0.09  0.35 0.05  0.03
Crit Volume:   52                   324              151          574
Crit Moves:  ****                 ****             ****        ****
*******************************************************************************
```


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                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #8 Pinole Valley Rd/ Henry Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.608
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        58                Level Of Service:                  B
*******************************************************************************
Street Name:         Pinole Valley Rd                    Henry Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  1  0  1    1  0  1  1  0    0  0  1! 0  0    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     294  557    25    18  685   418    48    4    33    16   46    11
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  294  557    25    18  685   418    48    4    33    16   46    11
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   294  557    25    18  685   418    48    4    33    16   46    11
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  294  557    25    18  685   418    48    4    33    16   46    11
RTOR Reduct:    0    0    16     0    0     0     0    0     0     0    0     0
RTOR Vol:     294  557     9    18  685   418    48    4    33    16   46    11
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  294  557     9    18  685   418    48    4    33    16   46    11
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 1.00  1.00  1.00 1.24  0.76  0.56 0.05  0.39  0.22 0.63  0.15
Final Sat.:  1650 1650  1650  1650 2049  1251   932   78   641   362 1040   249
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.18 0.34  0.01  0.01 0.33  0.33  0.05 0.05  0.05  0.04 0.04  0.04
Crit Volume:  294                         552                85          73
Crit Moves:  ****                        ****              ****        ****
*******************************************************************************
```

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                          Pinole General Plan (P06-130)
                  Cumulative Preferred Land Use with Road Diet
                                  AM Peak Hour
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                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #9 Pinole Valley Rd/ I-80 WB ramps
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.684
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        72                Level Of Service:                  B
*******************************************************************************
Street Name:         Pinole Valley Rd                    I-80 WB ramps
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        2  0  1  0  0    0  0  1  1  0    0  0  0  0  0    0  1  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     368  581     0     0  342   252     0    0     0   347  564   280
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  368  581     0     0  342   252     0    0     0   347  564   280
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   368  581     0     0  342   252     0    0     0   347  564   280
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  368  581     0     0  342   252     0    0     0   347  564   280
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:     368  581     0     0  342   252     0    0     0   347  564   280
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  368  581     0     0  342   252     0    0     0   347  564   280
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  0.91 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       2.00 1.00  0.00  0.00 1.15  0.85  0.00 0.00  0.00  0.58 0.95  0.47
Final Sat.:  3127 1720     0     0 1981  1459     0    0     0  1002 1629   809
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.12 0.34  0.00  0.00 0.17  0.17  0.00 0.00  0.00  0.35 0.35  0.35
Crit Volume:       581           0                     0              596
Crit Moves:       ****        ****                                  ****
*******************************************************************************
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                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #10 Pinole Valley Rd/ I-80 EB ramps
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.695
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        75                Level Of Service:                  B
*******************************************************************************
Street Name:         Pinole Valley Rd                   I-80 EB ramps
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1  1  0    1  0  2  0  0    0  1  0  0  1    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0  949   322    85  570     0   181    0   475     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0  949   322    85  570     0   181    0   475     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0  949   322    85  570     0   181    0   475     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0  949   322    85  570     0   181    0   475     0    0     0
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:       0  949   322    85  570     0   181    0   475     0    0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    0  949   322    85  570     0   181    0   475     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 1.49  0.51  1.00 2.00  0.00  1.00 0.00  1.00  0.00 0.00  0.00
Final Sat.:     0 2568   872  1720 3440     0  1720    0  1720     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.37  0.37  0.05 0.17  0.00  0.11 0.00  0.28  0.00 0.00  0.00
Crit Volume:             636    85                          475           0
Crit Moves:             ****  ****                        ****
*******************************************************************************
```

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                         Pinole General Plan (P06-130)
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-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #11 Pinole Valley Rd/ Estates Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.480
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        36                Level Of Service:                  A
*******************************************************************************
Street Name:         Pinole Valley Rd                   Estates Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Permitted        Permitted
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  1  1  0    1  0  1  1  0    0  1  0  0  1    0  1  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      13  887    16    95  901    65   101    7    14    15   17   273
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   13  887    16    95  901    65   101    7    14    15   17   273
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    13  887    16    95  901    65   101    7    14    15   17   273
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   13  887    16    95  901    65   101    7    14    15   17   273
RTOR Reduct:    0    0     0     0    0     0     0    0    13     0    0    95
RTOR Vol:      13  887    16    95  901    65   101    7     1    15   17   178
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   13  887    16    95  901    65   101    7     1    15   17   178
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 1.96  0.04  1.00 1.87  0.13  0.94 0.06  1.00  0.47 0.53  1.00
Final Sat.:  1720 3379    61  1720 3209   231  1609  111  1720   806  914  1720
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.01 0.26  0.26  0.06 0.28  0.28  0.06 0.06  0.00  0.02 0.02  0.10
Crit Volume:             452    95                 101                        178
Crit Moves:             ****  ****               ****                       ****
*******************************************************************************
```


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                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #12 Pinole Valley Rd/ Ramona St
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.331
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        22                Level Of Service:                  A
*******************************************************************************
Street Name:         Pinole Valley Rd                    Ramona St
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted        Permitted        Permitted
Rights:            Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  1  0  1  0    0  1  0  1  0    0  0  1! 0  0    0  1  0  0  1
------------||---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      29  495    54    57  470    57    84    1    24   126   11    92
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   29  495    54    57  470    57    84    1    24   126   11    92
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    29  495    54    57  470    57    84    1    24   126   11    92
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   29  495    54    57  470    57    84    1    24   126   11    92
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0    57
RTOR Vol:      29  495    54    57  470    57    84    1    24   126   11    35
PCE Adj:     2.00 1.00  1.00  2.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   58  495    54   114  470    57    84    1    24   126   11    35
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.10 1.72  0.18  0.22 1.60  0.18  0.77 0.01  0.22  0.92 0.08  1.00
Final Sat.:   190 3090   320   389 2891   320  1387   17   396  1655  145  1800
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.15 0.16  0.17  0.15 0.16  0.18  0.06 0.06  0.06  0.08 0.08  0.02
Crit Volume:             304    57                   109         126
Crit Moves:             ****  ****                 ****        ****
*******************************************************************************
```

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                                AM Peak Hour
-------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #13 Appian Wy/ Mann Dr
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.529
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        40                Level Of Service:                  A
*******************************************************************************
Street Name:           Appian Wy                           Mann Dr
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted      Split Phase      Split Phase
Rights:            Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  1  0  1  0    0  0  1  1  0    0  0  1! 0  0    0  0  0  0  0
------------||---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     206  558     4     0  817    80    73    0   225     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  206  558     4     0  817    80    73    0   225     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   206  558     4     0  817    80    73    0   225     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  206  558     4     0  817    80    73    0   225     0    0     0
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:     206  558     4     0  817    80    73    0   225     0    0     0
PCE Adj:     4.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  824  558     4     0  817    80    73    0   225     0    0     0
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.99  0.01  0.00 1.82  0.18  0.24 0.00  0.76  0.00 0.00  0.00
Final Sat.:  1800 1790    10     0 3279   321   441    0  1359     0    0     0
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.11 0.31  0.39  0.00 0.25  0.25  0.17 0.00  0.17  0.00 0.00  0.00
Crit Volume:  206                        449               298          0
Crit Moves:  ****                       ****              ****
*******************************************************************************
```


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-------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #14 Appian Wy/ Tara Hills Dr-Canyon Dr
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.878
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:       180                Level Of Service:                  D
*******************************************************************************
Street Name:            Appian Wy                  Tara Hills Dr-Canyon Dr
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        2  0  1  1  0    1  0  2  0  1    0  1  0  0  2    0  1  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     598  765    78    21  763   110   181    2   456   555   82   115
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  598  765    78    21  763   110   181    2   456   555   82   115
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   598  765    78    21  763   110   181    2   456   555   82   115
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  598  765    78    21  763   110   181    2   456   555   82   115
RTOR Reduct:    0    0     0     0    0   110     0    0   329     0    0    21
RTOR Vol:     598  765    78    21  763     0   181    2   127   555   82    94
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  598  765    78    21  763     0   181    2   127   555   82    94
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  0.91 1.00  1.00  1.00 1.00  1.00  1.00 1.00  0.91  1.00 1.00  1.00
Lanes:       2.00 1.81  0.19  1.00 2.00  1.00  0.99 0.01  2.00  1.00 1.00  1.00
Final Sat.:  3000 2995   305  1650 3300  1650  1632   18  3000  1650 1650  1650
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.20 0.26  0.26  0.01 0.23  0.00  0.11 0.11  0.04  0.34 0.05  0.06
Crit Volume:  299                   382               183          555
Crit Moves:  ****                  ****              ****         ****
*******************************************************************************
```

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                          Pinole General Plan (P06-130)
                  Cumulative Preferred Land Use with Road Diet
                                  AM Peak Hour
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                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #15 Appian Way/ I-80 WB ramps
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.870
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:       175                Level Of Service:                  D
*******************************************************************************
Street Name:            Appian Way                      I-80 WB ramps
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Split Phase      Split Phase
Rights:           Include          Ignore          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  2  0  0    0  0  2  0  1    0  0  0  0  0    1  1  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     549 1026     0     0 1007   755     0    0     0   806    1   369
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  549 1026     0     0 1007   755     0    0     0   806    1   369
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   549 1026     0     0 1007   755     0    0     0   806    1   369
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  549 1026     0     0 1007   755     0    0     0   806    1   369
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:     549 1026     0     0 1007   755     0    0     0   806    1   369
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  549 1026     0     0 1007   755     0    0     0   806    1   369
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  0.91 1.00  1.00
Lanes:       1.00 2.00  0.00  0.00 2.00  1.00  0.00 0.00  0.00  1.99 0.01  1.00
Final Sat.:  1720 3440     0     0 3440  1720     0    0     0  3123    4  1720
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.32 0.30  0.00  0.00 0.29  0.44  0.00 0.00  0.00  0.26 0.23  0.21
Crit Volume:  549                   503                 0          404
Crit Moves:  ****                  ****                          ****
*******************************************************************************
```


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                         Pinole General Plan (P06-130)
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                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #16 Appian Way/ I-80 EB ramps
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.564
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        43                Level Of Service:                  A
*******************************************************************************
Street Name:            Appian Way                     I-80 EB ramps
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted      Split Phase      Split Phase
Rights:            Include          Ignore          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1  1  1    0  0  2  0  1    1  1  0  0  1    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0 1027   625     0 1478   337   495    3   277     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0 1027   625     0 1478   337   495    3   277     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0 1027   625     0 1478   337   495    3   277     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0 1027   625     0 1478   337   495    3   277     0    0     0
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:       0 1027   625     0 1478   337   495    3   277     0    0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    0 1027   625     0 1478   337   495    3   277     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  0.91  1.00 1.00  1.00  0.91 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 1.87  1.13  0.00 2.00  1.00  1.99 0.01  1.00  0.00 0.00  0.00
Final Sat.:     0 3357  1857     0 3600  1800  3253   22  1800     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.31  0.34  0.00 0.41  0.19  0.15 0.14  0.15  0.00 0.00  0.00
Crit Volume:    0                   739                    277          0
Crit Moves:  ****                  ****                   ****
*******************************************************************************
```

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                         Pinole General Plan (P06-130)
                 Cumulative Preferred Land Use with Road Diet
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-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #17 Appian Wy/ Fitzgerald Dr-Sara Dr
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.762
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        96                Level Of Service:                  C
*******************************************************************************
Street Name:            Appian Way                  Fitzgerald Dr-Sara Dr
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected      Split Phase      Split Phase
Rights:           Include            Ovl          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        2  0  1  1  0    1  0  2  0  2    2  1  0  0  1    1  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     292 1120    20   161  765   808   295   21    89   220  406    69
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  292 1120    20   161  765   808   295   21    89   220  406    69
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   292 1120    20   161  765   808   295   21    89   220  406    69
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  292 1120    20   161  765   808   295   21    89   220  406    69
RTOR Reduct:    0    0     0     0    0   113     0    0    89     0    0    69
RTOR Vol:     292 1120    20   161  765   695   295   21     0   220  406     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  292 1120    20   161  765   695   295   21     0   220  406     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  0.91 1.00  1.00  1.00 1.00  0.91  0.87 1.00  1.00  1.00 1.00  1.00
Lanes:       2.00 1.96  0.04  1.00 2.00  2.00  2.80 0.20  1.00  1.00 1.00  1.00
Final Sat.:  3000 3242    58  1650 3300  3000  4020  329  1650  1650 1650  1650
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.10 0.35  0.35  0.10 0.23  0.23  0.07 0.06  0.00  0.13 0.25  0.00
Crit Volume:      570                161                  105                  406
Crit Moves:      ****               ****                 ****                 ****
*******************************************************************************
```

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                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #18 Oak Ridge Ln/ San Pablo Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.805
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:       117                Level Of Service:                  D
*******************************************************************************
Street Name:           Oak Ridge Ln                    San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:       Split Phase      Split Phase       Protected        Protected
Rights:          Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1! 0  0    0  0  0  0  0    0  0  1  0  1    1  0  1  0  0
------------||---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      29    0    13     0    0     0     0  889    17     9 1343     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   29    0    13     0    0     0     0  889    17     9 1343     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    29    0    13     0    0     0     0  889    17     9 1343     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   29    0    13     0    0     0     0  889    17     9 1343     0
RTOR Reduct:    0    0     0     0    0     0     0    0    17     0    0     0
RTOR Vol:      29    0    13     0    0     0     0  889     0     9 1343     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   29    0    13     0    0     0     0  889     0     9 1343     0
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.69 0.00  0.31  0.00 0.00  0.00  0.00 1.00  1.00  1.00 1.00  0.00
Final Sat.:  1188    0   532     0    0     0     0 1720  1720  1720 1720     0
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.02 0.00  0.02  0.00 0.00  0.00  0.00 0.52  0.00  0.01 0.78  0.00
Crit Volume:               42           0           0                  1343
Crit Moves:              ****                    ****                  ****
*******************************************************************************

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                         Pinole General Plan (P06-130)
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-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #19 Fernandez Ave/ San Pablo Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.777
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        65                Level Of Service:                  C
*******************************************************************************
Street Name:          Fernandez Ave                    San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:        Permitted        Permitted        Permitted        Permitted
Rights:          Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    1  0  0  1  0    1  0  0  1  0
------------||---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       9    0     9     1    0     2     1  936    16    42 1379     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    9    0     9     1    0     2     1  936    16    42 1379     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     9    0     9     1    0     2     1  936    16    42 1379     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    9    0     9     1    0     2     1  936    16    42 1379     0
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:       9    0     9     1    0     2     1  936    16    42 1379     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    9    0     9     1    0     2     1  936    16    42 1379     0
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.50 0.00  0.50  0.33 0.00  0.67  1.00 0.98  0.02  1.00 1.00  0.00
Final Sat.:   900    0   900   600    0  1200  1800 1770    30  1800 1800     0
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.01 0.00  0.01  0.00 0.00  0.00  0.00 0.53  0.53  0.02 0.77  0.00
Crit Volume:               18     1                 1                  1379
Crit Moves:              ****  ****              ****                  ****
*******************************************************************************

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                          Pinole General Plan (P06-130)
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                                  AM Peak Hour
-------------------------------------------------------------------------------
                       Level Of Service Computation Report
                    CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #20 John St/ San Pablo Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.911
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:       162                Level Of Service:                  E
*******************************************************************************
Street Name:             John St                        San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted        Permitted        Permitted        Permitted
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  0  0  1    0  0  0  0  0    0  0  0  1  0    0  0  1  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     3     0    0     0     0  948     3     0 1637     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     3     0    0     0     0  948     3     0 1637     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0    0     3     0    0     0     0  948     3     0 1637     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0    0     3     0    0     0     0  948     3     0 1637     0
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:       0    0     3     0    0     0     0  948     3     0 1637     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    0    0     3     0    0     0     0  948     3     0 1637     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 0.00  1.00  0.00 0.00  0.00  0.00 0.99  0.01  0.00 1.00  0.00
Final Sat.:     0    0  1800     0    0     0     0 1794     6     0 1800     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.53  0.53  0.00 0.91  0.00
Crit Volume:                3     0                 0                   1637
Crit Moves:              ****                   ****                   ****
*******************************************************************************

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Cumulative PM Preferred ProTue Apr 20, 2010 11:54:21                Page 1-1
-------------------------------------------------------------------------------
                          Pinole General Plan (P06-130)
                  Cumulative Preferred Land Use with Road Diet
                                  PM Peak Hour
-------------------------------------------------------------------------------
                                Scenario Report
Scenario:             Cumulative PM Preferred Project

Command:              Cumulative PM PP
Volume:               Cumulative PM PP
Geometry:             Cumulative Road Diet
Impact Fee:           Default Impact Fee
Trip Generation:      Default Trip Generation
Trip Distribution:    Default Trip Distribution
Paths:                Default Path
Routes:               Default Route
Configuration:        Default Configuration

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Cumulative PM Preferred ProTue Apr 20, 2010 11:54:21 Page 2-1

Pinole General Plan (P06-130)
Cumulative Preferred Land Use with Road Diet
PM Peak Hour

Turning Movement Report

Volume	Northbound				Southbound				Eastbound				Westbound				Total
Type	Left	Thru	Right		Left	Thru	Right		Left	Thru	Right		Left	Thru	Right		Volume
#1 Del Monte Dr/eSan Pablo Ave																	
Base	4	1	14		55	1	78		195	1117	25		41	832	35		2398
Added	0	0	0		0	0	0		0	0	0		0	0	0		0
Total	4	1	14		55	1	78		195	1117	25		41	832	35		2398
#2 Pinole Shores Dr/ San Pablo Ave																	
Base	4	0	6		67	0	35		53	1085	21		9	871	91		2242
Added	0	0	0		0	0	0		0	0	0		0	0	0		0
Total	4	0	6		67	0	35		53	1085	21		9	871	91		2242
#3 Sunnyview Dr/ San Pablo Ave																	
Base	28	6	19		91	10	44		84	1045	35		33	919	56		2370
Added	0	0	0		0	0	0		0	0	0		0	0	0		0
Total	28	6	19		91	10	44		84	1045	35		33	919	56		2370
#4 Appian Wy-Pinon Ave/ San Pablo Ave																	
Base	333	118	191		65	85	54		28	871	194		363	615	81		2998
Added	0	0	0		0	0	0		0	0	0		0	0	0		0
Total	333	118	191		65	85	54		28	871	194		363	615	81		2998
#5 Tennent Ave/ San Pablo Ave																	
Base	138	70	69		42	40	30		25	906	245		140	872	57		2634
Added	0	0	0		0	0	0		0	0	0		0	0	0		0
Total	138	70	69		42	40	30		25	906	245		140	872	57		2634
#6 Pinole Valley Rd/ San Pablo Ave																	
Base	134	17	452		1	12	9		12	1004	22		276	979	2		2920
Added	0	0	0		0	0	0		0	0	0		0	0	0		0
Total	134	17	452		1	12	9		12	1004	22		276	979	2		2920
#7 Tennent Ave/ Pinole Valley Rd																	
Base	3	378	536		75	442	4		4	4	4		278	13	51		1792
Added	0	0	0		0	0	0		0	0	0		0	0	0		0
Total	3	378	536		75	442	4		4	4	4		278	13	51		1792
#8 Pinole Valley Rd/ Henry Ave																	
Base	96	569	18		29	541	92		229	62	202		17	12	39		1906
Added	0	0	0		0	0	0		0	0	0		0	0	0		0
Total	96	569	18		29	541	92		229	62	202		17	12	39		1906
#9 Pinole Valley Rd/ I-80 WB ramps																	
Base	487	597	0		0	495	286		0	0	0		443	1	111		2420
Added	0	0	0		0	0	0		0	0	0		0	0	0		0
Total	487	597	0		0	495	286		0	0	0		443	1	111		2420

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Cumulative PM Preferred ProTue Apr 20, 2010 11:54:21 Page 2-2

Pinole General Plan (P06-130)
Cumulative Preferred Land Use with Road Diet
PM Peak Hour

Volume	Northbound				Southbound				Eastbound				Westbound				Total
Type	Left	Thru	Right		Left	Thru	Right		Left	Thru	Right		Left	Thru	Right		Volume
#10 Pinole Valley Rd/ I-80 EB ramps																	
Base	0	559	550		306	652	0		589	142	553		0	0	0		3351
Added	0	0	0		0	0	0		0	0	0		0	0	0		0
Total	0	559	550		306	652	0		589	142	553		0	0	0		3351
#11 Pinole Valley Rd/ Estates Ave																	
Base	22	694	19		220	806	181		187	14	12		14	14	133		2316
Added	0	0	0		0	0	0		0	0	0		0	0	0		0
Total	22	694	19		220	806	181		187	14	12		14	14	133		2316
#12 Pinole Valley Rd/ Ramona St																	
Base	20	445	74		153	563	9		30	9	12		48	9	47		1419
Added	0	0	0		0	0	0		0	0	0		0	0	0		0
Total	20	445	74		153	563	9		30	9	12		48	9	47		1419
#13 Appian Wy/ Mann Dr																	
Base	253	778	0		0	572	52		24	0	125		0	0	0		1804
Added	0	0	0		0	0	0		0	0	0		0	0	0		0
Total	253	778	0		0	572	52		24	0	125		0	0	0		1804
#14 Appian Wy/ Tara Hills Dr-Canyon Dr																	
Base	621	676	312		37	737	109		203	115	686		138	48	12		3694
Added	0	0	0		0	0	0		0	0	0		0	0	0		0
Total	621	676	312		37	737	109		203	115	686		138	48	12		3694
#15 Appian Way/ I-80 WB ramps																	
Base	361	1082	0		0	985	518		0	0	0		680	9	330		3965
Added	0	0	0		0	0	0		0	0	0		0	0	0		0
Total	361	1082	0		0	985	518		0	0	0		680	9	330		3965
#16 Appian Way/ I-80 EB ramps																	
Base	0	1105	1194		0	1242	712		606	274	215		0	0	0		5348
Added	0	0	0		0	0	0		0	0	0		0	0	0		0
Total	0	1105	1194		0	1242	712		606	274	215		0	0	0		5348
#17 Appian Wy/ Fitzgerald Dr-Sara Dr																	
Base	320	902	71		272	689	571		1255	175	475		86	130	139		5085
Added	0	0	0		0	0	0		0	0	0		0	0	0		0
Total	320	902	71		272	689	571		1255	175	475		86	130	139		5085
#18 Oak Ridge Ln/ San Pablo Ave																	
Base	23	0	4		0	0	0		0	1114	16		10	1056	0		2223
Added	0	0	0		0	0	0		0	0	0		0	0	0		0
Total	23	0	4		0	0	0		0	1114	16		10	1056	0		2223

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Cumulative PM Preferred ProTue Apr 20, 2010 11:54:21 Page 2-3

Pinole General Plan (P06-130)
Cumulative Preferred Land Use with Road Diet
PM Peak Hour

Volume Type	Northbound Left	Thru	Right	Southbound Left	Thru	Right	Eastbound Left	Thru	Right	Westbound Left	Thru	Right	Total Volume
#19 Fernandez Ave/ San Pablo Ave													
Base	23	2	41	16	0	22	12	944	26	35	958	13	2092
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	23	2	41	16	0	22	12	944	26	35	958	13	2092
#20 John St/ San Pablo Ave													
Base	0	0	23	0	0	0	0	1305	3	0	1267	0	2598
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	23	0	0	0	0	1305	3	0	1267	0	2598
#21													
Base	9	7	7	19	7	24	20	1092	7	10	1053	27	2282
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	9	7	7	19	7	24	20	1092	7	10	1053	27	2282

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Cumulative PM Preferred ProTue Apr 20, 2010 11:54:21 Page 3-1

Pinole General Plan (P06-130)
Cumulative Preferred Land Use with Road Diet
PM Peak Hour

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Del/ Veh	V/ C	Future LOS	Del/ Veh	V/ C	Change in V/C
# 1 Del Monte Dr/eSan Pablo Ave	A	xxxxx	0.463	A	xxxxx	0.463	+ 0.000
# 2 Pinole Shores Dr/ San Pablo Av	A	xxxxx	0.372	A	xxxxx	0.372	+ 0.000
# 3 Sunnyview Dr/ San Pablo Ave	A	xxxxx	0.434	A	xxxxx	0.434	+ 0.000
# 4 Appian Wy-Pinon Ave/ San Pablo	C	xxxxx	0.739	C	xxxxx	0.739	+ 0.000
# 5 Tennent Ave/ San Pablo Ave	D	xxxxx	0.833	D	xxxxx	0.833	+ 0.000
# 6 Pinole Valley Rd/ San Pablo Av	F	xxxxx	1.059	F	xxxxx	1.059	+ 0.000
# 7 Tennent Ave/ Pinole Valley Rd	A	xxxxx	0.448	A	xxxxx	0.448	+ 0.000
# 8 Pinole Valley Rd/ Henry Ave	C	xxxxx	0.702	C	xxxxx	0.702	+ 0.000
# 9 Pinole Valley Rd/ I-80 WB ramp	B	xxxxx	0.640	B	xxxxx	0.640	+ 0.000
# 10 Pinole Valley Rd/ I-80 EB ramp	E	xxxxx	0.925	E	xxxxx	0.925	+ 0.000
# 11 Pinole Valley Rd/ Estates Ave	A	xxxxx	0.460	A	xxxxx	0.460	+ 0.000
# 12 Pinole Valley Rd/ Ramona St	A	xxxxx	0.295	A	xxxxx	0.295	+ 0.000
# 13 Appian Wy/ Mann Dr	A	xxxxx	0.397	A	xxxxx	0.397	+ 0.000
# 14 Appian Wy/ Tara Hills Dr-Canyo	C	xxxxx	0.707	C	xxxxx	0.707	+ 0.000
# 15 Appian Way/ I-80 WB ramps	C	xxxxx	0.717	C	xxxxx	0.717	+ 0.000
# 16 Appian Way/ I-80 EB ramps	C	xxxxx	0.737	C	xxxxx	0.737	+ 0.000
# 17 Appian Wy/ Fitzgerald Dr-Sara	D	xxxxx	0.871	D	xxxxx	0.871	+ 0.000
# 18 Oak Ridge Ln/ San Pablo Ave	B	xxxxx	0.669	B	xxxxx	0.669	+ 0.000
# 19 Fernandez Ave/ San Pablo Ave	B	xxxxx	0.604	B	xxxxx	0.604	+ 0.000
# 20 John St/ San Pablo Ave	C	xxxxx	0.739	C	xxxxx	0.739	+ 0.000

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Cumulative PM Preferred ProTue Apr 20, 2010 11:54:21                 Page 4-1
-------------------------------------------------------------------------------
                         Pinole General Plan (P06-130)
                 Cumulative Preferred Land Use with Road Diet
                                PM Peak Hour
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #1 Del Monte Dr/eSan Pablo Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.463
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        42                Level Of Service:                  A
*******************************************************************************
Street Name:           Del Monte Dr                     San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Split Phase      Split Phase       Protected        Protected
Rights:          Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    1  0  2  0  1    1  0  2  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       4    1    14    55    1    78   195 1117    25    41  832    35
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    4    1    14    55    1    78   195 1117    25    41  832    35
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     4    1    14    55    1    78   195 1117    25    41  832    35
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    4    1    14    55    1    78   195 1117    25    41  832    35
RTOR Reduct:    0    0     0     0    0     0     0    0     4     0    0    35
RTOR Vol:       4    1    14    55    1    78   195 1117    21    41  832     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    4    1    14    55    1    78   195 1117    21    41  832     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.21 0.05  0.74  0.41 0.01  0.58  1.00 2.00  1.00  1.00 2.00  1.00
Final Sat.:   347   87  1216   677   12   960  1650 3300  1650  1650 3300  1650
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.01 0.01  0.01  0.08 0.08  0.08  0.12 0.34  0.01  0.02 0.25  0.00
Crit Volume:               19        134         195                   416
Crit Moves:              ****       ****        ****                  ****
*******************************************************************************
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Cumulative PM Preferred ProTue Apr 20, 2010 11:54:21                 Page 5-1
-------------------------------------------------------------------------------
                         Pinole General Plan (P06-130)
                 Cumulative Preferred Land Use with Road Diet
                                PM Peak Hour
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #2 Pinole Shores Dr/ San Pablo Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.372
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        30                Level Of Service:                  A
*******************************************************************************
Street Name:         Pinole Shores Dr                   San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Permitted        Permitted        Protected        Protected
Rights:          Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1! 0  0    1  0  0  0  1    1  0  1  1  0    1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       4    0     6    67    0    35    53 1085    21     9  871    91
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    4    0     6    67    0    35    53 1085    21     9  871    91
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     4    0     6    67    0    35    53 1085    21     9  871    91
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    4    0     6    67    0    35    53 1085    21     9  871    91
RTOR Reduct:    0    0     0     0    0    35     0    0     0     0    0     0
RTOR Vol:       4    0     6    67    0     0    53 1085    21     9  871    91
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    4    0     6    67    0     0    53 1085    21     9  871    91
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.40 0.00  0.60  1.00 0.00  1.00  1.00 1.96  0.04  1.00 1.81  0.19
Final Sat.:   688    0  1032  1720    0  1720  1720 3375    65  1720 3115   325
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.01 0.00  0.01  0.04 0.00  0.00  0.03 0.32  0.32  0.01 0.28  0.28
Crit Volume:               10    67                   553           9
Crit Moves:              ****  ****                 ****        ****
*******************************************************************************
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Cumulative PM Preferred ProTue Apr 20, 2010 11:54:21                Page 6-1
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                         Pinole General Plan (P06-130)
                 Cumulative Preferred Land Use with Road Diet
                                PM Peak Hour
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #3 Sunnyview Dr/ San Pablo Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.434
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        33                Level Of Service:                  A
*******************************************************************************
Street Name:           Sunnyview Dr                    San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted        Protected        Protected
Rights:            Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    1  0  1  1  0    1  0  1  1  0
------------||---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      28    6    19    91   10    44    84 1045    35    33  919    56
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   28    6    19    91   10    44    84 1045    35    33  919    56
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    28    6    19    91   10    44    84 1045    35    33  919    56
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   28    6    19    91   10    44    84 1045    35    33  919    56
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:      28    6    19    91   10    44    84 1045    35    33  919    56
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   28    6    19    91   10    44    84 1045    35    33  919    56
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.53 0.11  0.36  0.63 0.07  0.30  1.00 1.94  0.06  1.00 1.89  0.11
Final Sat.:   909  195   617  1079  119   522  1720 3329   111  1720 3242   198
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.03 0.03  0.03  0.08 0.08  0.08  0.05 0.31  0.31  0.02 0.28  0.28
Crit Volume:   28                         145               540    33
Crit Moves:  ****                        ****              ****  ****
*******************************************************************************
```

```
Cumulative PM Preferred ProTue Apr 20, 2010 11:54:21                Page 7-1
-------------------------------------------------------------------------------
                         Pinole General Plan (P06-130)
                 Cumulative Preferred Land Use with Road Diet
                                PM Peak Hour
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #4 Appian Wy-Pinon Ave/ San Pablo Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.739
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        71                Level Of Service:                  C
*******************************************************************************
Street Name:       Appian Wy-Pinon Ave                  San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted        Protected        Protected
Rights:            Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  0  1  0    1  0  0  1  0    1  0  2  0  1    1  0  1  1  0
------------||---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     333  118   191    65   85    54    28  871   194   363  615    81
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  333  118   191    65   85    54    28  871   194   363  615    81
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   333  118   191    65   85    54    28  871   194   363  615    81
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  333  118   191    65   85    54    28  871   194   363  615    81
RTOR Reduct:    0    0     0     0    0     0     0    0   194     0    0     0
RTOR Vol:     333  118   191    65   85    54    28  871     0   363  615    81
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  333  118   191    65   85    54    28  871     0   363  615    81
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.38  0.62  1.00 0.61  0.39  1.00 2.00  1.00  1.00 1.77  0.23
Final Sat.:  1720  657  1063  1720 1052   668  1720 3440  1720  1720 3040   400
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.19 0.18  0.18  0.04 0.08  0.08  0.02 0.25  0.00  0.21 0.20  0.20
Crit Volume:  333                         139               436   363
Crit Moves:  ****                        ****              ****  ****
*******************************************************************************
```


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                         Pinole General Plan (P06-130)
                 Cumulative Preferred Land Use with Road Diet
                                 PM Peak Hour
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #5 Tennent Ave/ San Pablo Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.833
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        86                Level Of Service:                  D
*******************************************************************************
Street Name:           Tennent Ave                     San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted        Permitted        Permitted        Permitted
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  0  1  0    1  0  0  1  0    1  0  0  1  0    1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     138   70    69    42   40    30    25  906   245   140  872    57
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  138   70    69    42   40    30    25  906   245   140  872    57
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   138   70    69    42   40    30    25  906   245   140  872    57
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  138   70    69    42   40    30    25  906   245   140  872    57
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:     138   70    69    42   40    30    25  906   245   140  872    57
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  138   70    69    42   40    30    25  906   245   140  872    57
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.50  0.50  1.00 0.57  0.43  1.00 0.79  0.21  1.00 0.94  0.06
Final Sat.:  1800  906   894  1800 1029   771  1800 1417   383  1800 1690   110
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.08 0.08  0.08  0.02 0.04  0.04  0.01 0.64  0.64  0.08 0.52  0.52
Crit Volume:  138                          70             1151   140
Crit Moves:  ****                        ****             ****  ****
*******************************************************************************
```

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Cumulative PM Preferred ProTue Apr 20, 2010 11:54:22                 Page 9-1
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                         Pinole General Plan (P06-130)
                 Cumulative Preferred Land Use with Road Diet
                                 PM Peak Hour
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #6 Pinole Valley Rd/ San Pablo Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         1.059
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:       180                Level Of Service:                  F
*******************************************************************************
Street Name:         Pinole Valley Rd                  San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted        Permitted        Permitted        Permitted
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    1  0  0  1  0    1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     134   17   452     1   12     9    12 1004    22   276  979     2
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  134   17   452     1   12     9    12 1004    22   276  979     2
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   134   17   452     1   12     9    12 1004    22   276  979     2
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  134   17   452     1   12     9    12 1004    22   276  979     2
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:     134   17   452     1   12     9    12 1004    22   276  979     2
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  134   17   452     1   12     9    12 1004    22   276  979     2
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.22 0.03  0.75  0.05 0.54  0.41  1.00 0.98  0.02  1.00 0.99  0.01
Final Sat.:   400   51  1349    82  982   736  1800 1761    39  1800 1796     4
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.34 0.33  0.34  0.01 0.01  0.01  0.01 0.57  0.57  0.15 0.54  0.55
Crit Volume:              603     1                        1026   276
Crit Moves:              ****  ****                       ****  ****
*******************************************************************************
```


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                         Pinole General Plan (P06-130)
                 Cumulative Preferred Land Use with Road Diet
                                PM Peak Hour
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #7 Tennent Ave/ Pinole Valley Rd
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.448
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        41                Level Of Service:                  A
*******************************************************************************
Street Name:           Tennent Ave                     Pinole Valley Rd
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  1  0  1    1  0  0  1  0    1  0  0  1  0    1  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       3  378   536    75  442     4     4    4     4   278   13    51
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    3  378   536    75  442     4     4    4     4   278   13    51
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     3  378   536    75  442     4     4    4     4   278   13    51
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    3  378   536    75  442     4     4    4     4   278   13    51
RTOR Reduct:    0    0   278     0    0     0     0    0     0     0    0    51
RTOR Vol:       3  378   258    75  442     4     4    4     4   278   13     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    3  378   258    75  442     4     4    4     4   278   13     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 1.00  1.00  1.00 0.99  0.01  1.00 0.50  0.50  1.00 1.00  1.00
Final Sat.:  1650 1650  1650  1650 1635    15  1650  825   825  1650 1650  1650
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.23  0.16  0.05 0.27  0.27  0.00 0.00  0.00  0.17 0.01  0.00
Crit Volume:        378          75                      8          278
Crit Moves:       ****        ****                   ****        ****
*******************************************************************************
```



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                         Pinole General Plan (P06-130)
                 Cumulative Preferred Land Use with Road Diet
                                PM Peak Hour
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #8 Pinole Valley Rd/ Henry Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.702
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        77                Level Of Service:                  C
*******************************************************************************
Street Name:         Pinole Valley Rd                     Henry Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  1  0  1    1  0  1  1  0    0  0  1! 0  0    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      96  569    18    29  541    92   229   62   202    17   12    39
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   96  569    18    29  541    92   229   62   202    17   12    39
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    96  569    18    29  541    92   229   62   202    17   12    39
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   96  569    18    29  541    92   229   62   202    17   12    39
RTOR Reduct:    0    0    17     0    0     0     0    0     0     0    0     0
RTOR Vol:      96  569     1    29  541    92   229   62   202    17   12    39
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   96  569     1    29  541    92   229   62   202    17   12    39
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 1.00  1.00  1.00 1.71  0.29  0.46 0.13  0.41  0.25 0.18  0.57
Final Sat.:  1650 1650  1650  1650 2820   480   766  208   676   413  291   946
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.06 0.34  0.00  0.02 0.19  0.19  0.30 0.30  0.30  0.04 0.04  0.04
Crit Volume:       569          29                    493                68
Crit Moves:       ****        ****                   ****              ****
*******************************************************************************
```

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Cumulative PM Preferred ProTue Apr 20, 2010 11:54:22                Page 12-1
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                         Pinole General Plan (P06-130)
                 Cumulative Preferred Land Use with Road Diet
                                PM Peak Hour
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #9 Pinole Valley Rd/ I-80 WB ramps
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.640
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        63                Level Of Service:                  B
*******************************************************************************
Street Name:         Pinole Valley Rd                  I-80 WB ramps
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        2  0  1  0  0    0  0  1  1  0    0  0  0  0  0    0  1  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     487  597     0     0  495   286     0    0     0   443    1   111
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  487  597     0     0  495   286     0    0     0   443    1   111
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   487  597     0     0  495   286     0    0     0   443    1   111
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  487  597     0     0  495   286     0    0     0   443    1   111
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:     487  597     0     0  495   286     0    0     0   443    1   111
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  487  597     0     0  495   286     0    0     0   443    1   111
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  0.91 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       2.00 1.00  0.00  0.00 1.27  0.73  0.00 0.00  0.00  1.00 0.60  0.40
Final Sat.:  3127 1720     0     0 2180  1260     0    0     0  1720 1032   688
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.16 0.35  0.00  0.00 0.23  0.23  0.00 0.00  0.00  0.26 0.00  0.16
Crit Volume:  244                   391                 0         443
Crit Moves:  ****                  ****                          ****
*******************************************************************************
```

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                         Pinole General Plan (P06-130)
                 Cumulative Preferred Land Use with Road Diet
                                PM Peak Hour
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #10 Pinole Valley Rd/ I-80 EB ramps
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.925
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:       180                Level Of Service:                  E
*******************************************************************************
Street Name:         Pinole Valley Rd                  I-80 EB ramps
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1  1  0    1  0  2  0  0    0  1  0  0  1    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0  559   550   306  652     0   589  142   553     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0  559   550   306  652     0   589  142   553     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0  559   550   306  652     0   589  142   553     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0  559   550   306  652     0   589  142   553     0    0     0
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:       0  559   550   306  652     0   589  142   553     0    0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    0  559   550   306  652     0   589  142   553     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 1.01  0.99  1.00 2.00  0.00  0.81 0.19  1.00  0.00 0.00  0.00
Final Sat.:     0 1734  1706  1720 3440     0  1386  334  1720     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.32  0.32  0.18 0.19  0.00  0.43 0.42  0.32  0.00 0.00  0.00
Crit Volume:      555         306                   731                 0
Crit Moves:      ****        ****                  ****
*******************************************************************************
```


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                         Pinole General Plan (P06-130)
                 Cumulative Preferred Land Use with Road Diet
                                PM Peak Hour
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #11 Pinole Valley Rd/ Estates Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.460
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        34                Level Of Service:                  A
*******************************************************************************
Street Name:         Pinole Valley Rd                    Estates Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected         Permitted        Permitted
Rights:           Include          Include           Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  1  1  0    1  0  1  1  0    0  1  0  0  1    0  1  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      22  694    19   220  806   181   187   14    12    14   14   133
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   22  694    19   220  806   181   187   14    12    14   14   133
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    22  694    19   220  806   181   187   14    12    14   14   133
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   22  694    19   220  806   181   187   14    12    14   14   133
RTOR Reduct:    0    0     0     0    0     0     0    0    12     0    0   133
RTOR Vol:      22  694    19   220  806   181   187   14     0    14   14     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   22  694    19   220  806   181   187   14     0    14   14     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 1.95  0.05  1.00 1.63  0.37  0.93 0.07  1.00  0.50 0.50  1.00
Final Sat.:  1720 3348    92  1720 2809   631  1600  120  1720   860  860  1720
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.01 0.21  0.21  0.13 0.29  0.29  0.12 0.12  0.00  0.02 0.02  0.00
Crit Volume:             357   220              187                    28
Crit Moves:             ****  ****             ****                  ****
*******************************************************************************
```

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                         Pinole General Plan (P06-130)
                 Cumulative Preferred Land Use with Road Diet
                                PM Peak Hour
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #12 Pinole Valley Rd/ Ramona St
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.295
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        20                Level Of Service:                  A
*******************************************************************************
Street Name:         Pinole Valley Rd                    Ramona St
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Permitted        Permitted         Permitted        Permitted
Rights:           Include          Include           Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  1  0  1  0    0  1  0  1  0    0  0  1! 0  0    0  1  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      20  445    74   153  563     9    30     9    12    48    9    47
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   20  445    74   153  563     9    30     9    12    48    9    47
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    20  445    74   153  563     9    30     9    12    48    9    47
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   20  445    74   153  563     9    30     9    12    48    9    47
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0    47
RTOR Vol:      20  445    74   153  563     9    30     9    12    48    9     0
PCE Adj:     2.00 1.00  1.00  2.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   40  445    74   306  563     9    30     9    12    48    9     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.08 1.66  0.26  0.53 1.45  0.02  0.59 0.18  0.23  0.84 0.16  1.00
Final Sat.:   139 2985   477   963 2600    37  1059  318   424  1516  284  1800
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.14 0.15  0.16  0.16 0.22  0.24  0.03 0.03  0.03  0.03 0.03  0.00
Crit Volume:             279   153                          51    48
Crit Moves:             ****  ****                        ****  ****
*******************************************************************************
```


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                         Pinole General Plan (P06-130)
                 Cumulative Preferred Land Use with Road Diet
                                PM Peak Hour
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #13 Appian Wy/ Mann Dr
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.397
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        31                Level Of Service:                  A
*******************************************************************************
Street Name:            Appian Wy                         Mann Dr
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted      Split Phase      Split Phase
Rights:            Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  1  1  0  0    0  0  1  1  0    0  0  1! 0  0    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     253  778     0     0  572    52    24    0   125     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  253  778     0     0  572    52    24    0   125     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   253  778     0     0  572    52    24    0   125     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  253  778     0     0  572    52    24    0   125     0    0     0
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:     253  778     0     0  572    52    24    0   125     0    0     0
PCE Adj:     2.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  506  778     0     0  572    52    24    0   125     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 1.00  0.00  0.00 1.83  0.17  0.16 0.00  0.84  0.00 0.00  0.00
Final Sat.:  1800 1800     0     0 3300   300   290    0  1510     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.14 0.43  0.00  0.00 0.17  0.17  0.08 0.00  0.08  0.00 0.00  0.00
Crit Volume:  253                   312                    149          0
Crit Moves:  ****                  ****                   ****
*******************************************************************************
```

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                         Pinole General Plan (P06-130)
                 Cumulative Preferred Land Use with Road Diet
                                PM Peak Hour
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #14 Appian Wy/ Tara Hills Dr-Canyon Dr
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.707
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        78                Level Of Service:                  C
*******************************************************************************
Street Name:            Appian Wy                  Tara Hills Dr-Canyon Dr
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected      Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        2  0  1  1  0    1  0  2  0  1    0  1  0  0  2    0  1  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     621  676   312    37  737   109   203  115   686   138   48    12
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  621  676   312    37  737   109   203  115   686   138   48    12
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   621  676   312    37  737   109   203  115   686   138   48    12
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  621  676   312    37  737   109   203  115   686   138   48    12
RTOR Reduct:    0    0     0     0    0   109     0    0   342     0    0    12
RTOR Vol:     621  676   312    37  737     0   203  115   344   138   48     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  621  676   312    37  737     0   203  115   344   138   48     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  0.91 1.00  1.00  1.00 1.00  1.00  1.00 1.00  0.91  1.00 1.00  1.00
Lanes:       2.00 1.37  0.63  1.00 2.00  1.00  0.64 0.36  2.00  1.00 1.00  1.00
Final Sat.:  3000 2258  1042  1650 3300  1650  1053  597  3000  1650 1650  1650
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.21 0.30  0.30  0.02 0.22  0.00  0.19 0.19  0.11  0.08 0.03  0.00
Crit Volume:  311                   369              318          138
Crit Moves:  ****                  ****             ****         ****
*******************************************************************************
```

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                          Pinole General Plan (P06-130)
                  Cumulative Preferred Land Use with Road Diet
                                PM Peak Hour
-------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #15 Appian Way/ I-80 WB ramps
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.717
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        80                Level Of Service:                  C
*******************************************************************************
Street Name:            Appian Way                     I-80 WB ramps
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Split Phase      Split Phase
Rights:           Include          Ignore          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  2  0  0    0  0  2  0  1    0  0  0  0  0    1  1  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     361 1082     0     0  985   518     0    0     0   680    9   330
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  361 1082     0     0  985   518     0    0     0   680    9   330
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   361 1082     0     0  985   518     0    0     0   680    9   330
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  361 1082     0     0  985   518     0    0     0   680    9   330
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:     361 1082     0     0  985   518     0    0     0   680    9   330
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  361 1082     0     0  985   518     0    0     0   680    9   330
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  0.91 1.00  1.00
Lanes:       1.00 2.00  0.00  0.00 2.00  1.00  0.00 0.00  0.00  1.97 0.03  1.00
Final Sat.:  1720 3440     0     0 3440  1720     0    0     0  3086   45  1720
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.21 0.31  0.00  0.00 0.29  0.30  0.00 0.00  0.00  0.22 0.20  0.19
Crit Volume:  361                   493                 0         344
Crit Moves:  ****                  ****                          ****
*******************************************************************************
```

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                          Pinole General Plan (P06-130)
                  Cumulative Preferred Land Use with Road Diet
                                PM Peak Hour
-------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #16 Appian Way/ I-80 EB ramps
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.737
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        71                Level Of Service:                  C
*******************************************************************************
Street Name:            Appian Way                     I-80 EB ramps
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Permitted        Permitted       Split Phase      Split Phase
Rights:           Include          Ignore          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1  1  1    0  0  2  0  1    1  1  0  0  1    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0 1105  1194     0 1242   712   606  274   215     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0 1105  1194     0 1242   712   606  274   215     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0 1105  1194     0 1242   712   606  274   215     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0 1105  1194     0 1242   712   606  274   215     0    0     0
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:       0 1105  1194     0 1242   712   606  274   215     0    0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    0 1105  1194     0 1242   712   606  274   215     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  0.91  1.00 1.00  1.00  0.91 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 1.44  1.56  0.00 2.00  1.00  1.38 0.62  1.00  0.00 0.00  0.00
Final Sat.:     0 2595  2549     0 3600  1800  2253 1121  1800     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.43  0.47  0.00 0.34  0.40  0.27 0.24  0.12  0.00 0.00  0.00
Crit Volume:             766     0              440                       0
Crit Moves:             ****  ****             ****
*******************************************************************************
```


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Cumulative PM Preferred ProTue Apr 20, 2010 11:54:22                Page 20-1
-------------------------------------------------------------------------------
                          Pinole General Plan (P06-130)
                  Cumulative Preferred Land Use with Road Diet
                                  PM Peak Hour
-------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #17 Appian Wy/ Fitzgerald Dr-Sara Dr
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.871
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:       176                Level Of Service:                  D
*******************************************************************************
Street Name:            Appian Way                  Fitzgerald Dr-Sara Dr
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Split Phase      Split Phase
Rights:           Include           Ovl            Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        2  0  1  1  0    1  0  2  0  2    2  1  0  0  1    1  0  1  0  1
------------||---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     320  902    71   272  689   571  1255  175   475    86  130   139
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  320  902    71   272  689   571  1255  175   475    86  130   139
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   320  902    71   272  689   571  1255  175   475    86  130   139
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  320  902    71   272  689   571  1255  175   475    86  130   139
RTOR Reduct:    0    0     0     0    0   481     0    0   176     0    0   139
RTOR Vol:     320  902    71   272  689    90  1255  175   299    86  130     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  320  902    71   272  689    90  1255  175   299    86  130     0
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  0.91 1.00  1.00  1.00 1.00  0.91  0.87 1.00  1.00  1.00 1.00  1.00
Lanes:       2.00 1.85  0.15  1.00 2.00  2.00  2.63 0.37  1.00  1.00 1.00  1.00
Final Sat.:  3000 3059   241  1650 3300  3000  3779  606  1650  1650 1650  1650
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.11 0.29  0.29  0.16 0.21  0.03  0.33 0.29  0.18  0.05 0.08  0.00
Crit Volume:             487   272              477                   130
Crit Moves:             ****  ****              ****                  ****
*******************************************************************************
```

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Cumulative PM Preferred ProTue Apr 20, 2010 11:54:22                Page 21-1
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                          Pinole General Plan (P06-130)
                  Cumulative Preferred Land Use with Road Diet
                                  PM Peak Hour
-------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #18 Oak Ridge Ln/ San Pablo Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.669
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        69                Level Of Service:                  B
*******************************************************************************
Street Name:           Oak Ridge Ln                     San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:      Split Phase      Split Phase       Protected        Protected
Rights:          Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1! 0  0    0  0  0  0  0    0  0  1  0  1    1  0  1  0  0
------------||---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      23    0     4     0    0     0     0 1114    16    10 1056     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   23    0     4     0    0     0     0 1114    16    10 1056     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    23    0     4     0    0     0     0 1114    16    10 1056     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   23    0     4     0    0     0     0 1114    16    10 1056     0
RTOR Reduct:    0    0     0     0    0     0     0    0    16     0    0     0
RTOR Vol:      23    0     4     0    0     0     0 1114     0    10 1056     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   23    0     4     0    0     0     0 1114     0    10 1056     0
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.85 0.00  0.15  0.00 0.00  0.00  0.00 1.00  1.00  1.00 1.00  0.00
Final Sat.:  1465    0   255     0    0     0     0 1720  1720  1720 1720     0
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.02 0.00  0.02  0.00 0.00  0.00  0.00 0.65  0.00  0.01 0.61  0.00
Crit Volume:              27          0              1114          10
Crit Moves:              ****                        ****        ****
*******************************************************************************
```


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Cumulative PM Preferred ProTue Apr 20, 2010 11:54:22                Page 22-1
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                          Pinole General Plan (P06-130)
                 Cumulative Preferred Land Use with Road Diet
                                PM Peak Hour
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #19 Fernandez Ave/ San Pablo Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.604
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        36                Level Of Service:                  B
*******************************************************************************
Street Name:          Fernandez Ave                    San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted        Permitted        Permitted
Rights:            Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    1  0  0  1  0    1  0  0  1  0
------------||---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      23    2    41    16    0    22    12  944    26    35  958    13
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   23    2    41    16    0    22    12  944    26    35  958    13
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    23    2    41    16    0    22    12  944    26    35  958    13
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   23    2    41    16    0    22    12  944    26    35  958    13
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:      23    2    41    16    0    22    12  944    26    35  958    13
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   23    2    41    16    0    22    12  944    26    35  958    13
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.35 0.03  0.62  0.42 0.00  0.58  1.00 0.97  0.03  1.00 0.99  0.01
Final Sat.:   627   55  1118   758    0  1042  1800 1752    48  1800 1776    24
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.04 0.04  0.04  0.02 0.00  0.02  0.01 0.54  0.54  0.02 0.54  0.54
Crit Volume:        66          16                         970    35
Crit Moves:       ****        ****                        ****  ****
*******************************************************************************
```

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Cumulative PM Preferred ProTue Apr 20, 2010 11:54:22                Page 23-1
-------------------------------------------------------------------------------
                          Pinole General Plan (P06-130)
                 Cumulative Preferred Land Use with Road Diet
                                PM Peak Hour
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #20 John St/ San Pablo Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.739
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        55                Level Of Service:                  C
*******************************************************************************
Street Name:             John St                          San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted        Permitted        Permitted
Rights:            Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  0  0  1    0  0  0  0  0    0  0  0  1  0    0  0  1  0  0
------------||---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0    23     0    0     0     0 1305     3     0 1267     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0    23     0    0     0     0 1305     3     0 1267     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0    0    23     0    0     0     0 1305     3     0 1267     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0    0    23     0    0     0     0 1305     3     0 1267     0
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:       0    0    23     0    0     0     0 1305     3     0 1267     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    0    0    23     0    0     0     0 1305     3     0 1267     0
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 0.00  1.00  0.00 0.00  0.00  0.00 0.99  0.01  0.00 1.00  0.00
Final Sat.:     0    0  1800     0    0     0     0 1796     4     0 1800     0
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.00  0.01  0.00 0.00  0.00  0.00 0.73  0.73  0.00 0.70  0.00
Crit Volume:                23     0                        1308     0
Crit Moves:               ****                              ****  ****
*******************************************************************************
```


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Pinole General Plan (P06-130)
Cumulative Preferred Land Use with No Road Diet
AM Peak Hour

Scenario Report

Scenario:	Cumulative AM Preferred Project - No RdDiet
Command:	Cumulative AM PP - No RdDiet
Volume:	Cumulative AM PP - NoRdDiet
Geometry:	Cumulatiive
Impact Fee:	Default Impact Fee
Trip Generation:	Default Trip Generation
Trip Distribution:	Default Trip Distribution
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Pinole General Plan (P06-130)
Cumulative Preferred Land Use with No Road Diet
AM Peak Hour

Turning Movement Report

Volume	Northbound			Southbound			Eastbound			Westbound			Total
Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Volume
#1 Del Monte Dr/eSan Pablo Ave													
Base	0	2	1	72	3	76	118	802	3	7	1501	21	2606
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	2	1	72	3	76	118	802	3	7	1501	21	2606
#2 Pinole Shores Dr/ San Pablo Ave													
Base	25	0	19	135	0	45	31	798	3	13	1458	54	2581
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	25	0	19	135	0	45	31	798	3	13	1458	54	2581
#3 Sunnyview Dr/ San Pablo Ave													
Base	17	9	9	96	11	35	37	902	40	17	1378	21	2572
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	17	9	9	96	11	35	37	902	40	17	1378	21	2572
#4 Appian Wy-Pinon Ave/ San Pablo Ave													
Base	138	114	553	93	75	8	7	778	195	407	1386	61	3815
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	138	114	553	93	75	8	7	778	195	407	1386	61	3815
#5 Tennent Ave/ San Pablo Ave													
Base	40	52	280	39	34	21	12	1041	242	55	1760	63	3639
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	40	52	280	39	34	21	12	1041	242	55	1760	63	3639
#6 Pinole Valley Rd/ San Pablo Ave													
Base	15	98	105	10	2	2	8	1307	26	607	1857	19	4056
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	15	98	105	10	2	2	8	1307	26	607	1857	19	4056
#7 Tennent Ave/ Pinole Valley Rd													
Base	80	255	227	8	280	44	37	88	65	553	38	37	1712
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	80	255	227	8	280	44	37	88	65	553	38	37	1712
#8 Pinole Valley Rd/ Henry Ave													
Base	252	586	36	8	684	386	25	4	57	55	8	11	2112
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	252	586	36	8	684	386	25	4	57	55	8	11	2112
#9 Pinole Valley Rd/ I-80 WB ramps													
Base	532	460	0	0	407	261	0	0	0	265	407	422	2754
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	532	460	0	0	407	261	0	0	0	265	407	422	2754

Cumulative AM Preferred ProTue Apr 20, 2010 11:54:26 Page 2-2

Pinole General Plan (P06-130)
Cumulative Preferred Land Use with No Road Diet
AM Peak Hour

Volume Type	Northbound Left	Thru	Right	Southbound Left	Thru	Right	Eastbound Left	Thru	Right	Westbound Left	Thru	Right	Total Volume
#10 Pinole Valley Rd/ I-80 EB ramps													
Base	0	948	326	85	567	0	191	1	492	0	0	0	2610
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	948	326	85	567	0	191	1	492	0	0	0	2610
#11 Pinole Valley Rd/ Estates Ave													
Base	11	893	15	99	895	73	107	6	10	16	14	274	2413
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	11	893	15	99	895	73	107	6	10	16	14	274	2413
#12 Pinole Valley Rd/ Ramona St													
Base	27	504	50	62	447	62	88	1	22	130	9	87	1489
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	27	504	50	62	447	62	88	1	22	130	9	87	1489
#13 Appian Wy/ Mann Dr													
Base	173	733	4	0	925	97	71	0	235	0	0	0	2238
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	173	733	4	0	925	97	71	0	235	0	0	0	2238
#14 Appian Wy/ Tara Hills Dr-Canyon Dr													
Base	621	939	75	16	972	80	111	2	572	615	40	101	4144
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	621	939	75	16	972	80	111	2	572	615	40	101	4144
#15 Appian Way/ I-80 WB ramps													
Base	518	1181	0	0	1404	853	0	0	0	727	1	321	5005
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	518	1181	0	0	1404	853	0	0	0	727	1	321	5005
#16 Appian Way/ I-80 EB ramps													
Base	0	1056	522	0	1790	330	587	3	265	0	0	0	4553
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1056	522	0	1790	330	587	3	265	0	0	0	4553
#17 Appian Wy/ Fitzgerald Dr-Sara Dr													
Base	249	1151	23	137	1038	954	277	25	115	224	360	73	4626
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	249	1151	23	137	1038	954	277	25	115	224	360	73	4626
#18 Oak Ridge Ln/ San Pablo Ave													
Base	27	0	16	0	0	0	0	1283	10	16	1866	0	3218
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	27	0	16	0	0	0	0	1283	10	16	1866	0	3218

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Cumulative AM Preferred ProTue Apr 20, 2010 11:54:26 Page 2-3

Pinole General Plan (P06-130)
Cumulative Preferred Land Use with No Road Diet
AM Peak Hour

Volume Type	Northbound Left	Thru	Right	Southbound Left	Thru	Right	Eastbound Left	Thru	Right	Westbound Left	Thru	Right	Total Volume
#19 Fernandez Ave/ San Pablo Ave													
Base	9	0	9	1	0	2	1	1330	17	42	1863	1	3275
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	9	0	9	1	0	2	1	1330	17	42	1863	1	3275
#20 John St/ San Pablo Ave													
Base	0	0	3	0	0	0	0	1367	3	0	2527	0	3900
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	3	0	0	0	0	1367	3	0	2527	0	3900
#21													
Base	10	5	10	14	5	10	23	1316	10	10	1845	14	3272
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	10	5	10	14	5	10	23	1316	10	10	1845	14	3272

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Cumulative AM Preferred ProTue Apr 20, 2010 11:54:26                 Page 3-1
-------------------------------------------------------------------------------
                         Pinole General Plan (P06-130)
                 Cumulative Preferred Land Use with No Road Diet
                                 AM Peak Hour
-------------------------------------------------------------------------------
                            Impact Analysis Report
                               Level Of Service

Intersection                             Base           Future       Change
                                      Del/   V/       Del/   V/        in
                                  LOS Veh    C    LOS Veh    C
#  1 Del Monte Dr/eSan Pablo Ave     B xxxxx 0.620   B xxxxx 0.620  + 0.000 V/C

#  2 Pinole Shores Dr/ San Pablo Av  A xxxxx 0.562   A xxxxx 0.562  + 0.000 V/C

#  3 Sunnyview Dr/ San Pablo Ave     A xxxxx 0.521   A xxxxx 0.521  + 0.000 V/C

#  4 Appian Wy-Pinon Ave/ San Pablo  E xxxxx 0.905   E xxxxx 0.905  + 0.000 V/C

#  5 Tennent Ave/ San Pablo Ave      D xxxxx 0.811   D xxxxx 0.811  + 0.000 V/C

#  6 Pinole Valley Rd/ San Pablo Av  D xxxxx 0.848   D xxxxx 0.848  + 0.000 V/C

#  7 Tennent Ave/ Pinole Valley Rd   B xxxxx 0.673   B xxxxx 0.673  + 0.000 V/C

#  8 Pinole Valley Rd/ Henry Ave     A xxxxx 0.574   A xxxxx 0.574  + 0.000 V/C

#  9 Pinole Valley Rd/ I-80 WB ramp  B xxxxx 0.682   B xxxxx 0.682  + 0.000 V/C

# 10 Pinole Valley Rd/ I-80 EB ramp  C xxxxx 0.706   C xxxxx 0.706  + 0.000 V/C

# 11 Pinole Valley Rd/ Estates Ave   A xxxxx 0.485   A xxxxx 0.485  + 0.000 V/C

# 12 Pinole Valley Rd/ Ramona St     A xxxxx 0.337   A xxxxx 0.337  + 0.000 V/C

# 13 Appian Wy/ Mann Dr              A xxxxx 0.550   A xxxxx 0.550  + 0.000 V/C

# 14 Appian Wy/ Tara Hills Dr-Canyo  E xxxxx 0.951   E xxxxx 0.951  + 0.000 V/C

# 15 Appian Way/ I-80 WB ramps       E xxxxx 0.942   E xxxxx 0.942  + 0.000 V/C

# 16 Appian Way/ I-80 EB ramps       B xxxxx 0.678   B xxxxx 0.678  + 0.000 V/C

# 17 Appian Wy/ Fitzgerald Dr-Sara   C xxxxx 0.727   C xxxxx 0.727  + 0.000 V/C

# 18 Oak Ridge Ln/ San Pablo Ave     A xxxxx 0.567   A xxxxx 0.567  + 0.000 V/C

# 19 Fernandez Ave/ San Pablo Ave    A xxxxx 0.599   A xxxxx 0.599  + 0.000 V/C

# 20 John St/ San Pablo Ave          C xxxxx 0.704   C xxxxx 0.704  + 0.000 V/C

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                         Pinole General Plan (P06-130)
                 Cumulative Preferred Land Use with No Road Diet
                                 AM Peak Hour
-------------------------------------------------------------------------------
                       Level Of Service Computation Report
                    CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #1 Del Monte Dr/eSan Pablo Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.620
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        60                Level Of Service:                  B
*******************************************************************************
Street Name:           Del Monte Dr                     San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Split Phase      Split Phase       Protected        Protected
Rights:          Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  0  1  0    0  0  1! 0  0    1  0  2  0  1    1  0  2  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    2     1    72    3    76   118  802     3     7 1501    21
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    2     1    72    3    76   118  802     3     7 1501    21
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0    2     1    72    3    76   118  802     3     7 1501    21
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0    2     1    72    3    76   118  802     3     7 1501    21
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0    21
RTOR Vol:       0    2     1    72    3    76   118  802     3     7 1501     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    0    2     1    72    3    76   118  802     3     7 1501     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 0.67  0.33  0.48 0.02  0.50  1.00 2.00  1.00  1.00 2.00  1.00
Final Sat.:     0 1100   550   787   33   830  1650 3300  1650  1650 3300  1650
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.00  0.00  0.09 0.09  0.09  0.07 0.24  0.00  0.00 0.45  0.00
Crit Volume:         3                     151   118                    751
Crit Moves:       ****                    ****  ****                   ****
*******************************************************************************

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                         Pinole General Plan (P06-130)
                 Cumulative Preferred Land Use with No Road Diet
                                AM Peak Hour
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #2 Pinole Shores Dr/ San Pablo Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.562
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        42                Level Of Service:                  A
*******************************************************************************
Street Name:         Pinole Shores Dr                   San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted        Protected        Protected
Rights:             Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1! 0  0    1  0  0  0  1    1  0  1  1  0    1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      25    0    19   135    0    45    31  798     3    13 1458    54
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   25    0    19   135    0    45    31  798     3    13 1458    54
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    25    0    19   135    0    45    31  798     3    13 1458    54
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   25    0    19   135    0    45    31  798     3    13 1458    54
RTOR Reduct:    0    0     0     0    0    31     0    0     0     0    0     0
RTOR Vol:      25    0    19   135    0    14    31  798     3    13 1458    54
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   25    0    19   135    0    14    31  798     3    13 1458    54
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.57 0.00  0.43  1.00 0.00  1.00  1.00 1.99  0.01  1.00 1.93  0.07
Final Sat.:   977    0   743  1720    0  1720  1720 3427    13  1720 3317   123
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.03 0.00  0.03  0.08 0.00  0.01  0.02 0.23  0.23  0.01 0.44  0.44
Crit Volume:               44   135               31                        756
Crit Moves:              ****  ****              ****                       ****
*******************************************************************************
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                         Pinole General Plan (P06-130)
                 Cumulative Preferred Land Use with No Road Diet
                                AM Peak Hour
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #3 Sunnyview Dr/ San Pablo Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.521
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        39                Level Of Service:                  A
*******************************************************************************
Street Name:           Sunnyview Dr                       San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted        Protected        Protected
Rights:             Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    1  0  1  1  0    1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      17    9     9    96   11    35    37  902    40    17 1378    21
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   17    9     9    96   11    35    37  902    40    17 1378    21
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    17    9     9    96   11    35    37  902    40    17 1378    21
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   17    9     9    96   11    35    37  902    40    17 1378    21
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:      17    9     9    96   11    35    37  902    40    17 1378    21
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   17    9     9    96   11    35    37  902    40    17 1378    21
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.48 0.26  0.26  0.67 0.08  0.25  1.00 1.92  0.08  1.00 1.97  0.03
Final Sat.:   835  442   442  1163  133   424  1720 3294   146  1720 3388    52
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.02 0.02  0.02  0.08 0.08  0.08  0.02 0.27  0.27  0.01 0.41  0.41
Crit Volume:   17                        142    37                        700
Crit Moves:  ****                       ****  ****                       ****
*******************************************************************************
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                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #4 Appian Wy-Pinon Ave/ San Pablo Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.905
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:       180                Level Of Service:                  E
*******************************************************************************
Street Name:       Appian Wy-Pinon Ave                 San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted        Protected        Protected
Rights:            Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  0  1  0    1  0  0  1  0    1  0  2  0  1    1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     138  114   553    93   75     8     7  778   195   407 1386    61
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  138  114   553    93   75     8     7  778   195   407 1386    61
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   138  114   553    93   75     8     7  778   195   407 1386    61
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  138  114   553    93   75     8     7  778   195   407 1386    61
RTOR Reduct:    0    0     0     0    0     0     0    0   138     0    0     0
RTOR Vol:     138  114   553    93   75     8     7  778    57   407 1386    61
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  138  114   553    93   75     8     7  778    57   407 1386    61
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.17  0.83  1.00 0.90  0.10  1.00 2.00  1.00  1.00 1.92  0.08
Final Sat.:  1720  294  1426  1720 1554   166  1720 3440  1720  1720 3295   145
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.08 0.39  0.39  0.05 0.05  0.05  0.00 0.23  0.03  0.24 0.42  0.42
Crit Volume:       667          93                    389         407
Crit Moves:       ****        ****                  ****        ****
*******************************************************************************
```

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-------------------------------------------------------------------------------
                         Pinole General Plan (P06-130)
                 Cumulative Preferred Land Use with No Road Diet
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-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #5 Tennent Ave/ San Pablo Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.811
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        76                Level Of Service:                  D
*******************************************************************************
Street Name:           Tennent Ave                         San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted        Permitted        Permitted
Rights:            Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  0  1  0    0  0  1! 0  0    0  1  1  0  1    0  1  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      40   52   280    39   34    21    12 1041   242    55 1760    63
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   40   52   280    39   34    21    12 1041   242    55 1760    63
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    40   52   280    39   34    21    12 1041   242    55 1760    63
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   40   52   280    39   34    21    12 1041   242    55 1760    63
RTOR Reduct:    0    0     0     0    0     0     0    0    40     0    0     0
RTOR Vol:      40   52   280    39   34    21    12 1041   202    55 1760    63
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  6.00 1.00  1.00  6.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   40   52   280    39   34    21    72 1041   202   330 1760    63
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.16  0.84  0.42 0.36  0.22  0.15 1.85  1.00  0.07 1.87  0.06
Final Sat.:  1800  282  1518   747  651   402   261 3339  1800   124 3371   105
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.02 0.18  0.18  0.05 0.05  0.05  0.05 0.31  0.11  0.45 0.52  0.60
Crit Volume:       332          39                 12                      1077
Crit Moves:       ****        ****               ****                      ****
*******************************************************************************
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                 Cumulative Preferred Land Use with No Road Diet
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-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #6 Pinole Valley Rd/ San Pablo Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.848
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        94                Level Of Service:                  D
*******************************************************************************
Street Name:         Pinole Valley Rd                  San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted        Permitted        Permitted
Rights:             Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    0  1  0  1  0    0  1  0  1  0
------------||---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      15   98   105    10    2     2     8 1307    26   607 1857    19
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   15   98   105    10    2     2     8 1307    26   607 1857    19
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    15   98   105    10    2     2     8 1307    26   607 1857    19
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   15   98   105    10    2     2     8 1307    26   607 1857    19
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:      15   98   105    10    2     2     8 1307    26   607 1857    19
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  6.00 1.00  1.00  6.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   15   98   105    10    2     2    48 1307    26  3642 1857    19
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.07 0.45  0.48  0.72 0.14  0.14  0.01 1.95  0.04  1.00 0.99  0.01
Final Sat.:   124  809   867  1286  257   257    22 3510    68  1800 1788    12
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.12 0.12  0.12  0.01 0.01  0.01  0.36 0.37  0.38  0.34 1.04  1.53
Crit Volume:       218          10                          691   607
Crit Moves:       ****        ****                        ****  ****
*******************************************************************************
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                         Pinole General Plan (P06-130)
                 Cumulative Preferred Land Use with No Road Diet
                                AM Peak Hour
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #7 Tennent Ave/ Pinole Valley Rd
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.673
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        70                Level Of Service:                  B
*******************************************************************************
Street Name:           Tennent Ave                     Pinole Valley Rd
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  1  0  1    1  0  0  1  0    1  0  0  1  0    1  0  1  0  1
------------||---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      80  255   227     8  280    44    37   88    65   553   38    37
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   80  255   227     8  280    44    37   88    65   553   38    37
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    80  255   227     8  280    44    37   88    65   553   38    37
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   80  255   227     8  280    44    37   88    65   553   38    37
RTOR Reduct:    0    0   227     0    0     0     0    0     0     0    0     8
RTOR Vol:      80  255     0     8  280    44    37   88    65   553   38    29
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   80  255     0     8  280    44    37   88    65   553   38    29
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 1.00  1.00  1.00 0.86  0.14  1.00 0.58  0.42  1.00 1.00  1.00
Final Sat.:  1650 1650  1650  1650 1426   224  1650  949   701  1650 1650  1650
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.05 0.15  0.00  0.00 0.20  0.20  0.02 0.09  0.09  0.34 0.02  0.02
Crit Volume:   80                          324              153   553
Crit Moves:  ****                        ****             ****  ****
*******************************************************************************
```

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                         Pinole General Plan (P06-130)
                 Cumulative Preferred Land Use with No Road Diet
                                AM Peak Hour
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #8 Pinole Valley Rd/ Henry Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.574
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        54                Level Of Service:                  A
*******************************************************************************
Street Name:         Pinole Valley Rd                    Henry Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  1  0  1    1  0  1  1  0    0  0  1! 0  0    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     252  586    36     8  684   386    25    4    57    55    8    11
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  252  586    36     8  684   386    25    4    57    55    8    11
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   252  586    36     8  684   386    25    4    57    55    8    11
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  252  586    36     8  684   386    25    4    57    55    8    11
RTOR Reduct:    0    0    36     0    0     0     0    0     0     0    0     0
RTOR Vol:     252  586     0     8  684   386    25    4    57    55    8    11
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  252  586     0     8  684   386    25    4    57    55    8    11
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 1.00  1.00  1.00 1.28  0.72  0.29 0.05  0.66  0.74 0.11  0.15
Final Sat.:  1650 1650  1650  1650 2110  1190   480   77  1094  1226  178   245
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.15 0.36  0.00  0.00 0.32  0.32  0.05 0.05  0.05  0.04 0.04  0.04
Crit Volume:  252                   535                     86                74
Crit Moves:  ****                 ****                   ****              ****
*******************************************************************************
```

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                         Pinole General Plan (P06-130)
                 Cumulative Preferred Land Use with No Road Diet
                                AM Peak Hour
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                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #9 Pinole Valley Rd/ I-80 WB ramps
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.682
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        72                Level Of Service:                  B
*******************************************************************************
Street Name:         Pinole Valley Rd                    I-80 WB ramps
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        2  0  1  0  0    0  0  1  1  0    0  0  0  0  0    0  1  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     532  460     0     0  407   261     0    0     0   265  407   422
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  532  460     0     0  407   261     0    0     0   265  407   422
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   532  460     0     0  407   261     0    0     0   265  407   422
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  532  460     0     0  407   261     0    0     0   265  407   422
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:     532  460     0     0  407   261     0    0     0   265  407   422
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  532  460     0     0  407   261     0    0     0   265  407   422
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  0.91 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       2.00 1.00  0.00  0.00 1.22  0.78  0.00 0.00  0.00  0.48 0.74  0.78
Final Sat.:  3127 1720     0     0 2096  1344     0    0     0   833 1280  1327
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.17 0.27  0.00  0.00 0.19  0.19  0.00 0.00  0.00  0.32 0.32  0.32
Crit Volume:  266                   334                     0                 547
Crit Moves:  ****                 ****                                      ****
*******************************************************************************
```

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                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #10 Pinole Valley Rd/ I-80 EB ramps
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.706
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        78                Level Of Service:                  C
*******************************************************************************
Street Name:         Pinole Valley Rd                   I-80 EB ramps
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1  1  0    1  0  2  0  0    0  1  0  0  1    0  0  0  0  0
------------||---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0  948   326    85  567     0   191    1   492     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0  948   326    85  567     0   191    1   492     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0  948   326    85  567     0   191    1   492     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0  948   326    85  567     0   191    1   492     0    0     0
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:       0  948   326    85  567     0   191    1   492     0    0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    0  948   326    85  567     0   191    1   492     0    0     0
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 1.49  0.51  1.00 2.00  0.00  0.99 0.01  1.00  0.00 0.00  0.00
Final Sat.:     0 2560   880  1720 3440     0  1711    9  1720     0    0     0
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.37  0.37  0.05 0.16  0.00  0.11 0.11  0.29  0.00 0.00  0.00
Crit Volume:       637          85                          492          0
Crit Moves:       ****        ****                         ****
*******************************************************************************
```

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                                AM Peak Hour
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #11 Pinole Valley Rd/ Estates Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.485
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        36                Level Of Service:                  A
*******************************************************************************
Street Name:         Pinole Valley Rd                   Estates Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Permitted        Permitted
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  1  1  0    1  0  1  1  0    0  1  0  0  1    0  1  0  0  1
------------||---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      11  893    15    99  895    73   107    6    10    16   14   274
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   11  893    15    99  895    73   107    6    10    16   14   274
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    11  893    15    99  895    73   107    6    10    16   14   274
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   11  893    15    99  895    73   107    6    10    16   14   274
RTOR Reduct:    0    0     0     0    0     0     0    0    10     0    0    99
RTOR Vol:      11  893    15    99  895    73   107    6     0    16   14   175
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   11  893    15    99  895    73   107    6     0    16   14   175
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 1.97  0.03  1.00 1.85  0.15  0.95 0.05  1.00  0.53 0.47  1.00
Final Sat.:  1720 3383    57  1720 3181   259  1629   91  1720   917  803  1720
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.01 0.26  0.26  0.06 0.28  0.28  0.07 0.07  0.00  0.02 0.02  0.10
Crit Volume:             454    99              107                          175
Crit Moves:             ****  ****             ****                         ****
*******************************************************************************
```


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                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #12 Pinole Valley Rd/ Ramona St
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.337
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        22                Level Of Service:                  A
*******************************************************************************
Street Name:         Pinole Valley Rd                    Ramona St
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted        Permitted        Permitted
Rights:             Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  1  0  1  0    0  1  0  1  0    0  0  1! 0  0    0  1  0  0  1
------------||---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      27  504    50    62  447    62    88    1    22   130    9    87
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   27  504    50    62  447    62    88    1    22   130    9    87
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    27  504    50    62  447    62    88    1    22   130    9    87
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   27  504    50    62  447    62    88    1    22   130    9    87
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0    62
RTOR Vol:      27  504    50    62  447    62    88    1    22   130    9    25
PCE Adj:     2.00 1.00  1.00  2.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   54  504    50   124  447    62    88    1    22   130    9    25
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.10 1.74  0.16  0.24 1.56  0.20  0.79 0.01  0.20  0.94 0.06  1.00
Final Sat.:   175 3128   296   439 2809   353  1427   16   357  1683  117  1800
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.15 0.16  0.17  0.14 0.16  0.18  0.06 0.06  0.06  0.08 0.08  0.01
Crit Volume:             304    62                         111   130
Crit Moves:             ****  ****                       ****  ****
*******************************************************************************
```

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                         Pinole General Plan (P06-130)
                 Cumulative Preferred Land Use with No Road Diet
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                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #13 Appian Wy/ Mann Dr
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.550
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        41                Level Of Service:                  A
*******************************************************************************
Street Name:           Appian Wy                           Mann Dr
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted      Split Phase      Split Phase
Rights:             Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  1  0  1  0    0  0  1  1  0    0  0  1! 0  0    0  0  0  0  0
------------||---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     173  733     4     0  925    97    71    0   235     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  173  733     4     0  925    97    71    0   235     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   173  733     4     0  925    97    71    0   235     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  173  733     4     0  925    97    71    0   235     0    0     0
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:     173  733     4     0  925    97    71    0   235     0    0     0
PCE Adj:     4.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  692  733     4     0  925    97    71    0   235     0    0     0
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.88 1.11  0.01  0.00 1.81  0.19  0.23 0.00  0.77  0.00 0.00  0.00
Final Sat.:  1593 1997    10     0 3258   342   418    0  1382     0    0     0
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.11 0.37  0.40  0.00 0.28  0.28  0.17 0.00  0.17  0.00 0.00  0.00
Crit Volume:  173                         511              306          0
Crit Moves:  ****                        ****             ****
*******************************************************************************
```


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-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #14 Appian Wy/ Tara Hills Dr-Canyon Dr
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.951
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:       180                Level Of Service:                  E
*******************************************************************************
Street Name:            Appian Wy                  Tara Hills Dr-Canyon Dr
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        2  0  1  1  0    1  0  2  0  1    0  1  0  0  2    0  1  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     621  939    75    16  972    80   111    2   572   615   40   101
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  621  939    75    16  972    80   111    2   572   615   40   101
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   621  939    75    16  972    80   111    2   572   615   40   101
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  621  939    75    16  972    80   111    2   572   615   40   101
RTOR Reduct:    0    0     0     0    0    80     0    0   342     0    0    16
RTOR Vol:     621  939    75    16  972     0   111    2   230   615   40    85
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  621  939    75    16  972     0   111    2   230   615   40    85
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  0.91 1.00  1.00  1.00 1.00  1.00  1.00 1.00  0.91  1.00 1.00  1.00
Lanes:       2.00 1.85  0.15  1.00 2.00  1.00  0.98 0.02  2.00  1.00 1.00  1.00
Final Sat.:  3000 3056   244  1650 3300  1650  1621   29  3000  1650 1650  1650
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.21 0.31  0.31  0.01 0.29  0.00  0.07 0.07  0.08  0.37 0.02  0.05
Crit Volume:  311                   486                    115   615
Crit Moves:  ****                  ****                   ****  ****
*******************************************************************************
```

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                         Pinole General Plan (P06-130)
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                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #15 Appian Way/ I-80 WB ramps
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.942
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:       180                Level Of Service:                  E
*******************************************************************************
Street Name:            Appian Way                      I-80 WB ramps
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Split Phase      Split Phase
Rights:           Include          Ignore          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  2  0  0    0  0  2  0  1    0  0  0  0  0    1  1  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     518 1181     0     0 1404   853     0    0     0   727    1   321
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  518 1181     0     0 1404   853     0    0     0   727    1   321
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   518 1181     0     0 1404   853     0    0     0   727    1   321
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  518 1181     0     0 1404   853     0    0     0   727    1   321
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:     518 1181     0     0 1404   853     0    0     0   727    1   321
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  518 1181     0     0 1404   853     0    0     0   727    1   321
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  0.91 1.00  1.00
Lanes:       1.00 2.00  0.00  0.00 2.00  1.00  0.00 0.00  0.00  1.99 0.01  1.00
Final Sat.:  1720 3440     0     0 3440  1720     0    0     0  3123    5  1720
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.30 0.34  0.00  0.00 0.41  0.50  0.00 0.00  0.00  0.23 0.21  0.19
Crit Volume:  518                   702                    0    364
Crit Moves:  ****                  ****                        ****
*******************************************************************************
```


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                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #16 Appian Way/ I-80 EB ramps
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.678
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        58                Level Of Service:                  B
*******************************************************************************
Street Name:            Appian Way                     I-80 EB ramps
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted      Split Phase      Split Phase
Rights:             Include          Ignore          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1  1  1    0  0  2  0  1    1  1  0  0  1    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0 1056   522     0 1790   330   587    3   265     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0 1056   522     0 1790   330   587    3   265     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0 1056   522     0 1790   330   587    3   265     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0 1056   522     0 1790   330   587    3   265     0    0     0
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:       0 1056   522     0 1790   330   587    3   265     0    0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    0 1056   522     0 1790   330   587    3   265     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  0.91  1.00 1.00  1.00  0.91 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 2.00  1.00  0.00 2.00  1.00  1.99 0.01  1.00  0.00 0.00  0.00
Final Sat.:     0 3600  1636     0 3600  1800  3256   18  1800     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.29  0.32  0.00 0.50  0.18  0.18 0.16  0.15  0.00 0.00  0.00
Crit Volume:    0                   895         295                     0
Crit Moves:  ****                 ****        ****
*******************************************************************************
```

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                         Pinole General Plan (P06-130)
                 Cumulative Preferred Land Use with No Road Diet
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-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #17 Appian Wy/ Fitzgerald Dr-Sara Dr
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.727
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        84                Level Of Service:                  C
*******************************************************************************
Street Name:            Appian Way                  Fitzgerald Dr-Sara Dr
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected      Split Phase      Split Phase
Rights:           Include            Ovl          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        2  0  1  1  0    1  0  2  0  2    2  1  0  0  1    1  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     249 1151    23   137 1038   954   277   25   115   224  360    73
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  249 1151    23   137 1038   954   277   25   115   224  360    73
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   249 1151    23   137 1038   954   277   25   115   224  360    73
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  249 1151    23   137 1038   954   277   25   115   224  360    73
RTOR Reduct:    0    0     0     0    0   106     0    0   115     0    0    73
RTOR Vol:     249 1151    23   137 1038   848   277   25     0   224  360     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  249 1151    23   137 1038   848   277   25     0   224  360     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  0.91 1.00  1.00  1.00 1.00  0.91  0.87 1.00  1.00  1.00 1.00  1.00
Lanes:       2.00 1.96  0.04  1.00 2.00  2.00  2.75 0.25  1.00  1.00 1.00  1.00
Final Sat.:  3000 3235    65  1650 3300  3000  3950  410  1650  1650 1650  1650
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.08 0.36  0.36  0.08 0.31  0.28  0.07 0.06  0.00  0.14 0.22  0.00
Crit Volume:      587         137              101                   360
Crit Moves:      ****        ****             ****                  ****
*******************************************************************************
```


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-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #18 Oak Ridge Ln/ San Pablo Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.567
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        53                Level Of Service:                  A
*******************************************************************************
Street Name:           Oak Ridge Ln                    San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Split Phase      Split Phase       Protected        Protected
Rights:          Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1! 0  0    0  0  0  0  0    0  0  1  1  0    1  0  2  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      27    0    16     0    0     0     0 1283    10    16 1866     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   27    0    16     0    0     0     0 1283    10    16 1866     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    27    0    16     0    0     0     0 1283    10    16 1866     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   27    0    16     0    0     0     0 1283    10    16 1866     0
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:      27    0    16     0    0     0     0 1283    10    16 1866     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   27    0    16     0    0     0     0 1283    10    16 1866     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.63 0.00  0.37  0.00 0.00  0.00  0.00 1.98  0.02  1.00 2.00  0.00
Final Sat.:  1080    0   640     0    0     0     0 3413    27  1720 3440     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.03 0.00  0.03  0.00 0.00  0.00  0.00 0.38  0.38  0.01 0.54  0.00
Crit Volume:               43           0           0                   933
Crit Moves:               ****                    ****                   ****
*******************************************************************************
```

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                         Pinole General Plan (P06-130)
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-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #19 Fernandez Ave/ San Pablo Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.599
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        36                Level Of Service:                  A
*******************************************************************************
Street Name:          Fernandez Ave                    San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Permitted        Permitted        Permitted        Permitted
Rights:          Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    0  1  0  1  0    0  1  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       9    0     9     1    0     2     1 1330    17    42 1863     1
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    9    0     9     1    0     2     1 1330    17    42 1863     1
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     9    0     9     1    0     2     1 1330    17    42 1863     1
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    9    0     9     1    0     2     1 1330    17    42 1863     1
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:       9    0     9     1    0     2     1 1330    17    42 1863     1
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  6.00 1.00  1.00  6.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    9    0     9     1    0     2     6 1330    17   252 1863     1
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.50 0.00  0.50  0.33 0.00  0.67  0.01 1.97  0.02  0.05 1.94  0.01
Final Sat.:   900    0   900   600    0  1200     3 3552    45    89 3509     2
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.01 0.00  0.01  0.00 0.00  0.00  0.37 0.37  0.38  0.47 0.53  0.59
Crit Volume:               18     1                 1                        1058
Crit Moves:               ****  ****              ****                       ****
*******************************************************************************
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-------------------------------------------------------------------------------
                       Level Of Service Computation Report
                    CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #20 John St/ San Pablo Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.704
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        49                Level Of Service:                  C
*******************************************************************************
Street Name:             John St                        San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted        Permitted        Permitted        Permitted
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  0  0  1    0  0  0  0  0    0  0  1  1  0    0  0  2  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     3     0    0     0     0 1367     3     0 2527     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     3     0    0     0     0 1367     3     0 2527     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0    0     3     0    0     0     0 1367     3     0 2527     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0    0     3     0    0     0     0 1367     3     0 2527     0
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:       0    0     3     0    0     0     0 1367     3     0 2527     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    0    0     3     0    0     0     0 1367     3     0 2527     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 0.00  1.00  0.00 0.00  0.00  0.00 1.99  0.01  0.00 2.00  0.00
Final Sat.:     0    0  1800     0    0     0     0 3592     8     0 3600     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.38  0.38  0.00 0.70  0.00
Crit Volume:                3     0                 0                   1264
Crit Moves:              ****                   ****                   ****
*******************************************************************************

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```

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Cumulative PM Preferred ProTue Apr 20, 2010 11:54:31                Page 1-1
-------------------------------------------------------------------------------
                          Pinole General Plan (P06-130)
                 Cumulative Preferred Land Use with No Road Diet
                                  PM Peak Hour
-------------------------------------------------------------------------------
                                Scenario Report
Scenario:             Cumulative PM Preferred Project - No RdDiet

Command:              Cumulative PM PP - No RdDiet
Volume:               Cumulative PM PP - NoRdDiet
Geometry:             Cumulatiive
Impact Fee:           Default Impact Fee
Trip Generation:      Default Trip Generation
Trip Distribution:    Default Trip Distribution
Paths:                Default Path
Routes:               Default Route
Configuration:        Default Configuration

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Cumulative PM Preferred ProTue Apr 20, 2010 11:54:31 Page 2-1

Pinole General Plan (P06-130)
Cumulative Preferred Land Use with No Road Diet
PM Peak Hour

Turning Movement Report

Volume	Northbound			Southbound			Eastbound			Westbound			Total
Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Volume
#1 Del Monte Dr/eSan Pablo Ave													
Base	4	2	14	58	2	76	192	1284	31	35	1123	39	2860
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	4	2	14	58	2	76	192	1284	31	35	1123	39	2860
#2 Pinole Shores Dr/ San Pablo Ave													
Base	3	0	8	69	0	37	51	1259	19	12	1159	86	2703
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	3	0	8	69	0	37	51	1259	19	12	1159	86	2703
#3 Sunnyview Dr/ San Pablo Ave													
Base	23	7	25	90	10	48	77	1228	33	36	1207	51	2835
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	23	7	25	90	10	48	77	1228	33	36	1207	51	2835
#4 Appian Wy-Pinon Ave/ San Pablo Ave													
Base	331	122	386	86	80	35	18	1097	173	771	909	124	4132
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	331	122	386	86	80	35	18	1097	173	771	909	124	4132
#5 Tennent Ave/ San Pablo Ave													
Base	158	64	93	46	35	28	28	1374	205	168	1607	62	3868
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	158	64	93	46	35	28	28	1374	205	168	1607	62	3868
#6 Pinole Valley Rd/ San Pablo Ave													
Base	34	9	445	7	7	9	10	1534	6	234	1774	10	4079
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	34	9	445	7	7	9	10	1534	6	234	1774	10	4079
#7 Tennent Ave/ Pinole Valley Rd													
Base	9	345	427	40	362	4	3	2	9	239	8	33	1481
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	9	345	427	40	362	4	3	2	9	239	8	33	1481
#8 Pinole Valley Rd/ Henry Ave													
Base	77	514	92	12	509	28	196	10	121	55	3	11	1628
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	77	514	92	12	509	28	196	10	121	55	3	11	1628
#9 Pinole Valley Rd/ I-80 WB ramps													
Base	506	583	0	0	483	219	0	0	0	361	1	80	2233
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	506	583	0	0	483	219	0	0	0	361	1	80	2233

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Cumulative PM Preferred ProTue Apr 20, 2010 11:54:31 Page 2-2

Pinole General Plan (P06-130)
Cumulative Preferred Land Use with No Road Diet
PM Peak Hour

Volume	Northbound			Southbound			Eastbound			Westbound			Total
Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Volume
#10 Pinole Valley Rd/ I-80 EB ramps													
Base	0	702	454	302	572	0	447	94	637	0	0	0	3208
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	702	454	302	572	0	447	94	637	0	0	0	3208
#11 Pinole Valley Rd/ Estates Ave													
Base	21	794	29	213	810	187	192	13	11	16	12	133	2431
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	21	794	29	213	810	187	192	13	11	16	12	133	2431
#12 Pinole Valley Rd/ Ramona St													
Base	17	516	68	148	568	14	42	4	6	31	8	54	1476
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	17	516	68	148	568	14	42	4	6	31	8	54	1476
#13 Appian Wy/ Mann Dr													
Base	244	932	0	0	883	66	36	0	100	0	0	0	2261
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	244	932	0	0	883	66	36	0	100	0	0	0	2261
#14 Appian Wy/ Tara Hills Dr-Canyon Dr													
Base	630	924	270	33	959	94	178	50	685	101	30	10	3964
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	630	924	270	33	959	94	178	50	685	101	30	10	3964
#15 Appian Way/ I-80 WB ramps													
Base	349	1438	0	0	1141	538	0	0	0	546	9	326	4347
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	349	1438	0	0	1141	538	0	0	0	546	9	326	4347
#16 Appian Way/ I-80 EB ramps													
Base	0	1356	1070	0	1292	549	571	258	247	0	0	0	5343
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1356	1070	0	1292	549	571	258	247	0	0	0	5343
#17 Appian Wy/ Fitzgerald Dr-Sara Dr													
Base	363	969	62	237	727	644	1350	154	504	58	94	95	5257
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	363	969	62	237	727	644	1350	154	504	58	94	95	5257
#18 Oak Ridge Ln/ San Pablo Ave													
Base	16	0	12	0	0	0	0	1575	11	16	1822	0	3452
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	16	0	12	0	0	0	0	1575	11	16	1822	0	3452

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Cumulative PM Preferred ProTue Apr 20, 2010 11:54:31 Page 2-3

Pinole General Plan (P06-130)
Cumulative Preferred Land Use with No Road Diet
PM Peak Hour

Volume Type	Northbound Left	Thru	Right	Southbound Left	Thru	Right	Eastbound Left	Thru	Right	Westbound Left	Thru	Right	Total Volume
#19 Fernandez Ave/ San Pablo Ave													
Base	22	2	43	18	0	21	14	1441	22	38	1762	12	3395
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	22	2	43	18	0	21	14	1441	22	38	1762	12	3395
#20 John St/ San Pablo Ave													
Base	0	0	23	0	0	0	0	1977	3	0	2043	0	4046
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	23	0	0	0	0	1977	3	0	2043	0	4046
#21													
Base	10	5	10	22	5	21	10	1561	10	10	1807	18	3489
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	10	5	10	22	5	21	10	1561	10	10	1807	18	3489

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Pinole General Plan (P06-130)
Cumulative Preferred Land Use with No Road Diet
PM Peak Hour

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Del/ Veh	V/ C	Future LOS	Del/ Veh	V/ C	Change in V/C
# 1 Del Monte Dr/eSan Pablo Ave	A	xxxxx	0.551	A	xxxxx	0.551	+ 0.000
# 2 Pinole Shores Dr/ San Pablo Av	A	xxxxx	0.438	A	xxxxx	0.438	+ 0.000
# 3 Sunnyview Dr/ San Pablo Ave	A	xxxxx	0.510	A	xxxxx	0.510	+ 0.000
# 4 Appian Wy-Pinon Ave/ San Pablo	F	xxxxx	1.113	F	xxxxx	1.113	+ 0.000
# 5 Tennent Ave/ San Pablo Ave	B	xxxxx	0.682	B	xxxxx	0.682	+ 0.000
# 6 Pinole Valley Rd/ San Pablo Av	D	xxxxx	0.849	D	xxxxx	0.849	+ 0.000
# 7 Tennent Ave/ Pinole Valley Rd	A	xxxxx	0.379	A	xxxxx	0.379	+ 0.000
# 8 Pinole Valley Rd/ Henry Ave	A	xxxxx	0.559	A	xxxxx	0.559	+ 0.000
# 9 Pinole Valley Rd/ I-80 WB ramp	A	xxxxx	0.576	A	xxxxx	0.576	+ 0.000
# 10 Pinole Valley Rd/ I-80 EB ramp	D	xxxxx	0.882	D	xxxxx	0.882	+ 0.000
# 11 Pinole Valley Rd/ Estates Ave	A	xxxxx	0.492	A	xxxxx	0.492	+ 0.000
# 12 Pinole Valley Rd/ Ramona St	A	xxxxx	0.300	A	xxxxx	0.300	+ 0.000
# 13 Appian Wy/ Mann Dr	A	xxxxx	0.475	A	xxxxx	0.475	+ 0.000
# 14 Appian Wy/ Tara Hills Dr-Canyo	C	xxxxx	0.700	C	xxxxx	0.700	+ 0.000
# 15 Appian Way/ I-80 WB ramps	C	xxxxx	0.724	C	xxxxx	0.724	+ 0.000
# 16 Appian Way/ I-80 EB ramps	C	xxxxx	0.748	C	xxxxx	0.748	+ 0.000
# 17 Appian Wy/ Fitzgerald Dr-Sara	D	xxxxx	0.862	D	xxxxx	0.862	+ 0.000
# 18 Oak Ridge Ln/ San Pablo Ave	A	xxxxx	0.546	A	xxxxx	0.546	+ 0.000
# 19 Fernandez Ave/ San Pablo Ave	B	xxxxx	0.611	B	xxxxx	0.611	+ 0.000
# 20 John St/ San Pablo Ave	A	xxxxx	0.580	A	xxxxx	0.580	+ 0.000

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Cumulative PM Preferred ProTue Apr 20, 2010 11:54:31                 Page 4-1
-------------------------------------------------------------------------------
                         Pinole General Plan (P06-130)
                Cumulative Preferred Land Use with No Road Diet
                                PM Peak Hour
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #1 Del Monte Dr/eSan Pablo Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.551
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        51                Level Of Service:                  A
*******************************************************************************
Street Name:           Del Monte Dr                    San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Split Phase      Split Phase       Protected        Protected
Rights:          Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    1  0  2  0  1    1  0  2  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       4    2    14    58    2    76   192 1284    31    35 1123    39
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    4    2    14    58    2    76   192 1284    31    35 1123    39
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     4    2    14    58    2    76   192 1284    31    35 1123    39
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    4    2    14    58    2    76   192 1284    31    35 1123    39
RTOR Reduct:    0    0     0     0    0     0     0    0     4     0    0    39
RTOR Vol:       4    2    14    58    2    76   192 1284    27    35 1123     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    4    2    14    58    2    76   192 1284    27    35 1123     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.20 0.10  0.70  0.43 0.01  0.56  1.00 2.00  1.00  1.00 2.00  1.00
Final Sat.:   330  165  1155   704   24   922  1650 3300  1650  1650 3300  1650
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.01 0.01  0.01  0.08 0.08  0.08  0.12 0.39  0.02  0.02 0.34  0.00
Crit Volume:        20                     136   192                    562
Crit Moves:       ****                    ****  ****                   ****
*******************************************************************************
```

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Cumulative PM Preferred ProTue Apr 20, 2010 11:54:31                 Page 5-1
-------------------------------------------------------------------------------
                         Pinole General Plan (P06-130)
                Cumulative Preferred Land Use with No Road Diet
                                PM Peak Hour
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #2 Pinole Shores Dr/ San Pablo Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.438
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        33                Level Of Service:                  A
*******************************************************************************
Street Name:         Pinole Shores Dr                  San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Permitted        Permitted        Protected        Protected
Rights:          Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1! 0  0    1  0  0  0  1    1  0  1  1  0    1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       3    0     8    69    0    37    51 1259    19    12 1159    86
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    3    0     8    69    0    37    51 1259    19    12 1159    86
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     3    0     8    69    0    37    51 1259    19    12 1159    86
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    3    0     8    69    0    37    51 1259    19    12 1159    86
RTOR Reduct:    0    0     0     0    0    37     0    0     0     0    0     0
RTOR Vol:       3    0     8    69    0     0    51 1259    19    12 1159    86
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    3    0     8    69    0     0    51 1259    19    12 1159    86
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.27 0.00  0.73  1.00 0.00  1.00  1.00 1.97  0.03  1.00 1.86  0.14
Final Sat.:   469    0  1251  1720    0  1720  1720 3389    51  1720 3202   238
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.01 0.00  0.01  0.04 0.00  0.00  0.03 0.37  0.37  0.01 0.36  0.36
Crit Volume:                11    69                 51                   623
Crit Moves:               ****  ****               ****                   ****
*******************************************************************************
```


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Cumulative PM Preferred ProTue Apr 20, 2010 11:54:31                 Page 6-1
-------------------------------------------------------------------------------
                         Pinole General Plan (P06-130)
                 Cumulative Preferred Land Use with No Road Diet
                                PM Peak Hour
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #3 Sunnyview Dr/ San Pablo Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.510
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        38                Level Of Service:                  A
*******************************************************************************
Street Name:           Sunnyview Dr                    San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted        Protected        Protected
Rights:             Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    1  0  1  1  0    1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      23    7    25    90   10    48    77 1228    33    36 1207    51
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   23    7    25    90   10    48    77 1228    33    36 1207    51
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    23    7    25    90   10    48    77 1228    33    36 1207    51
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   23    7    25    90   10    48    77 1228    33    36 1207    51
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:      23    7    25    90   10    48    77 1228    33    36 1207    51
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   23    7    25    90   10    48    77 1228    33    36 1207    51
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.42 0.13  0.45  0.61 0.07  0.32  1.00 1.95  0.05  1.00 1.92  0.08
Final Sat.:   719  219   782  1046  116   558  1720 3350    90  1720 3301   139
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.03 0.03  0.03  0.09 0.09  0.09  0.04 0.37  0.37  0.02 0.37  0.37
Crit Volume:   23                         148    77                   629
Crit Moves:  ****                        ****  ****                 ****
*******************************************************************************
```

```
Cumulative PM Preferred ProTue Apr 20, 2010 11:54:31                 Page 7-1
-------------------------------------------------------------------------------
                         Pinole General Plan (P06-130)
                 Cumulative Preferred Land Use with No Road Diet
                                PM Peak Hour
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #4 Appian Wy-Pinon Ave/ San Pablo Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         1.113
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:       180                Level Of Service:                  F
*******************************************************************************
Street Name:       Appian Wy-Pinon Ave                  San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted        Protected        Protected
Rights:             Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  0  1  0    1  0  0  1  0    1  0  2  0  1    1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     331  122   386    86   80    35    18 1097   173   771  909   124
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  331  122   386    86   80    35    18 1097   173   771  909   124
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   331  122   386    86   80    35    18 1097   173   771  909   124
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  331  122   386    86   80    35    18 1097   173   771  909   124
RTOR Reduct:    0    0     0     0    0     0     0    0   173     0    0     0
RTOR Vol:     331  122   386    86   80    35    18 1097     0   771  909   124
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  331  122   386    86   80    35    18 1097     0   771  909   124
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.24  0.76  1.00 0.70  0.30  1.00 2.00  1.00  1.00 1.76  0.24
Final Sat.:  1720  413  1307  1720 1197   523  1720 3440  1720  1720 3027   413
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.19 0.30  0.30  0.05 0.07  0.07  0.01 0.32  0.00  0.45 0.30  0.30
Crit Volume:             508    86                   549         771
Crit Moves:             ****  ****                 ****        ****
*******************************************************************************
```


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Cumulative PM Preferred ProTue Apr 20, 2010 11:54:31                 Page 8-1
-------------------------------------------------------------------------------
                         Pinole General Plan (P06-130)
                 Cumulative Preferred Land Use with No Road Diet
                                PM Peak Hour
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #5 Tennent Ave/ San Pablo Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.682
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        45                Level Of Service:                  B
*******************************************************************************
Street Name:           Tennent Ave                     San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted        Permitted        Permitted
Rights:             Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  0  1  0    0  0  1! 0  0    0  1  1  0  1    0  1  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     158   64    93    46   35    28    28 1374   205   168 1607    62
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  158   64    93    46   35    28    28 1374   205   168 1607    62
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   158   64    93    46   35    28    28 1374   205   168 1607    62
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  158   64    93    46   35    28    28 1374   205   168 1607    62
RTOR Reduct:    0    0     0     0    0     0     0    0   158     0    0     0
RTOR Vol:     158   64    93    46   35    28   168 1374    47   1008 1607    62
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  6.00 1.00  1.00  6.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  158   64    93    46   35    28   168 1374    47   1008 1607    62
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.41  0.59  0.42 0.32  0.26  0.27 1.73  1.00  0.34 1.62  0.04
Final Sat.:  1800  734  1066   760  578   462   479 3121  1800   607 2910    83
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.09 0.09  0.09  0.06 0.06  0.06  0.06 0.44  0.03  0.28 0.55  0.74
Crit Volume:  158                  109              792         168
Crit Moves:  ****                 ****             ****        ****
*******************************************************************************
```

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Cumulative PM Preferred ProTue Apr 20, 2010 11:54:31                 Page 9-1
-------------------------------------------------------------------------------
                         Pinole General Plan (P06-130)
                 Cumulative Preferred Land Use with No Road Diet
                                PM Peak Hour
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #6 Pinole Valley Rd/ San Pablo Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.849
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        96                Level Of Service:                  D
*******************************************************************************
Street Name:         Pinole Valley Rd                  San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted        Permitted        Permitted
Rights:             Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    0  1  0  1  0    0  1  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      34    9   445     7    7     9    10 1534     6   234 1774    10
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   34    9   445     7    7     9    10 1534     6   234 1774    10
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    34    9   445     7    7     9    10 1534     6   234 1774    10
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   34    9   445     7    7     9    10 1534     6   234 1774    10
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:      34    9   445     7    7     9    10 1534     6   234 1774    10
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  6.00 1.00  1.00  6.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   34    9   445     7    7     9    60 1534     6   1404 1774    10
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.07 0.02  0.91  0.30 0.30  0.40  0.01 1.98  0.01  0.55 1.44  0.01
Final Sat.:   125   33  1641   548  548   704    24 3563    14   993 2595    11
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.27 0.27  0.27  0.01 0.01  0.01  0.42 0.43  0.44  0.24 0.68  0.89
Crit Volume:  488                  7                        800   234
Crit Moves:  ****                ****                      ****  ****
*******************************************************************************
```


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                         Pinole General Plan (P06-130)
                 Cumulative Preferred Land Use with No Road Diet
                                PM Peak Hour
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #7 Tennent Ave/ Pinole Valley Rd
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.379
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        37                Level Of Service:                  A
*******************************************************************************
Street Name:           Tennent Ave                     Pinole Valley Rd
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  1  0  1    1  0  0  1  0    1  0  0  1  0    1  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       9  345   427    40  362     4     3    2     9   239    8    33
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    9  345   427    40  362     4     3    2     9   239    8    33
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     9  345   427    40  362     4     3    2     9   239    8    33
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    9  345   427    40  362     4     3    2     9   239    8    33
RTOR Reduct:    0    0   239     0    0     0     0    0     0     0    0    33
RTOR Vol:       9  345   188    40  362     4     3    2     9   239    8     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    9  345   188    40  362     4     3    2     9   239    8     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 1.00  1.00  1.00 0.99  0.01  1.00 0.18  0.82  1.00 1.00  1.00
Final Sat.:  1650 1650  1650  1650 1632    18  1650  300  1350  1650 1650  1650
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.01 0.21  0.11  0.02 0.22  0.22  0.00 0.01  0.01  0.14 0.00  0.00
Crit Volume:    9                   366               11         239
Crit Moves:  ****                ****             ****        ****
*******************************************************************************
```

```
Cumulative PM Preferred ProTue Apr 20, 2010 11:54:31                Page 11-1
-------------------------------------------------------------------------------
                         Pinole General Plan (P06-130)
                 Cumulative Preferred Land Use with No Road Diet
                                PM Peak Hour
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #8 Pinole Valley Rd/ Henry Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.559
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        52                Level Of Service:                  A
*******************************************************************************
Street Name:         Pinole Valley Rd                     Henry Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  1  0  1    1  0  1  1  0    0  0  1! 0  0    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      77  514    92    12  509    28   196   10   121    55    3    11
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   77  514    92    12  509    28   196   10   121    55    3    11
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    77  514    92    12  509    28   196   10   121    55    3    11
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   77  514    92    12  509    28   196   10   121    55    3    11
RTOR Reduct:    0    0    55     0    0     0     0    0     0     0    0     0
RTOR Vol:      77  514    37    12  509    28   196   10   121    55    3    11
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   77  514    37    12  509    28   196   10   121    55    3    11
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 1.00  1.00  1.00 1.90  0.10  0.60 0.03  0.37  0.80 0.04  0.16
Final Sat.:  1650 1650  1650  1650 3128   172   989   50   611  1315   72   263
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.05 0.31  0.02  0.01 0.16  0.16  0.20 0.20  0.20  0.04 0.04  0.04
Crit Volume:       514          12                        327         69
Crit Moves:       ****        ****                      ****       ****
*******************************************************************************
```


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                         Pinole General Plan (P06-130)
                 Cumulative Preferred Land Use with No Road Diet
                                 PM Peak Hour
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #9 Pinole Valley Rd/ I-80 WB ramps
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.576
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        54                Level Of Service:                  A
*******************************************************************************
Street Name:         Pinole Valley Rd                   I-80 WB ramps
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        2  0  1  0  0    0  0  1  1  0    0  0  0  0  0    0  1  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     506  583     0     0  483   219     0    0     0   361    1    80
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  506  583     0     0  483   219     0    0     0   361    1    80
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   506  583     0     0  483   219     0    0     0   361    1    80
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  506  583     0     0  483   219     0    0     0   361    1    80
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:     506  583     0     0  483   219     0    0     0   361    1    80
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  506  583     0     0  483   219     0    0     0   361    1    80
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  0.91 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       2.00 1.00  0.00  0.00 1.38  0.62  0.00 0.00  0.00  1.00 0.64  0.36
Final Sat.:  3127 1720     0     0 2367  1073     0    0     0  1720 1097   623
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.16 0.34  0.00  0.00 0.20  0.20  0.00 0.00  0.00  0.21 0.00  0.13
Crit Volume:  253                        351          0         361
Crit Moves:  ****                       ****                   ****
*******************************************************************************
```

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Cumulative PM Preferred ProTue Apr 20, 2010 11:54:32                Page 13-1
-------------------------------------------------------------------------------
                         Pinole General Plan (P06-130)
                 Cumulative Preferred Land Use with No Road Diet
                                 PM Peak Hour
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #10 Pinole Valley Rd/ I-80 EB ramps
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.882
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:       180                Level Of Service:                  D
*******************************************************************************
Street Name:         Pinole Valley Rd                   I-80 EB ramps
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1  1  0    1  0  2  0  0    0  1  0  0  1    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0  702   454   302  572     0   447   94   637     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0  702   454   302  572     0   447   94   637     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0  702   454   302  572     0   447   94   637     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0  702   454   302  572     0   447   94   637     0    0     0
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:       0  702   454   302  572     0   447   94   637     0    0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    0  702   454   302  572     0   447   94   637     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 1.21  0.79  1.00 2.00  0.00  0.83 0.17  1.00  0.00 0.00  0.00
Final Sat.:     0 2089  1351  1720 3440     0  1421  299  1720     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.34  0.34  0.18 0.17  0.00  0.31 0.31  0.37  0.00 0.00  0.00
Crit Volume:             578   302                        637          0
Crit Moves:             ****  ****                       ****
*******************************************************************************
```


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                         Pinole General Plan (P06-130)
                 Cumulative Preferred Land Use with No Road Diet
                                PM Peak Hour
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #11 Pinole Valley Rd/ Estates Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.492
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        37                Level Of Service:                  A
*******************************************************************************
Street Name:         Pinole Valley Rd                    Estates Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected         Permitted        Permitted
Rights:           Include          Include           Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  1  1  0    1  0  1  1  0    0  1  0  0  1    0  1  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      21  794    29   213  810   187   192   13    11    16   12   133
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   21  794    29   213  810   187   192   13    11    16   12   133
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    21  794    29   213  810   187   192   13    11    16   12   133
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   21  794    29   213  810   187   192   13    11    16   12   133
RTOR Reduct:    0    0     0     0    0     0     0    0    11     0    0   133
RTOR Vol:      21  794    29   213  810   187   192   13     0    16   12     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   21  794    29   213  810   187   192   13     0    16   12     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 1.93  0.07  1.00 1.62  0.38  0.94 0.06  1.00  0.57 0.43  1.00
Final Sat.:  1720 3319   121  1720 2795   645  1611  109  1720   983  737  1720
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.01 0.24  0.24  0.12 0.29  0.29  0.12 0.12  0.00  0.02 0.02  0.00
Crit Volume:       412         213                   205          16
Crit Moves:       ****        ****                  ****        ****
*******************************************************************************
```

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                         Pinole General Plan (P06-130)
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                                PM Peak Hour
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #12 Pinole Valley Rd/ Ramona St
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.300
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        21                Level Of Service:                  A
*******************************************************************************
Street Name:         Pinole Valley Rd                    Ramona St
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Permitted        Permitted         Permitted        Permitted
Rights:           Include          Include           Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  1  0  1  0    0  1  0  1  0    0  0  1! 0  0    0  1  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      17  516    68   148  568    14    42    4     6    31    8    54
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   17  516    68   148  568    14    42    4     6    31    8    54
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    17  516    68   148  568    14    42    4     6    31    8    54
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   17  516    68   148  568    14    42    4     6    31    8    54
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0    54
RTOR Vol:      17  516    68   148  568    14    42    4     6    31    8     0
PCE Adj:     2.00 1.00  1.00  2.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   34  516    68   296  568    14    42    4     6    31    8     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.06 1.72  0.22  0.51 1.46  0.03  0.81 0.08  0.11  0.79 0.21  1.00
Final Sat.:   105 3099   396   915 2627    57  1454  138   208  1431  369  1800
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.16 0.17  0.17  0.16 0.22  0.24  0.03 0.03  0.03  0.02 0.02  0.00
Crit Volume:             309   148                          52    31
Crit Moves:             ****  ****                        ****  ****
*******************************************************************************
```

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                         Pinole General Plan (P06-130)
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                                PM Peak Hour
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #13 Appian Wy/ Mann Dr
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.475
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        35                Level Of Service:                  A
*******************************************************************************
Street Name:            Appian Wy                         Mann Dr
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted      Split Phase      Split Phase
Rights:             Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  1  1  0  0    0  0  1  1  0    0  0  1! 0  0    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     244  932     0     0  883    66    36    0   100     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  244  932     0     0  883    66    36    0   100     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   244  932     0     0  883    66    36    0   100     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  244  932     0     0  883    66    36    0   100     0    0     0
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:     244  932     0     0  883    66    36    0   100     0    0     0
PCE Adj:     4.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  976  932     0     0  883    66    36    0   100     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 1.00  0.00  0.00 1.86  0.14  0.26 0.00  0.74  0.00 0.00  0.00
Final Sat.:  1800 1800     0     0 3350   250   476    0  1324     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.14 0.52  0.00  0.00 0.26  0.26  0.08 0.00  0.08  0.00 0.00  0.00
Crit Volume:  244                   475                    136          0
Crit Moves:  ****                  ****                   ****
*******************************************************************************
```

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                         Pinole General Plan (P06-130)
                 Cumulative Preferred Land Use with No Road Diet
                                PM Peak Hour
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #14 Appian Wy/ Tara Hills Dr-Canyon Dr
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.700
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        76                Level Of Service:                  C
*******************************************************************************
Street Name:            Appian Wy                  Tara Hills Dr-Canyon Dr
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected      Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        2  0  1  1  0    1  0  2  0  1    0  1  0  0  2    0  1  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     630  924   270    33  959    94   178   50   685   101   30    10
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  630  924   270    33  959    94   178   50   685   101   30    10
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   630  924   270    33  959    94   178   50   685   101   30    10
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  630  924   270    33  959    94   178   50   685   101   30    10
RTOR Reduct:    0    0     0     0    0    94     0    0   347     0    0    10
RTOR Vol:     630  924   270    33  959     0   178   50   339   101   30     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  630  924   270    33  959     0   178   50   339   101   30     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  0.91 1.00  1.00  1.00 1.00  1.00  1.00 1.00  0.91  1.00 1.00  1.00
Lanes:       2.00 1.55  0.45  1.00 2.00  1.00  0.78 0.22  2.00  1.00 1.00  1.00
Final Sat.:  3000 2554   746  1650 3300  1650  1288  362  3000  1650 1650  1650
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.21 0.36  0.36  0.02 0.29  0.00  0.14 0.14  0.11  0.06 0.02  0.00
Crit Volume:  315                   480              228          101
Crit Moves:  ****                  ****             ****         ****
*******************************************************************************
```


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                 Cumulative Preferred Land Use with No Road Diet
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-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #15 Appian Way/ I-80 WB ramps
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.724
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        83                Level Of Service:                  C
*******************************************************************************
Street Name:            Appian Way                     I-80 WB ramps
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Split Phase      Split Phase
Rights:           Include          Ignore          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        1  0  2  0  0    0  0  2  0  1    0  0  0  0  0    1  1  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     349 1438     0     0 1141   538     0    0     0   546    9   326
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  349 1438     0     0 1141   538     0    0     0   546    9   326
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   349 1438     0     0 1141   538     0    0     0   546    9   326
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  349 1438     0     0 1141   538     0    0     0   546    9   326
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:     349 1438     0     0 1141   538     0    0     0   546    9   326
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  349 1438     0     0 1141   538     0    0     0   546    9   326
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  0.91 1.00  1.00
Lanes:       1.00 2.00  0.00  0.00 2.00  1.00  0.00 0.00  0.00  1.97 0.03  1.00
Final Sat.:  1720 3440     0     0 3440  1720     0    0     0  3076   56  1720
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.20 0.42  0.00  0.00 0.33  0.31  0.00 0.00  0.00  0.18 0.16  0.19
Crit Volume:  349                   571                 0                    326
Crit Moves:  ****                  ****                                     ****
*******************************************************************************
```

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                         Pinole General Plan (P06-130)
                 Cumulative Preferred Land Use with No Road Diet
                                 PM Peak Hour
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #16 Appian Way/ I-80 EB ramps
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.748
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        74                Level Of Service:                  C
*******************************************************************************
Street Name:            Appian Way                     I-80 EB ramps
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Permitted        Permitted       Split Phase      Split Phase
Rights:           Include          Ignore          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1  1  1    0  0  2  0  1    1  1  0  0  1    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0 1356  1070     0 1292   549   571  258   247     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0 1356  1070     0 1292   549   571  258   247     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0 1356  1070     0 1292   549   571  258   247     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0 1356  1070     0 1292   549   571  258   247     0    0     0
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:       0 1356  1070     0 1292   549   571  258   247     0    0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    0 1356  1070     0 1292   549   571  258   247     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  0.91  1.00 1.00  1.00  0.91 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 1.68  1.32  0.00 2.00  1.00  1.38 0.62  1.00  0.00 0.00  0.00
Final Sat.:     0 3018  2165     0 3600  1800  2254 1120  1800     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.45  0.49  0.00 0.36  0.31  0.25 0.23  0.14  0.00 0.00  0.00
Crit Volume:             809     0              414                      0
Crit Moves:             ****  ****             ****
*******************************************************************************
```


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-------------------------------------------------------------------------------
                         Pinole General Plan (P06-130)
                 Cumulative Preferred Land Use with No Road Diet
                                PM Peak Hour
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #17 Appian Wy/ Fitzgerald Dr-Sara Dr
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.862
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:       166                Level Of Service:                  D
*******************************************************************************
Street Name:            Appian Way                  Fitzgerald Dr-Sara Dr
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Split Phase      Split Phase
Rights:           Include           Ovl            Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        2  0  1  1  0    1  0  2  0  2    2  1  0  0  1    1  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     363  969    62   237  727   644  1350  154   504    58   94    95
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  363  969    62   237  727   644  1350  154   504    58   94    95
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   363  969    62   237  727   644  1350  154   504    58   94    95
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  363  969    62   237  727   644  1350  154   504    58   94    95
RTOR Reduct:    0    0     0     0    0   518     0    0   200     0    0    95
RTOR Vol:     363  969    62   237  727   127  1350  154   304    58   94     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  363  969    62   237  727   127  1350  154   304    58   94     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  0.91 1.00  1.00  1.00 1.00  0.91  0.87 1.00  1.00  1.00 1.00  1.00
Lanes:       2.00 1.88  0.12  1.00 2.00  2.00  2.69 0.31  1.00  1.00 1.00  1.00
Final Sat.:  3000 3102   198  1650 3300  3000  3866  507  1650  1650 1650  1650
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.12 0.31  0.31  0.14 0.22  0.04  0.35 0.30  0.18  0.04 0.06  0.00
Crit Volume:       516         237              501                    94
Crit Moves:       ****        ****             ****                  ****
*******************************************************************************

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Cumulative PM Preferred ProTue Apr 20, 2010 11:54:32                Page 21-1
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                         Pinole General Plan (P06-130)
                 Cumulative Preferred Land Use with No Road Diet
                                PM Peak Hour
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #18 Oak Ridge Ln/ San Pablo Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.546
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        50                Level Of Service:                  A
*******************************************************************************
Street Name:           Oak Ridge Ln                     San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Split Phase      Split Phase       Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1! 0  0    0  0  0  0  0    0  0  1  1  0    1  0  2  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      16    0    12     0    0     0     0 1575    11    16 1822     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   16    0    12     0    0     0     0 1575    11    16 1822     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    16    0    12     0    0     0     0 1575    11    16 1822     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   16    0    12     0    0     0     0 1575    11    16 1822     0
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:      16    0    12     0    0     0     0 1575    11    16 1822     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   16    0    12     0    0     0     0 1575    11    16 1822     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.57 0.00  0.43  0.00 0.00  0.00  0.00 1.99  0.01  1.00 2.00  0.00
Final Sat.:   983    0   737     0    0     0     0 3416    24  1720 3440     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.02 0.00  0.02  0.00 0.00  0.00  0.00 0.46  0.46  0.01 0.53  0.00
Crit Volume:              28          0           0                   911
Crit Moves:              ****                    ****                  ****
*******************************************************************************

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Cumulative PM Preferred ProTue Apr 20, 2010 11:54:32                Page 22-1
-------------------------------------------------------------------------------
                         Pinole General Plan (P06-130)
                 Cumulative Preferred Land Use with No Road Diet
                                PM Peak Hour
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #19 Fernandez Ave/ San Pablo Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.611
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        37                Level Of Service:                  B
*******************************************************************************
Street Name:          Fernandez Ave                    San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted        Permitted        Permitted
Rights:            Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    0  1  0  1  0    0  1  0  1  0
------------||---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      22    2    43    18    0    21    14 1441    22    38 1762    12
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   22    2    43    18    0    21    14 1441    22    38 1762    12
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    22    2    43    18    0    21    14 1441    22    38 1762    12
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   22    2    43    18    0    21    14 1441    22    38 1762    12
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:      22    2    43    18    0    21    14 1441    22   228 1762    12
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  6.00 1.00  1.00  6.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   22    2    43    18    0    21    84 1441    22   228 1762    12
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.33 0.03  0.64  0.46 0.00  0.54  0.02 1.95  0.03  0.05 1.94  0.01
Final Sat.:   591   54  1155   831    0   969    36 3513    51    84 3494    22
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.04 0.04  0.04  0.02 0.00  0.02  0.39 0.41  0.43  0.45 0.50  0.56
Crit Volume:        67          18                14                        1001
Crit Moves:       ****        ****              ****                        ****
*******************************************************************************

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Cumulative PM Preferred ProTue Apr 20, 2010 11:54:32                Page 23-1
-------------------------------------------------------------------------------
                         Pinole General Plan (P06-130)
                 Cumulative Preferred Land Use with No Road Diet
                                PM Peak Hour
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Base Volume Alternative)
*******************************************************************************
Intersection #20 John St/ San Pablo Ave
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.580
Loss Time (sec):       0                Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        34                Level Of Service:                  A
*******************************************************************************
Street Name:             John St                          San Pablo Ave
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------||---------------||---------------||---------------||---------------|
Control:          Permitted        Permitted        Permitted        Permitted
Rights:            Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Y+R:          4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes:        0  0  0  0  1    0  0  0  0  0    0  0  1  1  0    0  0  2  0  0
------------||---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0    23     0    0     0     0 1977     3     0 2043     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0    23     0    0     0     0 1977     3     0 2043     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0    0    23     0    0     0     0 1977     3     0 2043     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0    0    23     0    0     0     0 1977     3     0 2043     0
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:       0    0    23     0    0     0     0 1977     3     0 2043     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    0    0    23     0    0     0     0 1977     3     0 2043     0
------------||---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 0.00  1.00  0.00 0.00  0.00  0.00 1.99  0.01  0.00 2.00  0.00
Final Sat.:     0    0  1800     0    0     0     0 3595     5     0 3600     0
------------||---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.00  0.01  0.00 0.00  0.00  0.00 0.55  0.55  0.00 0.57  0.00
Crit Volume:              23     0                 0                    1022
Crit Moves:              ****                  ****                    ****
*******************************************************************************

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#	Intersection	Time Period	LOS	V/C Ratio	LOS	V/C Ratio	LOS	V/C Ratio
			2030 Baseline		Proposed General Plan Update		Update without Narrowing	
1	Del Monte Drive at San Pablo Avenue	AM	B	0.610	A	0.570	B	0.620
		PM	A	0.550	A	0.460	A	0.550
2	Pinole Shores Drive at San Pablo Avenue	AM	A	0.560	A	0.510	A	0.560
		PM	A	0.440	A	0.370	A	0.440
3	Sunnyview Drive at San Pablo Avenue	AM	A	0.510	A	0.470	A	0.520
		PM	A	0.500	A	0.430	A	0.510
4	Appian Way at San Pablo Avenue	AM	D	0.850	B	0.630	**E**	**0.900**
		PM	**F**	**1.060**	C	0.740	**F**	**1.110**
5	Tennent Avenue at San Pablo Avenue	AM	C	0.780	**E**	**0.980**	D	0.810
		PM	B	0.680	D	0.830	B	0.680
6	Pinole Valley Road at San Pablo Avenue	AM	C	0.780	**E**	**0.950**	D	0.850
		PM	D	0.830	**F**	**1.060**	D	0.850
7	Pinole Valley Road at Tennent Avenue	AM	B	0.610	B	0.670	B	0.670
		PM	A	0.380	A	0.450	A	0.380
8	Pinole Valley Road at Henry Avenue	AM	A	0.540	B	0.610	A	0.570
		PM	A	0.530	C	0.700	A	0.560
9	Pinole Valley Road at I-80 westbound ramps	AM	B	0.660	B	0.680	B	0.680
		PM	A	0.560	B	0.640	A	0.580
10	Pinole Valley Road at I-80 eastbound ramps	AM	C	0.700	B	0.700	C	0.710
		PM	**D**	**0.900**	**E**	**0.930**	D	0.880
11	Pinole Valley Road at Estates Avenue	AM	A	0.490	A	0.480	A	0.490
		PM	A	0.470	A	0.460	A	0.490
12	Pinole Valley Road at Ramona Street	AM	A	0.320	A	0.330	A	0.340
		PM	A	0.280	A	0.300	A	0.300
13	Appian Way at Mann Drive	AM	A	0.540	A	0.530	A	0.550
		PM	A	0.460	A	0.400	A	0.470
14	Appian Way at Tara Hills Drive-Canyon Drive	AM	**E**	**0.910**	D	0.880	**E**	**0.950**
		PM	B	0.680	C	0.710	C	0.700
15	Appian Way at I-80 westbound ramps	AM	**D**	**0.900**	D	0.870	**E**	**0.940**
		PM	C	0.710	C	0.720	C	0.720
16	Appian Way at I-80 eastbound ramps	AM	B	0.650	A	0.560	B	0.680
		PM	C	0.760	C	0.740	C	0.750
17	Appian Way at Fitzgerald Drive-Sara Drive	AM	B	0.700	C	0.760	C	0.730
		PM	D	0.820	D	0.870	D	0.860
18	Oak Ridge Lane at San Pablo Avenue	AM	A	0.570	D	0.810	A	0.570
		PM	A	0.530	B	0.670	A	0.550
19	Fernandez Avenue at San Pablo Avenue	AM	B	0.600	C	0.780	A	0.600
		PM	A	0.590	B	0.600	B	0.610
20	John Street at San Pablo Avenue	AM	B	0.690	**E**	**0.910**	C	0.700
		PM	A	0.580	C	0.740	A	0.580

APPENDIX D NOISE

NOISE IMPACT ASSESSMENT

FOR

CITY OF PINOLE GENERAL PLAN UPDATE

MAY 2010

PREPARED FOR:

PMC
2729 PROSPECT PARK DRIVE
SUITE 220
RANCHO CORDOVA, CA 95670

PREPARED BY:

AMBIENT
AIR QUALITY & NOISE CONSULTING
1214 PARK STREET, SUITE 301
PASO ROBLES, CA 93446

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INTRODUCTION

This report describes terminology used to discuss noise and discusses and analyzes the ambient noise environment of the proposed City of Pinole General Plan Update project area. Construction noise, traffic noise, operational noise, and other noise impacts associated with implementation of the General Plan Update are analyzed.

TECHNICAL BACKGROUND

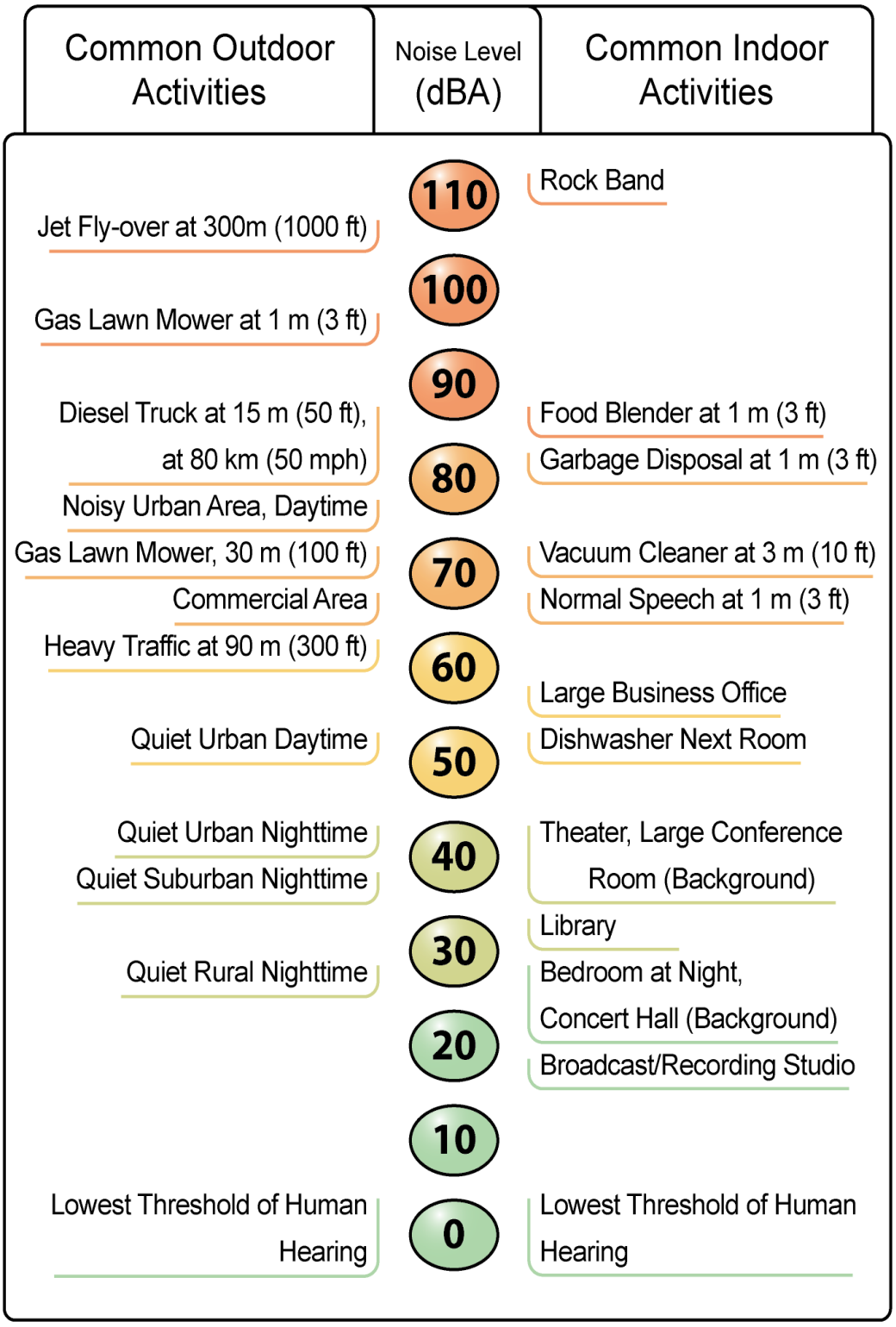
ACOUSTIC FUNDAMENTALS

Noise is generally defined as sound that is loud, disagreeable, or unexpected. Sound is mechanical energy transmitted in the form of a wave because of a disturbance or vibration. Sound levels are described in terms of both amplitude and frequency. Amplitude is defined as the difference between ambient air pressure and the peak pressure of the sound wave. Amplitude is measured in decibels (dB) on a logarithmic scale. For example, a 65 dB source of sound, such as a truck, when joined by another 65 dB source results in a sound amplitude of 68 dB, not 130 dB (i.e., doubling the source strength increases the sound pressure by 3 dB). Amplitude is interpreted by the ear as corresponding to different degrees of loudness. Laboratory measurements correlate a 10 dB increase in amplitude with a perceived doubling of loudness and establish a 3 dB change in amplitude as the minimum audible difference perceptible to the average person.

The frequency of a sound is defined as the number of fluctuations of the pressure wave per second. The unit of frequency is the Hertz (Hz). One Hz equals one cycle per second. The human ear is not equally sensitive to sound of different frequencies. For instance, the human ear is more sensitive to sound in the higher portion of this range than in the lower, and sound waves below 16 Hz or above 20,000 Hz cannot be heard at all. To approximate the sensitivity of the human ear to changes in frequency, environmental sound is usually measured in what is referred to as "A-weighted decibels" (dBA). On this scale, the normal range of human hearing extends from about 10 dBA to about 140 dBA (U.S. EPA, 1971). Common community noise sources and associated noise levels, in dBA, are depicted in **Figure 1**.

Noise can be generated by a number of sources, including mobile sources, such as automobiles, trucks and airplanes, and stationary sources, such as construction sites, machinery, and industrial operations. Noise generated by mobile sources typically attenuates at a rate between 3.0 to 4.5 dBA per doubling of distance. The rate depends on the ground surface and the number or type of objects between the noise source and the receiver. Mobile transportation sources, such as highways, hard and flat surfaces, such as concrete or asphalt, have an attenuation rate of 3.0 dBA per doubling of distance. Soft surfaces, such as uneven or vegetated terrain, have an attenuation rate of about 4.5 dBA per doubling of distance from the source. Noise generated by stationary sources typically attenuates at a rate of approximately 6.0 to 7.5 dBA per doubling of distance from the source (U.S. EPA, 1971).

FIGURE 1
TYPICAL COMMUNITY NOISE LEVELS



Caltrans 2009

NOISE DESCRIPTORS

The intensity of environmental noise fluctuates over time, and several descriptors of time-averaged noise levels are used. The three most commonly used descriptors are L_{eq}, L_{dn}, and CNEL. The energy-equivalent noise level, L_{eq}, is a measure of the average energy content (intensity) of noise over any given period. Many communities use 24-hour descriptors of noise levels to regulate noise. The day-night average noise level, L_{dn}, is the 24-hour average of the noise intensity, with a 10-dBA "penalty" added for nighttime noise (10:00 p.m. to 7:00 a.m.) to account for the greater sensitivity to noise during this period. CNEL, the Community Noise Equivalent Level, is similar to L_{dn} but adds an additional 5-dBA penalty for evening noise (7:00 p.m. to 10:00 p.m.). Another descriptor that is commonly discussed is the single-event noise exposure level (SENEL), also referred to as the sound exposure level (SEL). The SENEL/SEL describes a receiver's cumulative noise exposure from a single noise event, which is defined as an acoustical event of short duration (0.5 second), such as a backup beeper, the sound of an airplane traveling overhead, or a train whistle, and involves a change in sound pressure above a defined reference value (usually approximately 40 dBA). Noise analyses may also depend on measurements of L_{max}, the maximum instantaneous noise level during a specific period of time, and L_{min}, the minimum instantaneous noise level during a specific period. Common noise level descriptors are summarized in **Table 1**.

TABLE 1
COMMON ACOUSTICAL DESCRIPTORS

Descriptor	Definition
Energy Equivalent Noise Level (L_{eq})	The energy mean (average) noise level. The instantaneous noise levels during a specific period of time in dBA are converted to relative energy values. From the sum of the relative energy values, an average energy value (in dBA) is calculated.
Minimum Noise Level (L_{min})	The minimum instantaneous noise level during a specific period of time.
Maximum Noise Level (L_{max})	The maximum instantaneous noise level during a specific period of time.
Day-Night Average Noise Level (DNL or L_{dn})	The 24-hour L_{eq} with a 10 dBA "penalty" for noise events that occur during the noise-sensitive hours between 10:00 p.m. and 7:00 a.m. In other words, 10 dBA is "added" to noise events that occur in the nighttime hours to account for increases sensitivity to noise during these hours.
Community Noise Equivalent Noise Level (CNEL)	The CNEL is similar to the L_{dn} described above, but with an additional 5 dBA "penalty" added to noise events that occur between the hours of 7:00 p.m. to 10:00 p.m. The calculated CNEL is typically approximately 0.5 dBA higher than the calculated L_{dn}.
Single Event Noise Level (SEL)	The level of sound accumulated over a given time interval or event. Technically, the sound exposure level is the level of the time-integrated mean square A-weighted sound for a stated time interval or event, with a reference time of one second.
Percent Exceeded Noise Level (L_n)	The level exceeded for *n* percent of the time. For instance, L_{10} is the level exceeded for 10% of the time. The commonly used values of n for the n-percent exceeded level, L_n, are 2, 10, 50, and 90.

HUMAN RESPONSE TO NOISE

The human response to environmental noise is subjective and varies considerably from individual to individual. Noise in the community has often been cited as a health problem, not in terms of actual physiological damage, such as hearing impairment, but in terms of inhibiting general

well-being and contributing to undue stress and annoyance. The health effects of noise in the community arise from interference with human activities, including sleep, speech, recreation, and tasks that demand concentration or coordination. Hearing loss can occur at the highest noise intensity levels. When community noise interferes with human activities or contributes to stress, public annoyance with the noise source increases. The acceptability of noise and the threat to public well-being are the basis for land use planning policies preventing exposure to excessive community noise levels.

Unfortunately, there is no completely satisfactory way to measure the subjective effects of noise or of the corresponding reactions of annoyance and dissatisfaction. This is primarily because of the wide variation in individual thresholds of annoyance and habituation to noise over differing individual experiences with noise. Thus, an important way of determining a person's subjective reaction to a new noise is the comparison of it to the existing environment to which one has adapted: the so-called "ambient" environment. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged. Regarding increases in A-weighted noise levels, knowledge of the following relationships will be helpful in understanding this analysis:

- Except in carefully controlled laboratory experiments, a change of 1 dB cannot be perceived by humans;
- Outside of the laboratory, a 3-dB change is considered a just-perceivable difference;
- A change in level of at least 5 dB is required before any noticeable change in community response would be expected. An increase of 5 dB is typically considered substantial;
- A 10-dB change is subjectively heard as an approximate doubling in loudness and would almost certainly cause an adverse change in community response.

When evaluating noise impacts, based on the above relationships, it is generally recognized that an increase of greater than 3 dBA is considered potentially significant. However, increases in ambient noise levels need to also take into account the existing noise environment.

NOISE REDUCTION

Various methods can be employed to reduce noise levels, including enclosures, barriers, and sound-dampening materials. The methods employed are dependent on various factors, including source and receptor characteristics as well as environmental conditions. With regard to typical community noise sources, noise-reduction techniques typically focus on the isolation or shielding of the noise source from nearby noise-sensitive receptors. The more common methods include the use of buffers, enclosures, and barriers. In general, these techniques contribute to decreasing noise levels only when the structure breaks the "line of sight" between the source and the receiver. Buildings, concrete walls, and berms can all act as effective noise barriers. Wooden fences or broad areas of dense foliage can also reduce noise but are less effective than solid barriers. Changes in design specifications and use of equipment noise control devices (e.g., mufflers and silencers) are also commonly employed to reduce stationary-source (i.e., non-transportation) noise levels. Additional noise control techniques commonly used for transportation noise sources include traffic control, such as prohibiting heavy-duty trucks and reducing speed limits along primarily affected corridors. However, an approximate 20 mile per hour reduction in speed would typically be required to achieve a noticeable decrease in noise

levels. In some instances, the use of noise-reducing *pavements, such as rubberized asphalt,* has also been used to reduce traffic noise.

EXISTING CONDITIONS

AMBIENT NOISE LEVELS

The ambient noise environments in the City of Pinole are defined primarily by vehicle traffic on Interstate 80 (I-80), which runs northeast to southwest through the community, and railroad activities conducted along the Union Pacific Railroad (UPRR) and Burlington Northern Sante Fe (BNSF) railroad corridors. To a lesser extent, local vehicle traffic and typical neighborhood noise sources also contribute to the ambient noise environment. No significant noise-producing commercial or industrial activities are identified within the City of Pinole. The only concentration of such activities is in proximity to Highway 80, which tends to mask noise generated by these sources.

Short-term (10-minute) noise level measurements were conducted on April 22, 2010 for the purpose of documenting and measuring the existing noise environment in various areas in and around the City of Pinole. Measurements were conducted using a Larson Davis model 820 sound-level meter placed at a height of approximately 4.5 feet above the ground surface. Ambient noise measurement locations and corresponding measured values (i.e., L_{eq}, L_{min}, and L_{max}) are summarized in **Table 2**. Based on the monitoring conducted, hourly-average daytime noise levels (in L_{eq}) within the City generally range from the low to mid 40s at areas located away from major roadways to the mid to high 70s near I-80. In general, ambient noise levels during the quieter nighttime hours are typically 5 to 10 dBA less than daytime noise levels due to decreases in vehicle traffic on area roadways.

TABLE 2
AMBIENT NOISE LEVELS

Location	Monitoring Period	Noise Level (dBA)	
		L_{eq}	L_{max}
1401 Fitzgerald Dr., ~148 feet from near-travel-lane centerline of I-80	12:40 p.m. – 12:50 p.m.	75.9	78.4
Pinole Shores Park	13:15 p.m. – 13:25 p.m.	42.8	54.5
2742 Pinole Valley Rd., ~25 feet from near-travel-lane centerline	13:45 p.m. – 13:55 p.m.	63.1	70.2
1279 San Pablo Ave., ~25 feet from near-travel-lane centerline	14:20 p.m. -14-30 p.m.	64.3	69.8
2554 Appian Way, ~25 feet from near-travel-lane centerline	14:50 p.m. -15-00 p.m.	63.8	70.6
Pinole Valley Road at Simas, ~25 feet from near-travel-lane centerline	15:30 p.m. – 15:40 p.m.	65.4	74.3

Note: Ambient noise measurements were conducted on April 22, 2010 using a Larson Davis model 820 sound-level meter placed at a height of approximately 4.5 feet above the ground surface.

NOISE-SENSITIVE LAND USES

Noise-sensitive land uses are generally considered to include those uses that would result in noise exposure that could cause health-related risks to individuals. Places where quiet is essential are also considered noise-sensitive uses. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels. Other land uses such as parks, historic sites, cemeteries, and recreation areas are also considered sensitive to increases in exterior noise levels. School classrooms, places of assembly, hotels, libraries, and other places where low interior noise levels are essential are also considered noise-sensitive land uses.

NOISE SOURCES

Noise issues associated with stationary and transportation sources in the Planning Area are discussed below.

Transportation Sources

Roadway Traffic

Ambient noise levels in many portions of the City are defined primarily by traffic on I-80. To a lesser extent, vehicle traffic along other local roadways also contributes to ambient noise levels. The FHWA Highway Traffic Noise Prediction model (FHWA-RD-77-108) was used to predict traffic noise levels along major area roadways. Input data used in the model included average-daily traffic levels, day/night percentages of automobiles and medium and heavy trucks, vehicle speeds, ground attenuation factors, roadway widths, and ground elevation data. Vehicle distribution percentages were based on traffic data obtained during the site reconnaissance conducted for this project, as well as, heavy-duty truck distribution percentages obtained from the California Department of Transportation (Caltrans 2007).

Predicted traffic noise levels for roadway segments within the City, including distances to the predicted 60, 65, and 70-dBA Ldn/CNEL noise contours, are summarized in **Table 3**. Existing noise contours for I-80 are depicted in **Figure 2**. It is important to noise that predicted noise contours assume no natural or human-made shielding (i.e., intervening terrain, vegetation, berms, walls, buildings) and should be considered to represent bands of similar noise exposure, rather than absolute lines of demarcation. Although predicted noise contours are not considered site-specific, they are useful for determining potential land-use conflicts.

Railroads

Two railroad corridors are located within the City of Pinole, including the UPRR's Martinez Subdivision and BNSF's Stockton Subdivision railroads. There are no rail yards or junctions within the City. The UPRR's Martinez Subdivision railroad is a double-track railroad located along the northern boundary of the City near the shoreline of San Pablo Bay. The BNSF's Stockton Subdivision is located south of the UPRR and at a slightly higher elevation. The number of freight trains traveling along these corridors can vary from day to day, depending on demand, and there are currently no hourly limitations pertaining to freight train travel. The UPRR is also used for Amtrak service. Approximately 32 Amtrak Capitol Corridor trains and 8 Amtrak San Joaquin trains use this corridor on a daily basis (Amtrak 2010).

Noise levels generated by trains can vary depending on numerous factors, including train speed, number of engines used, track conditions (e.g., welded vs. jointed), the condition of train wheels, and shielding provided by intervening terrain. Additional factors, such as the sounding of the train horns as well as the operation of roadside signaling devices, can also contribute to overall noise levels. Depending on such factors, wayside noise levels associated with train passbys can reach levels of up to 110 dBA L_{max} at 50 feet from the track centerline (FTA, 2006).

The Federal Transit Administration's (FTA) *Transit Noise and Vibration Impact Assessment Guidelines* (FTA, 2006) was used for the calculation of wayside noise levels generated by the trains traveling along the UPRR and BNSF corridors. Wayside noise levels were calculated based, in part, on average train speeds, train length, and assuming that the number of trains would be distributed equally among daytime and nighttime hours. Predicted noise levels were calculated with and without the sounding of warning devices at grade crossings. Predicted railroad noise levels and distances to noise contours are summarized in **Table 4** and depicted in **Figure 2**. With the sounding of train horns, the projected 60, 65 and 70 dBA L_{dn} noise contours near signalized grade crossings would extend to approximately 1,255, 585 and 158 feet from the track centerline of the UPRR, respectively. Along the BNSF railroad, the projected 60, 65 and 70 dBA L_{dn} noise contours with horns sounding would extend to approximately 681, 368, and 85 feet from the track centerline, respectively. Without horns sounding, the projected 60, 65 and 70 dBA L_{dn} noise contours would extend to 429, 199 and 46 feet, from the UPRR; and, to approximately 199, 92 and 21 feet from the BNSF railroad, respectively. It is important to note that these projected noise contours do not include shielding or reflection of noise from intervening terrain or structures and actual noise levels will vary depending on site-specific conditions. Although these predicted noise contours are not considered site-specific, they are useful for determining potential land use conflicts.

FIGURE 2
PREDICTED EXISTING NOISE CONTOURS – MAJOR TRANSPORTATION NOISE SOURCES

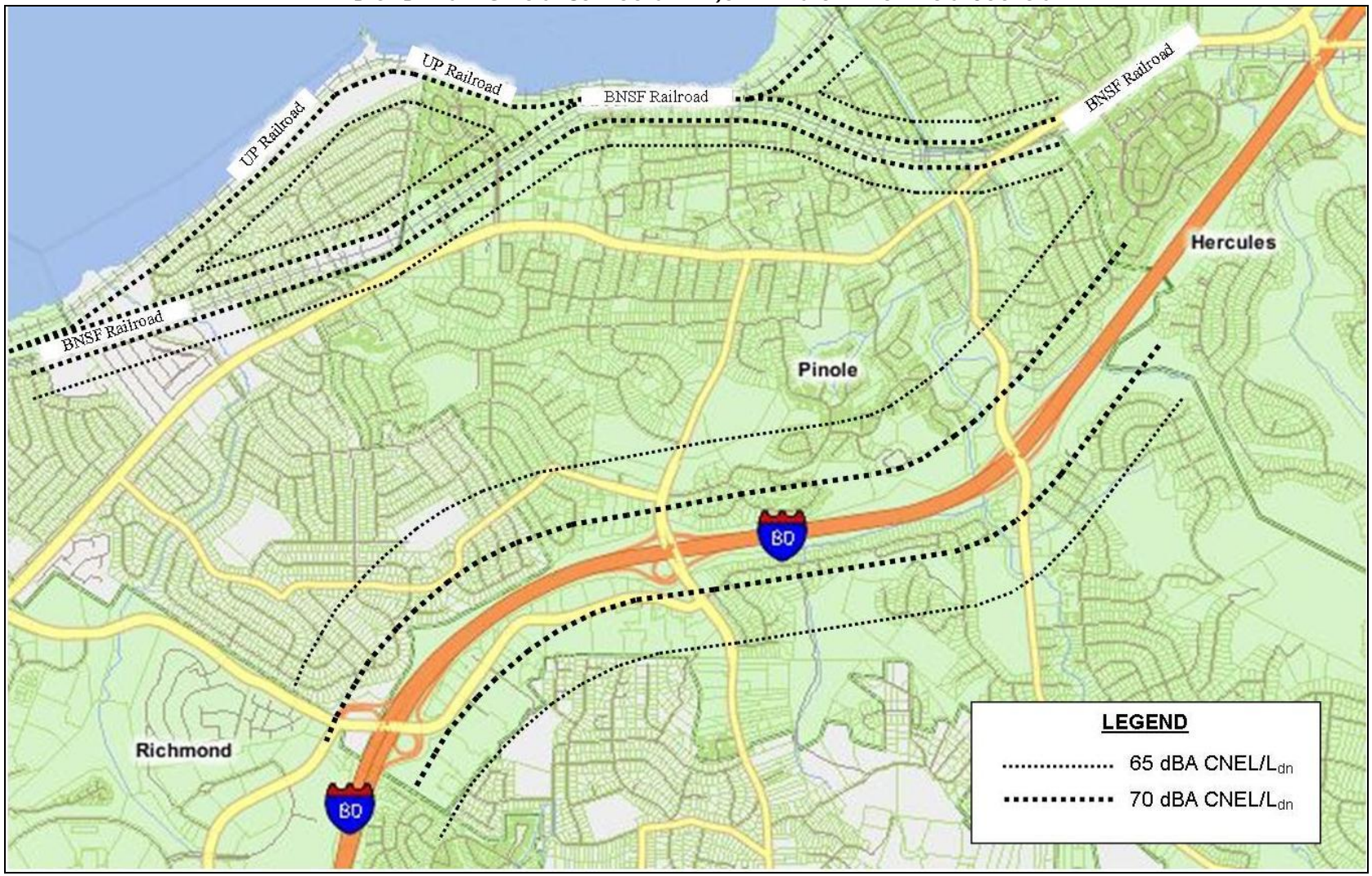


Image Source: Contra Costa County 2010
Note: Distances to noise contours are approximate. Noise contours assume no natural or human-made shielding (i.e., intervening terrain, vegetation, berms, walls, buildings) and should not be considered to represent absolute lines of demarcation.

TABLE 3
EXISTING TRAFFIC NOISE LEVELS AND DISTANCES TO NOISE CONTOURS IN THE PLANNING AREA

Roadway Segment	ADT	CNEL at 50 Feet from Near Travel-lane Centerline	Distance (feet) from Roadway Centerline to CNEL Contour		
			70	65	60
San Pablo Ave., W. of Del Monte Dr./Belmont Way	17,100	67.92	--	108.2	229.6
San Pablo Ave., W. of Appian Way	20,600	66.04	--	82.2	172.5
San Pablo Ave., E. of Pinole Valley Rd.	20,900	62.85	--	--	103.2
Appian Way, S. of Tara Hills Dr./Canyon Dr.	34,300	67.66	59.8	115.5	242.2
Appian Way, S. of Michael Dr.	27,500	67.29	--	98.6	208.7
Pinole Valley Rd., N. of Henry Ave.	14,100	61.14	--	--	80.2
Pinole Valley Rd., S. of Estate Ave.	19,000	64.08	--	62.5	128.5
Pinole Valley Rd., S. of Wright Ave.	3,200	57.82	--	--	--
Henry Ave., E. of Ridgecrest Dr.	1,700	51.11	-	--	--
Fitzgerald Dr., W. of Appian Way	18,100	64.09	--	59.8	124.0
Shea Drive, W. of Pinole Valley Rd.	3,500	54.25	--	--	--
I-80, W. of Appian Way	190,000	82.81	585.8	1,259.3	2,711.3
I-80, Appian Way to Pinole Valley Rd.	194,000	82.90	594.0	1,276.9	2,749.2
I-80, E. of Pinole Valley Rd.	182,000	82.62	569.3	1,223.7	2,634.7

Noise levels/contours were calculated using the FHWA roadway noise model based on Calveno vehicle reference noise levels and traffic data obtained from the traffic analysis prepared for this project. Refer to ***Appendix A*** *for modeling output files.*
-- Contours are within 50 feet of roadway centerline/ within roadway right-of-way

TABLE 4
RAILROAD NOISE LEVELS

Railroad Corridor	Without Horns Sounding				With Horns Sounding			
	L_{dn} at 100′	Distance From Track Centerline to L_{dn} Contour (feet)			L_{dn} at 100′	Distance From Track Centerline to L_{dn} Contour (feet)		
		60	65	70		60	65	70
UPRR/AMTRAK	69	429	199	46	77	1,255	585	158
BNSF	64	199	92	21	73	681	368	85

Airports

The Buchanan Field Airport is located on Sally Ride Drive in Concord, approximately 9 miles east of the City of Pinole. The City of Pinole is not located within the projected 60 dBA CNEL noise contour of this airport. As a result, the existing ambient noise environment of the City is not significantly influenced by aircraft noise, although aircraft fly-overs are possible.

Stationary Sources

Stationary noise sources include industrial and commercial land uses. Many industrial processes produce noise, even when the best available noise control technology is applied. Noise exposures within industrial facilities are controlled by federal and state employee health and safety regulations (i.e., regulations of the Occupational Safety and Health Administration of the U.S. Department of Labor [OSHA] and the California Division of Occupational Safety and Health [Cal-OSHA]). Exterior noise levels that affect neighboring parcels are typically subject to local standards. Commercial, recreational, and public facility activities can also produce noise that may affect adjacent noise-sensitive land uses. These noise sources can be continuous or intermittent and may contain tonal components that are annoying to individuals who live nearby. For instance, emergency-use sirens and backup alarms are often considered nuisance noise sources, but may not occur frequently enough to be considered incompatible with noise-sensitive land uses. In addition, noise generation from fixed noise sources may vary based upon climate conditions, time of day, and existing ambient noise levels.

From a land use planning perspective, fixed-source noise control issues focus on two goals: (1) preventing the introduction of new noise-producing uses in noise-sensitive areas; and (2) preventing encroachment of noise-sensitive uses upon existing noise-producing facilities. The first goal can be achieved by applying noise performance standards to proposed new noise producing uses. The second goal can be met by requiring that new noise-sensitive uses near noise-producing facilities include mitigation measures to ensure compliance with noise performance standards. Each of these goals stresses the importance of avoiding the location of new uses that may be incompatible with adjoining uses.

Commercial and Industrial Uses

Noise sources commonly associated with commercial and industrial uses often include the operation of power tools, material handling equipment (e.g., forklifts), and stationary equipment (e.g., compressors, compactors, etc.), as well as, noise associated with the loading and unloading of materials from delivery trucks. Noise levels from commercial and industrial uses are dependent on numerous factors and can vary substantially, depending of the specific activities conducted. For instance, noise associated with neighborhood commercial activities may be indiscernible from the ambient noise level, whereas noise levels associated with major industrial activities involving the use of heavy off-road equipment can generate intermittent levels of up to approximately 90 dBA at 50 feet. For this reason, noise generated by commercial and industrial uses and impacts to nearby noise-sensitive land uses should be evaluated on a project-by-project and site-specific basis.

Noise sources associated with service commercial uses such as automotive and truck repair facilities, light industrial uses, etc., are found near the Bay Shore on San Pablo Avenue within City limits. The noise emissions of these types of uses are dependent on many factors, and are therefore, difficult to quantify precisely. Nonetheless, noise generated by the these uses contributes to the ambient noise environment in the immediate vicinity of these uses, and should be considered where either new noise-sensitive uses are proposed nearby or where similar uses are proposed in existing residential areas.

Parks and School Playing Fields

Parks and school playgrounds, and their associated uses, are located throughout the City. Noise generated by these uses depends on the age and number of people utilizing the respective facilities at a given time, and types of activities they are engaged in. School play field activities tend to generate more noise than those of neighborhood parks, because the intensity of school playground usage tends to be much higher. At a distance of 100 feet from an elementary school playground being used by 100 students, average and maximum noise levels of 60 and 75 dB, respectively, can be expected. At organized events such as high-school football games with large crowds and public address systems, the noise generation is often significantly higher. As with service commercial uses, the noise generation of parks and school playing fields is variable.

REGULATORY CONTEXT

Federal, state, and local governments have established noise standards and guidelines to protect citizens from potential hearing damage and various other adverse physiological and social effects associated with noise. Those regulations most applicable to the community are summarized below.

FEDERAL

Federal Railroad Administration

The federal government, in response to safety concerns at at-grade crossings, enacted the Swift Rail Development Act of 1994. This act mandated that the Secretary of Transportation issue regulations requiring the use of locomotive horns at public grade crossings, but gave the agency the authority to make reasonable exceptions. On January 13, 2000, the Federal Railroad Administration published a Notice of Proposed Rule Making in the Federal Register addressing the use of locomotive horns at public road-rail grade crossings. Accordingly, locomotive horns must be sounded on approach and while entering public grade crossings, unless there is no significant risk of increased grade crossing collisions, the use of a locomotive horn is impractical, or where safety measures can be installed to fully compensate for the absence of the warning provided by the horn. The sounding of warning horns can greatly affect predicted noise contours within the community.

U.S. Environmental Protection Agency (EPA)

In 1974, the EPA Office of Noise Abatement and Control published a report entitled *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety*. Although this document does not constitute EPA regulations or standards, it is useful in identifying noise levels at which increased levels of annoyance would be anticipated. Based on an annual-average day-night noise level (expressed as L_{dn} or DNL), the document states that "undue interference with activity and annoyance" will not occur if outdoor noise levels in residential areas are below 55 dBA L_{dn} and indoor levels are below 45 dBA L_{dn} (EPA, 1974).

Department of Housing and Urban Development (HUD)

The Federal Department of Housing and Urban Development (HUD) guidelines for the acceptability of residential land uses are set forth in the Code of Federal Regulations, Title 24, Part 51, "Environmental Criteria and Standards." These guidelines identify an exterior noise exposure of 65 dBA L_{dn} or less as acceptable. Exterior noise levels of 65 to 75 dBA L_{dn} are considered normally acceptable, provided appropriate sound attenuation is provided to

reduce interior noise levels to within acceptable levels. Noise levels above 75 dBA L_{dn} are considered unacceptable. The goal of the interior noise levels is 45 dBA L_{dn} for noise-sensitive land uses. These guidelines apply only to new construction supported by HUD grants and are not binding upon local communities (Caltrans, 2002a).

STATE

Government Code

Government Code Section 65302(f) states that a noise element shall be included as part of all City General Plans. A summary of the required contents of a noise element is presented below:

- A noise element shall identify and appraise noise problems in the community. The noise element shall recognize the guidelines established by the Office of Noise Control in the State Department of Health Services and shall analyze and quantify, to the extent practicable, as determined by the legislative body, current and projected noise levels for all of the following sources:
  - Highways and freeways.
  - Primary arterials and major local streets.
  - Passenger and freight railroad operations and ground rapid transit systems.
  - Commercial, general aviation, heliport, helistop, and military airport operations, aircraft over-flights, jet engine test stands, and all other ground facilities and maintenance functions related to airport operation.
  - Local industrial plants, including, but not limited to, railroad classification yards.
  - Other ground stationary sources identified by local agencies as contributing to the community noise environment.

Noise contours shall be shown for the above noise sources based on noise monitoring and accepted noise modeling techniques. The noise contours are to be used as a guide for designating land uses within the land use element that minimizes the exposure of community residents to excessive noise.

California Building Code

Title 24 of the California Code of Regulations contains standards for allowable interior noise levels associated with exterior noise sources (California Building Code, 1998 edition, Volume 1, Appendix Chapter 12, Section 1208A). The standards apply to new hotels, motels, dormitories, apartment houses, and dwellings other than detached single-family residences. The standards state that the interior noise level attributable to exterior sources shall not exceed 45 dBA in any habitable room. Proposed residential structures to be located where the annual L_{dn} or CNEL exceeds 60 dBA shall require an acoustical analysis showing that the proposed building design would achieve the prescribed allowable interior noise standard. The noise metric shall be either the day-night average sound level (L_{dn}) or the community noise equivalent level (CNEL), consistent with the noise element of the local general plan. Worst-case noise levels, either existing or future, shall be used as the basis for determining compliance with these standards (Caltrans, 2002a).

State of California General Plan Guidelines

The *State of California General Plan Guidelines* (State of California 2003), published by the Governor's Office of Planning and Research (OPR), also provides guidance for the acceptability

of projects within specific L_{dn}/CNEL contours. The guidelines also present adjustment factors that may be used in order to arrive at noise acceptability standards that reflect the noise control goals of the community, the particular community's sensitivity to noise, and the community's assessment of the relative importance of noise pollution.

LOCAL

City of Pinole General Plan

The Health and Safety Element of the Pinole General Plan contains policies designed to protect citizens from the harmful and annoying effects of excessive noise exposure. The Health and Safety Element of the Pinole General Plan establishes noise criteria for determination of compatibility of new development, based on land use type, within various noise environments and also identifies maximum allowable exterior noise levels for stationary noise sources. It is important to note, however, that whereas the land use compatibility noise criteria are applied at the project site, the noise standards for proposed stationary sources are applied at the property line of nearby "receiving" land uses and are not applied at the property line of the source.

The City's noise-related goals and policies are summarized in **Table 5**. The City's noise criteria for determination of land use compatibility for new development and the City's maximum allowable noise standards for stationary sources are depicted in **Tables 6 and 7**, respectively.

TABLE 5
CITY OF PINOLE GENERAL PLAN (1995)
APPLICABLE NOISE POLICIES

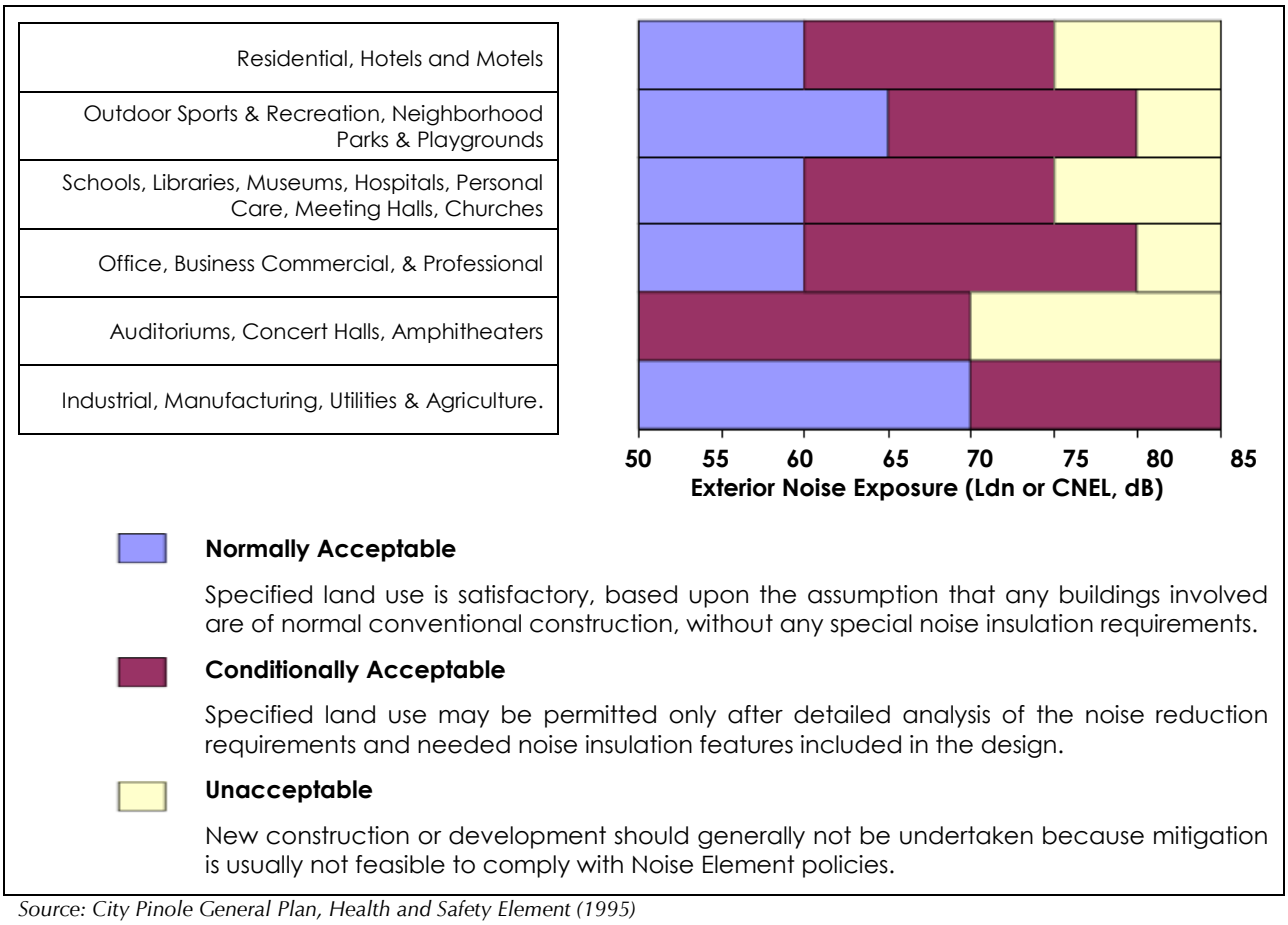
GOAL HS4	New development noise standards. Ensure all new development complies with the noise standards established in the Pinole Health and Safety Element and prevent all new noise sources from increasing the existing noise level above acceptable standards.
POLICIES	
HS4.1	**Noise Levels in New Residential Projects**. New residential development projects shall meet acceptable exterior noise level standards. The normally acceptable noise standards for new land uses are established in Land Use Compatibility for Community Exterior Noise Environments (as shown below), which shall be modified by Policies HS4.2, HS4.3, HS4.4, HS4.5, HS4.6, HS4.7 and HS4.B, below.
HS4.2	**Outdoor Noise Levels.** The goal for maximum outdoor noise levels in residential areas is an Ldn of 60 dB. This level is a requirement to guide the design and location of future development and is a goal for the reduction of noise in existing development. However, 60 Ldn is a goal which cannot necessarily be reached in all residential areas within the realm of economic or aesthetic feasibility. This goal will be applied where outdoor use is a major consideration (e.g., backyards in single-family housing developments and recreation areas in multi-family housing projects). The outdoor standard will not normally be applied to the small decks associated with apartments and condominiums but these will be evaluated on a case-by-case basis. Where the city determines that providing an Ldn of 60 dB or lower outdoors is not feasible, the outdoor goal may be increased to an Ldn of 65 dB at the discretion of the Planning Commission.
HS4.3	**Indoor Noise Levels**. The indoor noise level as required by the State of California Noise Insulation Standards must not exceed an Ldn of 45 dB in new housing units.
HS4.4	**Indoor Instantaneous Noise Levels**. Interior noise levels in new single-family and multi-family residential units exposed to an Ldn of 60 dB or greater should be limited to a maximum instantaneous noise level in the bedrooms of 50 dBA. Maximum instantaneous noise levels in other rooms should not exceed 55 dB. The typical repetitive maximum instantaneous noise level at each site would be determined by monitor. Examples would include truck passbys on busy streets, train passbys and train warning whistles.
HS4.5	**Impacts of Train Noise**. If the noise source is a railroad, then the outdoor noise exposure criterion should be 70 Ldn for future development, recognizing that train noise is characterized by relatively few loud events.
HS4.6	**New Commercial, Industrial and Office Noise Standards.** Appropriate interior noise levels in

TABLE 5
CITY OF PINOLE GENERAL PLAN (1995)
APPLICABLE NOISE POLICIES

	commercial, industrial, and office buildings are a function of the use of space and shall be evaluated on a case-by-case basis. Interior noise levels in offices generally should be maintained at 45 Leq (hourly average) or less.
HS4.7	**Areas Below Desired Noise Standards.** These guidelines are not intended to be applied reciprocally. In other words, if an area currently is below the desired noise standards, an increase in noise up to the maximum should not necessarily be allowed. The impact of a proposed project on an existing land use should be evaluated in terms of the increase in existing noise levels and potential for adverse community impact, regardless of the compatibility guidelines.
HS4.8	**Non-Transportation Related Noise Sources.** For non-transportation related noise sources, noise levels outdoors should not exceed the limits in the table below. Interior noise levels shall be 15 decibels lower than those shown in the table.
HS4.9	**Noise Environment in Existing Residential Areas.** Protect the noise environment in existing residential areas. In general, the City will require the evaluation of mitigation measures for projects under the following circumstances: a. The project would cause the Ldn to increase 3 dB(A) or more. b. Any increase would result in an Ldn greater than 60 dB(A). c. The Ldn already exceeds 60 dB(A). d. The project has the potential to generate significant adverse community response.
HS4 10	**Mitigating the Effects of Noise on Adjacent Properties.** Require proposals to reduce noise impacts on adjacent properties through the following and other means, as appropriate: a. Screen and control noise sources such as parking, outdoor activities and mechanical equipment. b. Increase setbacks for noise sources from adjacent dwellings. c. Wherever possible do not remove fences, walls or landscaping that serve as noise buffers, although design, safety and other impacts must be addressed. d. Use soundproofing materials and double glazed windows. e. Control hours of operation, including deliveries and trash pickup to minimize noise impacts.
GOAL HS5	Reduce existing objectionable noise sources, eliminate or reduce noise from existing or objectionable noise sources.
POLICIES	
HS5.1	**Commercial or Industrial Source Noise.** Noise created by commercial or industrial sources associated with new projects or developments shall be controlled so as not to exceed the noise level standards set forth in the table below (Maximum Allowable Noise Exposure for Stationary Noise Sources), as measured at any affected residential land use. (Refer to **Table 3** of this report).
HS5.2	**New Noise Reducing Technologies.** Support and employ new noise reducing technologies in the development and maintenance of local and regional infrastructure.

Note: Transportation noise sources are defined as traffic on public roadways, railroad line operations and aircraft in flight. Control of noise from these sources is preempted by Federal and State regulations. Other noise sources are presumed to be subject to local regulations, such as a noise control ordinance. Nontransportation noise sources typically include industrial operations, outdoor recreation facilities, HVAC units, loading docks, etc.
Source: City Pinole General Plan, Health and Safety Element (1995)

TABLE 6
CITY OF PINOLE GENERAL PLAN (1995)
LAND USE COMPATIBILITY FOR COMMUNITY NOISE ENVIRONMENTS



Source: City Pinole General Plan, Health and Safety Element (1995)

TABLE 7
CITY OF PINOLE
MAXIMUM ALLOWABLE NOISE EXPOSURE FOR STATIONARY NOISE SOURCES (1)

Noise Descriptor	Daytime (5) (7Am to 10PM)	Nighttime (2,5) (10PM to 7AM)
Hourly-Average (dBA, Leq) (3)	55	45
Maximum Level (dBA, Lmax) (3)	70	65
Maximum Level (dBA, Lmax)-Impulsive Noise (4)	65	60

(1) As determined at the property line of the receiving land use. When determining effectiveness of noise mitigation measures, the standards may be applied on the receptor side of noise barriers or other property line noise mitigation measures.
(2) Applies only where the receiving land use operates or is occupied during nighttime hours.

(3) Sound level measurements shall be made with "slow" meter response.
(4) Sound level measurements shall be made with "fast" meter response.
(5) Allowable levels shall be raised to the ambient noise levels where the ambient levels exceed the allowable levels. Allowable levels shall be reduced 5 dB if the ambient hourly Leq is at least 10 dB lower than the allowable level
Source: City Pinole General Plan, Health and Safety Element (1995)

City of Pinole Municipal Code

The City of Pinole Municipal Code does not include noise standards applicable to transportation or non-transportation noise sources. However, the City's Municipal Code (Title 15, Chapter II, Section 15.02.070, *General Regulations of Construction)* does include the following hourly restrictions and nuisance provisions pertaining to construction activities (City of Pinole 2010):

a) Saturday construction work is allowed in commercial zones only, from nine a.m. (9:00 a.m.) to six p.m. (6:00 p.m.), as long as it is interior work and does not generate significant noise.

b) Work be allowed from seven a.m. (7:00 a.m.) to five p.m. (5:00 p.m.) on non-federal holidays (holidays recognized by the City of Pinole, but not acknowledged federally are: Lincoln's Birthday (February 12), Ceasar Chavez Day (March 30) Admission's Day and the Day after Thanksgiving), but no inspections would be performed.

c) The Council designates the City Manager (or his/her representative) to further modify on a case-by-case basis the hours of construction in commercial zones. Additionally, the City Manager or his/her designee has the ability to revise the construction hours based on inclement weather conditions or certain construction procedures (such as setting up from a concrete pour) that may require working beyond 5pm on weekdays or six p.m. (6:00 p.m.) on Saturday.

d) Administrative citations and penalties penalize responsible parties who fail or refuse to comply with any city ordinance or fail to promptly abate a public nuisance.

e) The minimum fine for such a citation or penalty is one thousand dollars ($1,000.00), and escalates in one thousand dollars ($1,000.00) increments.

- Exception 1. Homeowners performing additions, repairs, or remodeling are allowed to work on their residences on weekends and holidays between nine a.m. (9:00 a.m.) and five p.m. (5:00 p.m.)
- Exception 2. By written authorization of the building official, a residential property owner with a valid permit to construct a single-family residence for personal occupancy shall be allowed to work on weekends and holidays between nine a.m. (9:00 a.m.) and five p.m. (5:00 p.m.). This authorization shall be granted to applicants who have not built a residence in Pinole in the previous five-year (5) period and who affirm in writing their intention to reside at the subject property.
- Work must be controlled to prevent causing a public nuisance due to dust, noise, vibrations, etc. (Ord. 2007-03 §1, 2007; Ord. 553 §2(part), 1992).

IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

The impact analysis provided below is based on the following State CEQA Guidelines Appendix G thresholds of significance. A noise impact is considered significant if implementation of the General Plan Update would:

- Result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance or of applicable standards of other agencies.
- Result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.
- Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.
- Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.
- Expose people residing or working in the project area to excessive noise levels for a project located within an airport land use plan area or, where such a plan has not been adopted, or within two miles of a public airport or a public use airport.
- Expose people residing or working in the project area to excessive noise levels for a project within the vicinity of a private airstrip.

METHODOLOGY

A combination of existing literature and general application of accepted noise thresholds was used to determine the impact of ambient noise levels resulting from and on development within the General Plan Planning Area. Short- and long-term impacts associated with transportation and non-transportation noise sources were qualitatively assessed based on potential increases in ambient noise levels anticipated to occur at noise-sensitive land uses. Traffic noise levels along major area roadways were estimated using the FHWA Highway Traffic Noise Prediction model (FHWA-RD-77-108.) The FHWA modeling was based upon the Calveno noise-emission factors for automobiles and medium- and heavy-duty trucks. Input data used in the model included average-daily traffic volumes, day/night percentages of automobiles and medium and heavy trucks, vehicle speeds, ground attenuation factors, and roadway widths. Traffic volumes were derived from the traffic analysis prepared for this project. Roadway data and vehicle distribution percentages were based on traffic data obtained during the site reconnaissance conducted for this project, as well as heavy-duty truck distribution percentages for I-80 obtained from Caltrans.

PROJECT IMPACTS AND MITIGATION MEASURES

Noise Impacts Associated with Development and Operation of Land Uses of the Proposed General Plan Update

Impact 1 The proposed General Plan Update could result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance or of applicable standards of other agencies. However, the proposed Pinole General Plan Update's mitigating goals and policies ensure the impact will be less than significant. Therefore, noise impacts associated with the development and operation of land uses of the proposed General Plan Update would be **less than significant**.

The City's existing General Plan Noise Element identifies the goal of protecting residents from health hazards and annoyance associated with excessive noise levels. The existing General Plan Noise Element also identifies noise compatibility guidelines to evaluate new development and

sets forth policies to require noise analysis of proposed development projects, noise monitoring, and sound mitigation for noise sources.

The potential for noise conflicts from development under the proposed General Plan Update includes conflicts as a result of adjacent land uses and their operational aspects. While generally addressed through the land use designation and zoning identification process, there is the potential that some development allowed under current land use designations and zoning would have operational aspects that could create noise impacts on other adjacent land uses. The City's proposed noise goals and policies and their associated action steps provide expanded protection geared toward eliminating land use conflicts with respect to noise, including specific numeric noise level standards for new projects affected by or including both transportation and non-transportation noise sources and guidance in evaluating noise impacts and for identification of noise mitigation measures.

Applicable City Code Sections

The City's Municipal Code applies to existing land uses. No applicable City code sections have been identified that pertain to proposed future land uses.

Proposed General Plan Policies

The proposed General Plan Update policies include the following requirements that contain specific performance standards addressing noise impacts associated with proposed land uses.

GOAL HS.8 Ensure all new development complies with the noise standards established in the Pinole Health and Safety Element, and prevent all new noise sources from increasing the existing noise levels above acceptable standards.

POLICY HS.8.1 New development projects should meet acceptable exterior noise level standards. The normally acceptable noise standards for new land uses are established in Land Use Compatibility for Community Exterior Noise Environments (refer to **Table 6** of this report).

> **Action HS.8.1.1** Adopt a noise ordinance with noise level performance standards, including maximum allowable noise exposure, ambient versus nuisance noise, method of measuring noise, and enforcement procedures.
>
> **Action HS.8.1.2** Review development proposals to assure consistency with noise standards. Require new development of noise-creating uses to conform to the City's noise level standards.
>
> **Action HS.8.1.3** Require a combination of design features to reduce noise impacts on adjacent properties through the following and other means, as appropriate:
>
> - Screen and control noise sources such as parking, outdoor activities and mechanical equipment.
> - Increase setbacks for noise sources from adjacent dwellings.
> - Modify building designs and site planning to reduce noise exposure through a combination of sound attenuation (e.g., sound-rated windows and ventilation systems, insulation, physical and landscape buffers) and site planning (e.g., increased separation and private open area buffers) to reduce noise exposure.
> - Control hours of operation, including deliveries and trash pickup, to minimize noise impacts.
> - Require additional landscaping to assist with buffering where feasible.

POLICY HS.8.2 Ensure that proposed nonresidential land uses likely to exceed the City's standards do not create noise disturbances in existing noise-sensitive areas.

Action HS.8.2.1 Require an acoustical analysis as part of the environmental review process when noise-sensitive land uses are proposed in areas where current or projected exterior noise levels exceed the City's standards.

Action HS.8.2.2 Require that any potential noise impacts identified during the acoustical analysis be mitigated in the project design to the maximum extent feasible.

Action HS.8.2.3 Prepare and periodically update a map of citywide noise-sensitive areas.

POLICY HS.8.3 Work with the railroads and adjoining communities to seek quiet zone status for rail lines through Pinole.

GOAL HS.9 Eliminate or reduce noise from existing objectionable noise sources.

POLICY HS.9.1 Noise created by commercial or industrial sources associated with new projects or developments should be controlled so as not to exceed the noise level standards set forth in the table below (Maximum Allowable Noise Exposure for Stationary Noise Sources), as measured at any affected residential land use.

Action HS.9.1.1 Adopt the following allowable noise standards (Refer to **Table 7** of this report.)

Mitigation Measures

The proposed General Plan includes policies by which the compatibility of sensitive land uses that would be exposed to noise sources would be reviewed and appropriate mitigation measures incorporated to achieve acceptable noise levels. Implementation of the applicable policies and standards contained in the City's proposed *General Plan Update* would ensure that future development would either meet applicable noise criteria for land use compatibility and/or include noise attenuation features to meet applicable noise standards. With incorporation of the proposed General Plan policies, this impact would be considered **less than significant**.

Exposure to Construction Noise

Impact 2 Construction activities associated with the proposed General Plan Update could result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project and could result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance or of applicable standards of other agencies. This impact would be considered **potentially significant**.

Construction noise typically occurs intermittently and varies depending upon the nature or phase (e.g., demolition/land clearing, grading and excavation, erection) of construction. Noise generated by construction equipment, including earth movers, material handlers, and portable generators, can reach high levels. Temporary increases in ambient noise levels, particularly during the nighttime hours, could result in increased levels of annoyance and potential sleep disruption. Although noise ranges were found to be similar for all construction phases, the grading phase tends to involve the most equipment and resulted in slightly higher average-hourly noise levels. Typical noise levels for individual pieces of construction equipment and distances to predicted noise contours are summarized in **Table 8**. As depicted, individual equipment noise levels typically range from approximately 74 to 88 dBA L_{eq} at 50 feet. Typical operating cycles may involve 2 minutes of full power, followed by 3 or 4 minutes at lower settings. Intermittent noise levels can range from approximately 77 to 95 dBA L_{max}, the loudest of

which include blasting, and the use of pile drivers and impact devices (e.g., hoe rams, impact hammers).

TABLE 8
TYPICAL CONSTRUCTION EQUIPMENT NOISE

Equipment	Typical Noise Level (dBA) 50 feet from Source		Distance to Noise Contours (feet, dBA L_{eq})		
	L_{max}	L_{eq}	70 dBA	65 dBA	60 dBA
Air Compressor	80	76	105	187	334
Auger/Rock Drill	85	78	133	236	420
Backhoe/Front End Loader	80	76	105	187	334
Blasting	94	74	83	149	265
Boring Hydraulic Jack/Power Unit	80	77	118	210	374
Compactor (Ground)	80	73	74	133	236
Concrete Batch Plant	83	75	94	167	297
Concrete Mixer Truck	85	81	187	334	594
Concrete Mixer (Vibratory)	80	73	74	133	236
Concrete Pump Truck	82	75	94	167	297
Concrete Saw	90	83	236	420	748
Crane	85	77	118	210	374
Dozer/Grader/Excavator/Scraper	85	81	187	334	594
Drill Rig Truck	84	77	118	210	374
Generator	82	79	149	265	472
Gradall	85	81	187	334	594
Hydraulic Break Ram	90	80	167	297	529
Jack Hammer	85	78	133	236	420
Impact Hammer/Hoe Ram (Mounted)	90	83	236	420	748
Pavement Scarifier/Roller	85	78	133	236	420
Paver	85	82	210	374	667
Pile Driver (Impact/Vibratory)	95	88	420	748	1,330
Pneumatic Tools	85	82	210	374	667
Pumps	77	74	83	149	265
Truck (Dump/Flat Bed)	84	80	167	297	529

Note: Predicted noise contours associated with construction activities may vary depending on the type and number of pieces of equipment used, usage rates Predicted noise contours do not include shielding provided by intervening terrain and structures.
Sources: FHWA 2006

Depending on distances from nearby noise-sensitive land uses, construction activities associated with buildout of the General Plan Planning Area may result in temporary and periodic increases in ambient noise levels at nearby receptors. Increases in ambient noise levels, particularly during the nighttime hours, could result in increased levels of annoyance and potential sleep disruption

to occupants of nearby dwellings. As a result, because such increases could result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project and could result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, this impact is considered **potentially significant**.

Applicable City Code Sections

Municipal Code Section 15.02.070, *General Regulations of Construction*, identifies hourly restrictions pertaining to construction activities (City of Pinole 2010).

Proposed General Plan Update Policies

The proposed General Plan Update policies include the following requirements that contain specific performance standards related to construction-generated noise impacts.

GOAL HS.8 Ensure all new development complies with the noise standards established in the Pinole Health and Safety Element, and prevent all new noise sources from increasing the existing noise levels above acceptable standards.

POLICY HS.8.1 New development projects should meet acceptable exterior noise level standards. The normally acceptable noise standards for new land uses are established in Land Use Compatibility for Community Exterior Noise Environments (refer to **Table 6** of this report).

> **Action HS.8.1.1** Adopt a noise ordinance with noise level performance standards, including maximum allowable noise exposure, ambient versus nuisance noise, method of measuring noise, and enforcement procedures.
>
> **Action HS.8.1.2** Review development proposals to assure consistency with noise standards. Require new development of noise-creating uses to conform to the City's noise level standards.

Mitigation Measures

As noted above, the City's Municipal Code establishes hourly restrictions that pertain to construction-related activities. Due to the short-term nature of construction noise, the intermittent frequency of construction noise, and the required compliance with the construction noise standards established as part of the City's existing municipal code, construction noise level increases will not result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project that would result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance or of applicable standards of other agencies. In addition, Action HS.8.1.1 would require the City to adopt a noise ordinance for the control of stationary noise sources. Action Items HS.8.1.1 and HS.8.1.2 would require future development projects to be reviewed to assure consistency with the City's noise level standards. The impact of new construction noise is reduced to a **less than significant** level through compliance with the City's Municipal Code requirements and the application of the General Plan Update's mitigating goals, policies and associated action steps.

Exposure to Surface Transportation Noise

Impact 3 The proposed General Plan Update could result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project and could result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan, as a

result of increased traffic on the roadway network. In addition, future development of noise-sensitive land uses could be exposed to roadway and/or railroad noise levels in excess of the City's noise standards. This impact would be considered potentially **significant**.

Surface transportation noise sources within the City of Pinole include vehicle traffic on area roadways as well as trains traveling along the UPRR and BNSF railroads. Noise-related impacts associated with roadway vehicle traffic and railroads are discussed in more detail below.

Roadway Vehicle Traffic

Projected future noise levels and distances to noise contours for major roadways within the Planning Area at buildout of the General Plan Update are summarized in **Table 9**. Noise levels/contours were calculated using the FHWA roadway noise model based on Calveno vehicle reference noise levels and traffic data obtained from the traffic analysis prepared for this project. As depicted in **Table 9**, the highest traffic noise levels within the City of Pinole are generated by vehicle traffic on I-80. Projected future traffic noise contours for I-80 are depicted in **Figure 3**. It is important to note, that the predicted noise levels and distance to noise contours do not take into account shielding of noise by intervening structures or terrain. As a result, these noise contours should not be considered as absolute lines of demarcation. Because distances to noise contours will vary depending on site-specific conditions, these contours should be used as a guide for establishing a pattern of land uses that minimizes the exposure of community residents to excessive noise.

Predicted increases in traffic noise levels associated with buildout of the General Plan Update are compared to existing traffic noise levels in **Table 10**. As noted in **Table 10** and in comparison to existing conditions, buildout of the General Plan Update would result in increases in traffic noise levels of up to approximately 7 dBA along area roadways. Of the major roadways analyzed, implementation of the proposed General Plan Update would result in noticeable increases in traffic noise levels (i.e., 3 dBA or greater) along San Pablo Avenue, east of Pinole Valley Road; Pinole Valley Road, south of Wright Ave.; Henry Avenue, east of Ridgecrest Drive; and Shea Drive, west of Pinole Valley Road. Significant increases in traffic noise levels along some smaller local roadways could also potentially occur, particularly in areas located near proposed future development projects.

The City of Pinole is largely built out and the City does not anticipate expanding its Sphere of Influence or annexing any land into the City in the foreseeable future. Future infill development is anticipated to occur along primary commercial corridors, as identified in the *Three Corridors Specific Plan*. As such, a majority of the City's future growth is anticipated to included mixed and multiple family residential uses along portions of San Pablo Avenue, Pinole Valley Road, and Appian Way. Development of future land uses could occur within the projected 60 dBA CNEL noise contours of these roadways. Predicted noise levels at future land uses, including residential, office, business commercial, and other land uses considered "noise-sensitive", could, therefore, exceed the City's "normally acceptable" noise level of 60 dBA CNEL (refer to **Table 6** of this report).

For the above-discussed reasons, implementation of the General Plan Update would be considered to result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project and result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan as a result of increased traffic noise levels. As a result, exposure to vehicular traffic noise on area roadways would be considered a **potentially significant** impact.

Railroads

Projected volumes for future years are not currently available. Based on conversations with UPRR staff, future train volumes would not be anticipated to increase substantially in comparison to existing conditions. However, as congestion on area roadways increases, it is conceivable that reliance on freight and Amtrak train service could increase.

Within the City of Pinole, railroad noise levels are highly influenced by the sounding of locomotive warning horns. The use of locomotive horns is typically required by law on approach to public at-grade crossings. The Federal Transit Administration's (FTA) *Transit Noise and Vibration Impact Assessment Guidelines* (FTA, 2006) was used for the calculation of wayside noise levels generated by the trains traveling along the UPRR corridor. Wayside noise levels were calculated

TABLE 9
FUTURE CUMULATIVE TRAFFIC NOISE LEVELS AND DISTANCES TO NOISE CONTOURS IN THE PLANNING AREA

Roadway Segment	ADT	CNEL at 50 Feet from Near Travel-lane Centerline	Distance (feet) from Roadway Centerline to CNEL Contour		
			70	65	60
San Pablo Ave., W. of Del Monte Dr./Belmont Way	29,500	70.29	73.9	154.1	329.4
San Pablo Ave., W. of Appian Way	32,000	67.95	--	108.7	230.6
San Pablo Ave., E. of Pinole Valley Rd.	47,000	66.37	--	82.9	175.2
Appian Way, S. of Tara Hills Dr./Canyon Dr.	46,600	68.99	70.3	140.1	296.3
Appian Way, S. of Michael Dr.	41,000	69.02	62.0	127.5	271.7
Pinole Valley Rd., N. of Henry Ave.	18,800	62.39	--	--	96.3
Pinole Valley Rd., S. of Estate Ave.	19,900	64.28	--	64.2	132.4
Pinole Valley Rd., S. of Wright Ave.	6,600	60.97	--	--	64.8
Henry Ave., E. of Ridgecrest Dr.	8,000	57.84	--	--	--
Fitzgerald Dr., W. of Appian Way	30,000	66.28	--	81.8	172.8
Shea Drive, W. of Pinole Valley Rd.	8,600	58.16	--	--	--
I-80, W. of Appian Way	226,000	83.56	657.3	1,413.5	3,043.7
I-80, Appian Way to Pinole Valley Rd.	231,000	83.65	666.9	1,434.3	3,088.4
I-80, E. of Pinole Valley Rd.	217,000	83.38	639.8	1,375.8	2,962.4

Noise levels/contours were calculated using the FHWA roadway noise model based on Calveno vehicle reference noise levels and traffic data obtained from the traffic analysis prepared for this project. I-80 traffic volumes assumes 19% increase in projected future traffic volumes in comparison to existing conditions (CCTA 2009). Refer to ***Appendix A*** *for modeling output files.*
-- Contours are within 50 feet of roadway centerline/within roadway right-of-way

FIGURE 3
PREDICTED FUTURE NOISE CONTOURS – MAJOR TRANSPORTATION NOISE SOURCES

Image Source: Contra Costa County 2010
Note: Distances to noise contours are approximate. Noise contours assume no natural or human-made shielding (i.e., intervening terrain, vegetation, berms, walls, buildings) and should not be considered to represent absolute lines of demarcation.

TABLE 10
PREDICTED CHANGES IN TRAFFIC NOISE LEVELS
AT BUILDOUT OF THE GENERAL PLAN UPDATE AS COMPARED TO EXISTING CONDITIONS

Roadway Segment	CNEL at 50 Feet from Near Travel-lane Centerline		Predicted Change in Noise Level (CNEL)
	Existing	Future with Buildout of the General Plan Update	
San Pablo Ave., W. of Del Monte Dr./Belmont Way	67.92	70.29	2.37
San Pablo Ave., W. of Appian Way	66.04	67.95	1.91
San Pablo Ave., E. of Pinole Valley Rd.	62.85	66.37	3.52
Appian Way, S. of Tara Hills Dr./Canyon Dr.	67.66	68.99	1.33
Appian Way, S. of Michael Dr.	67.29	69.02	1.73
Pinole Valley Rd., N. of Henry Ave.	61.14	62.39	1.25
Pinole Valley Rd., S. of Estate Ave.	64.08	64.28	0.20
Pinole Valley Rd., S. of Wright Ave.	57.82	60.97	3.15
Henry Ave., E. of Ridgecrest Dr.	51.11	57.84	6.73
Fitzgerald Dr., W. of Appian Way	64.09	66.28	2.19
Shea Drive, W. of Pinole Valley Rd.	54.25	58.16	3.91
I-80, W. of Appian Way	82.81	83.56	0.75
I-80, Appian Way to Pinole Valley Rd.	82.90	83.65	0.75
I-80, E. of Pinole Valley Rd.	82.62	83.38	0.76

Notes: Traffic noise levels were estimated using the FHWA Highway Traffic Noise Prediction model (FHWA-RD-77-108) Traffic volumes were derived from the traffic analysis prepared for this project and assume that peak-hour volumes constitute approximately ten percent of average-daily volumes. Roadway data and vehicle distribution percentages were based on traffic data obtained during the site reconnaissance conducted for this project, as well as heavy-duty truck distribution percentages obtained from Caltrans.

based, in part, on average train speeds, train length, and the number of trains traveling during the daytime and nighttime hours. Predicted noise levels were calculated with and without the sounding of warning devices at grade crossings. With the sounding of train horns, the projected 60, 65 and 70 dBA L_{dn} noise contours near signalized grade crossings would extend to approximately 1,255, 585 and 158 feet from the track centerline of the UPRR, respectively.

Along the BNSF railroad, the projected 60, 65 and 70 dBA L_{dn} noise contours with horns sounding would extend to approximately 681, 368, and 85 feet from the track centerline, respectively. Without horns sounding, the projected 60, 65 and 70 dBA L_{dn} noise contours would extend to 429, 199 and 46 feet, from the UPRR; and, to approximately 199, 92 and 21 feet from the BNSF railroad, respectively. It is important to note that these projected noise contours do not include shielding or reflection of noise from intervening terrain or structures and actual noise levels will vary depending on site-specific conditions. Although these predicted noise contours are not considered site-specific, they are useful for determining potential land use conflicts.

Implementation of the proposed General Plan Update could result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance or of applicable standards of other agencies. As a result, exposure to railroad noise would be considered a potentially significant impact.

Applicable City Code Sections

No applicable City code sections have been identified that provide mitigation.

Proposed General Plan Policies

The proposed General Plan Update policies include the following requirements that contain specific performance standards addressing transportation noise.

GOAL HS.8 Ensure all new development complies with the noise standards established in the Pinole Health and Safety Element, and prevent all new noise sources from increasing the existing noise levels above acceptable standards.

POLICY HS.8.1 New development projects should meet acceptable exterior noise level standards. The normally acceptable noise standards for new land uses are established in Land Use Compatibility for Community Exterior Noise Environments (refer to **Table 6** of this report).

> **Action HS.8.1.2** Review development proposals to assure consistency with noise standards. Require new development of noise-creating uses to conform to the City's noise level standards.
>
> **Action HS.8.1.3** Require a combination of design features to reduce noise impacts on adjacent properties through the following and other means, as appropriate:
>
> - Screen and control noise sources such as parking, outdoor activities and mechanical equipment.
> - Increase setbacks for noise sources from adjacent dwellings.
> - Modify building designs and site planning to reduce noise exposure through a combination of sound attenuation (e.g., sound-rated windows and ventilation systems, insulation, physical and landscape buffers) and site planning (e.g., increased separation and private open area buffers) to reduce noise exposure.
> - Control hours of operation, including deliveries and trash pickup, to minimize noise impacts.
> - Require additional landscaping to assist with buffering where feasible.

POLICY HS.8.3 Work with the railroads and adjoining communities to seek quiet zone status for rail lines through Pinole.

GOAL HS.9 Eliminate or reduce noise from existing objectionable noise sources.

Mitigation Measures

Implementation of the proposed General Plan Update noise policies identified above would reduce potential transportation noise impacts. Future development projects would be required to analyze project-related noise impacts and incorporate necessary noise-reduction measures sufficient to achieve the applicable noise standards of the City's Noise Element. Accordingly, future development projects to be reviewed to assure consistency with the City's noise level standards. Implementation of these policies and actions will help to reduce impacts associated with proposed development. Noise-reduction measures typically implemented to reduce traffic noise include increased insulation, setbacks, and construction of sound barriers. Some measures, such as construction of sound barriers, may have secondary impacts related to aesthetics and

safety. The feasibility of these measures would be determined on a project-by-project basis. However, it may not be possible to fully mitigate traffic and/or railroad noise in all areas, particularly in existing development that may be constrained due to age, placement, or other factors which limit the feasibility of mitigation (residences fronting on the roadway that limits the ability to utilize noise barrier). As a result, increases in transportation noise associated with the proposed General Plan Update would result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project and would result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance or of applicable standards of other agencies, which is considered to be a **significant and unavoidable** impact.

Exposure to Aircraft Noise

Impact 4 Sensitive land uses would not be exposed to aircraft noise in excess of applicable noise standards for land use compatibility. This is considered a **less than significant** impact.

The Buchanan Field Airport is located on Sally Ride Drive in Concord, approximately 9 miles east of the City of Pinole. The *Contra Costa County Airport Land Use Compatibility Plan* addresses noise impacts. The *Contra Costa County Airport Land Use Compatibility Plan* was established to ensure that there are no direct conflicts with land uses, noise, or other issues that would impact the functionality and safety of airports located within the County. The City of Pinole is not located within the projected noise contours or within 2 miles of this nearest airport. For these reasons, the existing ambient noise environment of the City is not significantly influenced by aircraft noise. This impact is considered **less than significant**.

Exposure to Stationary Noise

Impact 5 Subsequent development associated with the proposed General Plan Update could result in new noise-sensitive land uses encroaching upon existing or proposed stationary noise sources or new stationary noise sources encroaching upon existing or proposed noise-sensitive land uses. This could result in a substantial permanent increase in ambient noise levels in the project vicinity above existing levels or could result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance or of applicable standards of other agencies. As a result, this impact is considered **potentially significant**.

Implementation of the proposed General Plan Update could result in the future development of land uses that generate noise levels in excess of applicable City noise standards. Such land uses may include commercial, industrial, institutional (public schools), and recreational. In addition, new noise-sensitive land uses could be located in areas of existing stationary noise sources. Exposure of noise-sensitive land uses to non-transportation noise levels could result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project and could result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance or of applicable standards of other agencies. As a result, this impact would be considered **potentially significant**.

Applicable City Code Sections that Provide Mitigation

No applicable City code sections have been identified that provide mitigation.

Proposed General Plan Update Policies that Provide Mitigation

The proposed General Plan Update policies include the following mitigation requirements that contain specific performance standards addressing stationary noise.

GOAL HS.8 Ensure all new development complies with the noise standards established in the Pinole Health and Safety Element, and prevent all new noise sources from increasing the existing noise levels above acceptable standards.

POLICY HS.8.1 New development projects should meet acceptable exterior noise level standards. The normally acceptable noise standards for new land uses are established in Land Use Compatibility for Community Exterior Noise Environments (refer to **Table 6** of this report).

> **Action HS.8.1.1** Adopt a noise ordinance with noise level performance standards, including maximum allowable noise exposure, ambient versus nuisance noise, method of measuring noise, and enforcement procedures.
>
> **Action HS.8.1.2** Review development proposals to assure consistency with noise standards. Require new development of noise-creating uses to conform to the City's noise level standards.
>
> **Action HS.8.1.3** Require a combination of design features to reduce noise impacts on adjacent properties through the following and other means, as appropriate:
>
> - Screen and control noise sources such as parking, outdoor activities and mechanical equipment.
> - Increase setbacks for noise sources from adjacent dwellings.
> - Modify building designs and site planning to reduce noise exposure through a combination of sound attenuation (e.g., sound-rated windows and ventilation systems, insulation, physical and landscape buffers) and site planning (e.g., increased separation and private open area buffers) to reduce noise exposure.
> - Control hours of operation, including deliveries and trash pickup, to minimize noise impacts.
> - Require additional landscaping to assist with buffering where feasible.

POLICY HS.8.2 Ensure that proposed nonresidential land uses likely to exceed the City's standards do not create noise disturbances in existing noise-sensitive areas.

> **Action HS.8.2.1** Require an acoustical analysis as part of the environmental review process when noise-sensitive land uses are proposed in areas where current or projected exterior noise levels exceed the City's standards.
>
> **Action HS.8.2.2** Require that any potential noise impacts identified during the acoustical analysis be mitigated in the project design to the maximum extent feasible.
>
> **Action HS.8.2.3** Prepare and periodically update a map of citywide noise-sensitive areas.

POLICY HS.8.3 Work with the railroads and adjoining communities to seek quiet zone status for rail lines through Pinole.

GOAL HS.9 Eliminate or reduce noise from existing objectionable noise sources.

POLICY HS.9.1 Noise created by commercial or industrial sources associated with new projects or developments should be controlled so as not to exceed the noise level standards set forth in the

table below (Maximum Allowable Noise Exposure for Stationary Noise Sources), as measured at any affected residential land use.

> **Action HS.9.1.1** Adopt the following allowable noise standards (Refer to **Table 7** of this report.)

Mitigation Measures

Implementation of the above policies and standards would reduce noise associated with new stationary noise sources and the placement of new noise-sensitive land uses over which the City has jurisdiction (e.g., commercial and industrial sites, residential uses). Future development projects to be reviewed to assure consistency with the City's noise level standards. However, some stationary noise impacts cannot be mitigated to a less than significant level due to limitations on the City to control the exact placement of substantial noise-generating uses (e.g., school facilities) in proximity to noise-sensitive land uses (e.g., residential). Accordingly, stationary source noise levels from activities on uses for which the City has limited control could result in noise levels that exceed the City's maximum allowable noise standards. Thus, this impact is considered **significant and unavoidable.** No additional feasible mitigation has been identified that would further reduce this impact.

Exposure to Groundborne Vibration

Impact 6 The proposed General Plan Update could result in exposure of persons to or generation of excessive groundborne vibration levels. As a result, this impact is considered **potentially significant**.

The effects of ground vibration can vary from no perceptible effects at the lowest levels, low rumbling sounds and detectable vibrations at moderate levels, and slight damage to nearby structures at the highest levels. At the highest levels of vibration, damage to structures is primarily architectural (e.g., loosening and cracking of plaster or stucco coatings) and rarely results in structural damage. The effects of ground vibration are influenced by the duration of the vibration and the distance from the vibration source.

There are no federal, state, or local regulatory standards for vibration. However, various criteria have been established to assist in the evaluation of vibration impacts. For instance, Caltrans has developed vibration criteria based on human perception and structural damage risks. For most structures, Caltrans considers a peak-particle velocity (ppv) threshold of 0.2 inches per second (in/sec) to be the level at which architectural damage (i.e., minor cracking of plaster walls and ceilings) to normal structures may occur. Below 0.10 in/sec there is "virtually no risk of 'architectural' damage to normal buildings." Damage to historic or ancient buildings could occur at levels of 0.08 in/sec ppv. In terms of human annoyance, continuous vibrations in excess of 0.1 in/sec ppv are identified by Caltrans as the minimum level perceptible level for ground vibration. Short periods of ground vibration in excess of 0.2 in/sec ppv can be expected to result in increased levels of annoyance to people within buildings (Caltrans, 2002b).

Groundborne vibration sources located within the city that could potentially affect future development would be primarily associated with railroad operations. Construction activities could also result in short-term groundborne vibration levels that could affect nearby sensitive land uses. Groundborne vibration levels and associated impacts as a result of trains traveling along the UPRR and BNSF railroads and short-term construction activities are discussed in more detail below.

Railroad

Groundborne vibration levels associated with railroad operations are dependent on various factors, including track type and condition, train speeds, site conditions, and train characteristics, such as the number of engines, number of cars, weight, and wheel type and condition. Site and geologic conditions can also influence how vibration propagates at increasing distance from the track. Based on Caltrans vibration measurement data, the highest train vibration level measured was 0.36 in/sec at 10 feet. Based on this level, Caltrans prepared a "drop-off curve" used to estimate maximum train vibration levels at distance from the track centerline. The curve represents maximum expected vibration levels from trains and thus is considered by Caltrans to be "very conservative" (Caltrans 2002b).

Based on the Caltrans drop-off curve for train vibration levels, predicted maximum groundborne vibrations levels along the UPRR corridors would not exceed 0.20 in/sec ppv beyond approximately 7.5 feet from the track centerline, the level above which architectural damage for typical building construction or increased levels of annoyance for individuals in buildings may occur (Caltrans, 2002b). The proposed General Plan Update would not result in the development of new land uses within 7.5 feet of railroad track centerlines which in turn would not result in the exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels. As a result, this impact would be considered **less than significant**.

Construction Activities

With the exception of pavement breaking, blasting, and pile driving, construction activities and related equipment typically generate groundborne vibration levels of less than 0.2 in/sec, which is the architectural damage risk threshold recommended by Caltrans. Based on Caltrans measurement data, use of off-road tractors, dozers, earthmovers, and haul trucks generates groundborne vibration levels of less than 0.10 in/sec, or one half of the architectural damage risk level, at 10 feet. The highest vibration level associated with a pavement breaker was 2.88 in/sec at 10 feet. During pile driving, vibration levels near the source depend mainly on the soil's penetration resistance as well as the type of pile driver used. Impact pile drivers tend to generate higher vibration levels than vibratory or drilled piles. Groundborne vibration levels of pile drivers can range from approximately 0.17 to 1.5 in/sec ppv. Caltrans indicates that the distance to the 0.2 in/sec ppv criterion for pile driving activities would occur at a distance of approximately 50 feet. However, as with construction-generated noise levels, pile driving can result in a high potential for human annoyance from vibrations, and pile-driving activities are typically considered as potentially significant if these activities are performed within 200 feet of occupied structures (Caltrans, 2002b). Vibration levels associated with blasting are highly variable, site-specific, and dependent on various factors, such as the amount of explosive used, soil conditions between the blast site and the receptor, and the depth where blasting would take place. Blasting that occurs below the surface would typically produce lower vibration levels at a receptor due to additional attenuation provided by distance and transmission through soil and rock. No applicable City Code sections or General Plan policies have been identified that would reduce this impact. As a result, this impact would be considered **potentially significant**.

Applicable City Code Sections that Provide Mitigation

The City's Municipal Code does not identify groundborne vibration criteria for groundborne vibration. As noted earlier in this report, the City's Municipal Code (Title 15, Chapter II, Section 15.02.070, *General Regulations of Construction)* includes hourly restrictions and nuisance provisions pertaining to construction activities (City of Pinole 2010).

Proposed General Plan Update Policies that Provide Mitigation

No applicable proposed General Plan policies have been identified that would reduce this impact.

Mitigation Measures

Similar to short-term noise from construction activities, vibrations from construction activities is inevitable and cannot be mitigated beyond a certain level. Thus, local agencies frequently tolerate short-term vibrations at levels that they would not accept for permanent vibration sources. A more severe approach would be impractical, and might preclude the kind of construction activities that are inevitable from time to time in urban environments. Most residents of urban areas recognize this reality, and expect to experience vibration from construction activities on occasion. Vibration from construction activities is considered to be temporary in the sense that once the construction activities cease, so to will the vibrations from the construction activities. Vibrations from construction activities are also considered to be intermittent due to the type, location and duration of construction equipment being used.

Due to the short-term nature of construction vibrations, the intermittent frequency of construction vibrations, and the required compliance with the City's Municipal Code hourly restrictions for construction-related activities, construction vibration level increases would typically not result in exposure of persons to or generation of excessive groundborne vibration. By restricting the hours of construction to avoid vibrations during times when it could potentially be more of a nuisance, the impact of new construction vibration is reduced to a **less than significant** level. In addition, individual development projects will be subject to site-specific environmental review, which will necessitate identification of site-specific mitigation in the event that significant impacts are identified.

CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The cumulative noise setting includes future development anticipated within Contra Costa County in addition to buildout of the proposed General Plan Update. The future (cumulative) ambient noise environment will be affected by buildout of the proposed Pinole General Plan. Cumulative development would alter the intensity of land uses in the region and increase housing, employment, shopping, and recreational opportunities. Such development would result in new noise generators and noise-sensitive land uses and potentially increase land use conflicts and hazards associated with noise.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Transportation Noise Impacts

Impact 7 Implementation of the proposed General Plan Update, in combination with other development in nearby unincorporated areas of the County, would increase transportation noise along area roadways. This would be a **cumulatively considerable** impact.

As identified in **Table 10**, implementation of the proposed General Plan Update, in combination with anticipated growth by the year 2030, would result in noticeable increases in traffic noise. In

comparison to existing conditions, increases in traffic noise levels of up to approximately 7 dBA CNEL would occur along area roadways. Of the major roadways analyzed, implementation of the proposed General Plan Update would result in noticeable increases in traffic noise levels (i.e., 3 dBA or greater) along San Pablo Avenue, east of Pinole Valley Road; Pinole Valley Road, south of Wright Ave.; Henry Avenue, east of Ridgecrest Drive; and Shea Drive, west of Pinole Valley Road. Significant increases in traffic noise levels along some smaller local roadways could also potentially occur, particularly in areas located near proposed future development projects. This would be a **cumulatively considerable** impact.

Proposed General Plan Policies that Provide Mitigation

The proposed General Plan Update policies include mitigation requirements that contain specific performance standards addressing transportation noise. These policies are listed under *Impact 3*.

Mitigation Measures

Implementation of the proposed General Plan Update noise policies identified under *Impact 3* would reduce potential transportation noise impacts in the city. Future development projects would be required to analyze project-related noise impacts and incorporate necessary noise-reduction measures sufficient to achieve applicable noise standards. Implementation of these policies and actions will help to reduce impacts associated with proposed development. Noise-reduction measures typically implemented to reduce transportation noise include increased insulation and building requirements, setbacks, and construction of sound barriers. Some measures, such as construction of sound barriers, may have secondary impacts related to aesthetics and safety. The feasibility of these measures would be determined on a project-by-project basis.

However, it is may not be possible to fully mitigate transportation noise in all areas of the city, particularly in existing development that may be constrained due to age, placement, or other factors which limit the feasibility of mitigation (residents fronting on the roadway that limits the ability to utilize noise barrier). In addition, the City does not have jurisdiction to implement noise mitigation outside of its boundaries to address potential noise impacts to the City of Richmond, The City of Hercules, or unincorporated area of Contra Costa County. As a result, the proposed General Plan Update's contribution to cumulative traffic noise would be **cumulatively considerable** and a **significant and unavoidable** impact.

REFERENCES

AMTRAK. url: http://www.amtrakcalifornia.com/rail/go/amtrak/index.cfm. Accessed: May 1, 2010.

California Department of Transportation (Caltrans). 2002a. *California Airport Land Use Planning Handbook.*

California Department of Transportation (Caltrans). 2002b. *Transportation Related Earthborne Vibrations.*

California Department of Transportation (Caltrans). 2007. *2006 Annual Average Daily Truck Traffic on the California State Highway System.*

California Department of Transportation (Caltrans). *IS/EA Annotated Outline*. Website url: http://www.dot.ca.gov/ser/forms.htm. Accessed: December 18, 2009.

California Governor's Office of Planning and Research (OPR). 2003. *State of California General Plan Guidelines.*

City of Pinole. *City of Pinole Municipal Code*. Accessed: May 3, 2010. Available at Website Url: http://www.amlegal.com/nxt/gateway.dll/California/pinole_ca/pinolecamunicipalcode?f=templates$fn=default.htm$3.0$vid=amlegal:pinole_ca.

City of Pinole. 1995. *City of Pinole General Plan*.

Contra Costa County. Accessed: May 3, 2010. *Mapping Information Center.* Website url: http://www.ccmap.us/#.

Contra Costa County. December 13, 2000. *Airport Land Use Compatibility Plan*. Available at Website url: http://www.co.contra-costa.ca.us/index.aspx?nid=714

Contra Costa County Transportation Authority (CCTA). February 18, 2009. Draft Environmental Impact Report, 2009 Countywide Comprehensive Transportation Plan.

United States Department of Transportation, Federal Transit Administration (FTA). 2006. *Transit Noise and Vibration Impact Assessment*.

United States Department of Transportation, Federal Highway Administration (FHWA). 2006. *Roadway Construction Noise Model*.

United States Environmental Protection Agency (EPA). 1971. *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances*.

United States Environmental Protection Agency (EPA). 1974. *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety*.

TRAFFIC NOISE MODELING

EXISTING CONDITIONS

SAN PABLO AVE, W OF DEL MONTE DR/BELMONT WAY

```
     TRAFFIC DISTRIBUTION PERCENTAGES
     DAY        EVENING    NIGHT
     ---        -------    -----
AUTOS      75.51      12.57      9.34
M-TRUCKS      1.56       0.09      0.19
H-TRUCKS      0.64       0.02      0.08
ADT:  17100     SPEED:  45     ACTIVE HALF WIDTH (FT):  21
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE =  67.92
* *  DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *
70 CNEL  65 CNEL   60 CNEL   55 CNEL
-------  -------   -------   -------
   0.0     108.2     229.6     492.8
```

SAN PABLO AVE, W OF APPIAN WAY

```
     TRAFFIC DISTRIBUTION PERCENTAGES
     DAY        EVENING    NIGHT
     ---        -------    -----
AUTOS      75.51      12.57      9.34
M-TRUCKS      1.56       0.09      0.19
H-TRUCKS      0.64       0.02      0.08
ADT:  20600     SPEED:  35     ACTIVE HALF WIDTH (FT):  21
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE =  66.04
* *  DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *
70 CNEL  65 CNEL   60 CNEL   55 CNEL
-------  -------   -------   -------
   0.0      82.2     172.5     369.4
```

SAN PABLO AVE, E OF PINOLE VALLEY RD

```
     TRAFFIC DISTRIBUTION PERCENTAGES
     DAY        EVENING    NIGHT
     ---        -------    -----
AUTOS      75.51      12.57      9.34
M-TRUCKS      1.56       0.09      0.19
H-TRUCKS      0.64       0.02      0.08
ADT:  20900     SPEED:  25     ACTIVE HALF WIDTH (FT):  18
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE =  62.85
* *  DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *
70 CNEL  65 CNEL   60 CNEL   55 CNEL
-------  -------   -------   -------
   0.0       0.0     103.2     219.5
```

APPIAN WAY, S OF TARA HILLS DRIVE/CANYON DRIVE

```
     TRAFFIC DISTRIBUTION PERCENTAGES
     DAY        EVENING    NIGHT
     ---        -------    -----
AUTOS      75.51      12.57      9.34
M-TRUCKS      1.56       0.09      0.19
H-TRUCKS      0.64       0.02      0.08
ADT:  34300     SPEED:  35     ACTIVE HALF WIDTH (FT):  30
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE =  67.66
* *  DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *
70 CNEL  65 CNEL   60 CNEL   55 CNEL
-------  -------   -------   -------
  59.8     115.5     242.2     518.5
```

APPIAN WAY, S OF MICHAEL DRIVE

```
     TRAFFIC DISTRIBUTION PERCENTAGES
     DAY        EVENING    NIGHT
     ---        -------    -----
AUTOS      75.51      12.57      9.34
M-TRUCKS      1.56      0.09      0.19
H-TRUCKS      0.64      0.02      0.08
ADT:  27500     SPEED:  35     ACTIVE HALF WIDTH (FT):  21
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE =  67.29
* *  DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *
70 CNEL  65 CNEL   60 CNEL   55 CNEL
-------  -------   -------   -------
   0.0      98.6     208.7     447.6
```

PINOLE VALLEY ROAD, N OF HENRY AVE

```
     TRAFFIC DISTRIBUTION PERCENTAGES
     DAY        EVENING    NIGHT
     ---        -------    -----
AUTOS      75.51      12.57      9.34
M-TRUCKS      1.56      0.09      0.19
H-TRUCKS      0.64      0.02      0.08
ADT:  14100     SPEED:  25     ACTIVE HALF WIDTH (FT):  18
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE =  61.14
* *  DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *
70 CNEL  65 CNEL   60 CNEL   55 CNEL
-------  -------   -------   -------
   0.0       0.0      80.2     169.3
```

PINOLE VALLEY ROAD, S OF ESTATE AVE

```
     TRAFFIC DISTRIBUTION PERCENTAGES
     DAY        EVENING    NIGHT
     ---        -------    -----
AUTOS      75.51      12.57      9.34
M-TRUCKS      1.56      0.09      0.19
H-TRUCKS      0.64      0.02      0.08
ADT:  19000     SPEED:  30     ACTIVE HALF WIDTH (FT):  21
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE =  64.08
* *  DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *
70 CNEL  65 CNEL   60 CNEL   55 CNEL
-------  -------   -------   -------
   0.0      62.5     128.5     273.8
```

PINOLE VALLEY ROAD, S OF WRIGHT AVE

```
     TRAFFIC DISTRIBUTION PERCENTAGES
     DAY        EVENING    NIGHT
     ---        -------    -----
AUTOS      76.14      12.66      9.52
M-TRUCKS      1.56      0.08      0.01
H-TRUCKS      0.01      0.01      0.01
ADT:  3200     SPEED:  35     ACTIVE HALF WIDTH (FT):  6
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE =  57.82
* *  DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *
70 CNEL  65 CNEL   60 CNEL   55 CNEL
-------  -------   -------   -------
   0.0       0.0       0.0      86.1
```

HENRY AVE, E OF RIDGECREST RD

```
     TRAFFIC DISTRIBUTION PERCENTAGES
     DAY        EVENING    NIGHT
     ---        -------    -----
AUTOS      76.14      12.66      9.52
```

M-TRUCKS 1.56 0.08 0.01
H-TRUCKS 0.01 0.01 0.01
ADT: 1700 SPEED: 25 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE = 51.11
* * DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *
70 CNEL 65 CNEL 60 CNEL 55 CNEL
--- --- --- ---
0.0 0.0 0.0 0.0

FITZGERALD DRIVE, W OF APPIAN WAY
TRAFFIC DISTRIBUTION PERCENTAGES
DAY EVENING NIGHT
--- --- ---
AUTOS 75.51 12.57 9.34
M-TRUCKS 1.56 0.09 0.19
H-TRUCKS 0.64 0.02 0.08
ADT: 18100 SPEED: 30 ACTIVE HALF WIDTH (FT): 18
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE = 64.09
* * DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *
70 CNEL 65 CNEL 60 CNEL 55 CNEL
--- --- --- ---
0.0 59.8 124.0 265.0

SHEA DRIVE, W OF PINOLE VALLEY RD
TRAFFIC DISTRIBUTION PERCENTAGES
DAY EVENING NIGHT
--- --- ---
AUTOS 76.14 12.66 9.52
M-TRUCKS 1.56 0.08 0.01
H-TRUCKS 0.01 0.01 0.01
ADT: 3500 SPEED: 25 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE = 54.25
* * DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *
70 CNEL 65 CNEL 60 CNEL 55 CNEL
--- --- --- ---
0.0 0.0 0.0 0.0

I-80, W OF APPIAN WAY
TRAFFIC DISTRIBUTION PERCENTAGES
DAY EVENING NIGHT
--- --- ---
AUTOS 74.91 12.58 8.33
M-TRUCKS 1.16 0.21 0.23
H-TRUCKS 1.64 0.55 0.39
ADT: 190000 SPEED: 65 ACTIVE HALF WIDTH (FT): 42
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE = 82.81
* * DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *
70 CNEL 65 CNEL 60 CNEL 55 CNEL
--- --- --- ---
585.8 1259.3 2711.3 5839.6

I-80, APPIAN WAY TO PINOLE VALLEY RD
TRAFFIC DISTRIBUTION PERCENTAGES
DAY EVENING NIGHT
--- --- ---
AUTOS 74.91 12.58 8.33
M-TRUCKS 1.16 0.21 0.23
H-TRUCKS 1.64 0.55 0.39
ADT: 194000 SPEED: 65 ACTIVE HALF WIDTH (FT): 42
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE = 82.90
* * DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *

70 CNEL 65 CNEL 60 CNEL 55 CNEL
--- --- --- ---
594.0 1276.9 2749.2 5921.3

I-80, E OF PINOLE VALLEY RD

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.91	12.58	8.33
M-TRUCKS	1.16	0.21	0.23
H-TRUCKS	1.64	0.55	0.39

ADT: 182000 SPEED: 65 ACTIVE HALF WIDTH (FT): 42
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE = 82.62
* * DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *
70 CNEL 65 CNEL 60 CNEL 55 CNEL
--- --- --- ---
569.3 1223.7 2634.7 5674.6

CUMULATIVE CONDITIONS

SAN PABLO AVE, W OF DEL MONTE DR/BELMONT WAY

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ADT: 29500 SPEED: 45 ACTIVE HALF WIDTH (FT): 21
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE = 70.29
* * DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *
70 CNEL 65 CNEL 60 CNEL 55 CNEL
--- --- --- ---
73.9 154.1 329.4 708.4

SAN PABLO AVE, W OF APPIAN WAY

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ADT: 32000 SPEED: 35 ACTIVE HALF WIDTH (FT): 21
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE = 67.95
* * DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *
70 CNEL 65 CNEL 60 CNEL 55 CNEL
--- --- --- ---
0.0 108.7 230.6 495.1

SAN PABLO AVE, E OF PINOLE VALLEY RD

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ADT: 47000 SPEED: 25 ACTIVE HALF WIDTH (FT): 18
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE = 66.37
* * DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *
70 CNEL 65 CNEL 60 CNEL 55 CNEL
--- --- --- ---
0.0 82.9 175.2 375.9

APPIAN WAY, S OF TARA HILLS DRIVE/CANYON DRIVE

```
     TRAFFIC DISTRIBUTION PERCENTAGES
     DAY        EVENING    NIGHT
     ---        -------    -----
AUTOS      75.51      12.57      9.34
M-TRUCKS      1.56       0.09      0.19
H-TRUCKS      0.64       0.02      0.08
ADT:  46600     SPEED:  35     ACTIVE HALF WIDTH (FT):  30
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE =  68.99
* *  DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *
70 CNEL  65 CNEL   60 CNEL   55 CNEL
-------  -------   -------   -------
  70.3     140.1     296.3     635.6
```

APPIAN WAY, S OF MICHAEL DRIVE

```
     TRAFFIC DISTRIBUTION PERCENTAGES
     DAY        EVENING    NIGHT
     ---        -------    -----
AUTOS      75.51      12.57      9.34
M-TRUCKS      1.56       0.09      0.19
H-TRUCKS      0.64       0.02      0.08
ADT:  41000     SPEED:  35     ACTIVE HALF WIDTH (FT):  21
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE =  69.02
* *  DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *
70 CNEL  65 CNEL   60 CNEL   55 CNEL
-------  -------   -------   -------
  62.0     127.5     271.7     583.8
```

PINOLE VALLEY ROAD, N OF HENRY AVE

```
     TRAFFIC DISTRIBUTION PERCENTAGES
     DAY        EVENING    NIGHT
     ---        -------    -----
AUTOS      75.51      12.57      9.34
M-TRUCKS      1.56       0.09      0.19
H-TRUCKS      0.64       0.02      0.08
ADT:  18800     SPEED:  25     ACTIVE HALF WIDTH (FT):  18
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE =  62.39
* *  DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *
70 CNEL  65 CNEL   60 CNEL   55 CNEL
-------  -------   -------   -------
   0.0       0.0      96.3     204.7
```

PINOLE VALLEY ROAD, S OF ESTATE AVE

```
     TRAFFIC DISTRIBUTION PERCENTAGES
     DAY        EVENING    NIGHT
     ---        -------    -----
AUTOS      75.51      12.57      9.34
M-TRUCKS      1.56       0.09      0.19
H-TRUCKS      0.64       0.02      0.08
ADT:  19900     SPEED:  30     ACTIVE HALF WIDTH (FT):  21
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE =  64.28
* *  DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *
70 CNEL  65 CNEL   60 CNEL   55 CNEL
-------  -------   -------   -------
   0.0      64.2     132.4     282.3
```

PINOLE VALLEY ROAD, S OF WRIGHT AVE

```
     TRAFFIC DISTRIBUTION PERCENTAGES
     DAY        EVENING    NIGHT
     ---        -------    -----
AUTOS      76.14      12.66      9.52
M-TRUCKS      1.56       0.08      0.01
```

H-TRUCKS 0.01 0.01 0.01
ADT: 6600 SPEED: 35 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE = 60.97
* * DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *
70 CNEL 65 CNEL 60 CNEL 55 CNEL
--- --- --- ---
0.0 0.0 64.8 139.2

HENRY AVE, E OF RIDGECREST RD
TRAFFIC DISTRIBUTION PERCENTAGES
DAY EVENING NIGHT
--- --- ---
AUTOS 76.14 12.66 9.52
M-TRUCKS 1.56 0.08 0.01
H-TRUCKS 0.01 0.01 0.01
ADT: 8000 SPEED: 25 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE = 57.84
* * DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *
70 CNEL 65 CNEL 60 CNEL 55 CNEL
--- --- --- ---
0.0 0.0 0.0 86.3

FITZGERALD DRIVE, W OF APPIAN WAY
TRAFFIC DISTRIBUTION PERCENTAGES
DAY EVENING NIGHT
--- --- ---
AUTOS 75.51 12.57 9.34
M-TRUCKS 1.56 0.09 0.19
H-TRUCKS 0.64 0.02 0.08
ADT: 30000 SPEED: 30 ACTIVE HALF WIDTH (FT): 18
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE = 66.28
* * DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *
70 CNEL 65 CNEL 60 CNEL 55 CNEL
--- --- --- ---
0.0 81.8 172.8 370.7

SHEA DRIVE, W OF PINOLE VALLEY RD
TRAFFIC DISTRIBUTION PERCENTAGES
DAY EVENING NIGHT
--- --- ---
AUTOS 76.14 12.66 9.52
M-TRUCKS 1.56 0.08 0.01
H-TRUCKS 0.01 0.01 0.01
ADT: 8600 SPEED: 25 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE = 58.16
* * DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *
70 CNEL 65 CNEL 60 CNEL 55 CNEL
--- --- --- ---
0.0 0.0 0.0 90.5

I-80, W OF APPIAN WAY
TRAFFIC DISTRIBUTION PERCENTAGES
DAY EVENING NIGHT
--- --- ---
AUTOS 74.91 12.58 8.33
M-TRUCKS 1.16 0.21 0.23
H-TRUCKS 1.64 0.55 0.39
ADT*: 226000 SPEED: 65 ACTIVE HALF WIDTH (FT): 42
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE = 83.56
* * DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *
70 CNEL 65 CNEL 60 CNEL 55 CNEL

```
------- -------  -------  -------
  657.3    1413.5    3043.7    6555.7
```
**ADT assumes 19% increase in projected future traffic volumes in comparison to existing conditions (CCTA 2009).*

I-80, APPIAN WAY TO PINOLE VALLEY RD

```
      TRAFFIC DISTRIBUTION PERCENTAGES
      DAY        EVENING    NIGHT
      ---        -------    -----
AUTOS       74.91       12.58       8.33
M-TRUCKS        1.16        0.21        0.23
H-TRUCKS        1.64        0.55        0.39
ADT*:  231000      SPEED:  65      ACTIVE HALF WIDTH (FT):  42
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE =  83.65
* *  DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *
70 CNEL  65 CNEL   60 CNEL   55 CNEL
------- -------  -------  -------
  666.9    1434.3    3088.4    6652.0
```
**ADT assumes 19% increase in projected future traffic volumes in comparison to existing conditions (CCTA 2009).*

I-80, E OF PINOLE VALLEY RD

```
      TRAFFIC DISTRIBUTION PERCENTAGES
      DAY        EVENING    NIGHT
      ---        -------    -----
AUTOS       74.91       12.58       8.33
M-TRUCKS        1.16        0.21        0.23
H-TRUCKS        1.64        0.55        0.39
ADT*:  217000      SPEED:  65      ACTIVE HALF WIDTH (FT):  42
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE =  83.38
* *  DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *
70 CNEL  65 CNEL   60 CNEL   55 CNEL
------- -------  -------  -------
  639.8    1375.8    2962.4    6380.5
```
**ADT assumes 19% increase in projected future traffic volumes in comparison to existing conditions (CCTA 2009).*

TRAFFIC NOISE MODELING

EXISTING CONDITIONS

SAN PABLO AVE, W OF DEL MONTE DR/BELMONT WAY

```
      TRAFFIC DISTRIBUTION PERCENTAGES
      DAY        EVENING    NIGHT
      ---        -------    -----
AUTOS       75.51       12.57       9.34
M-TRUCKS        1.56        0.09        0.19
H-TRUCKS        0.64        0.02        0.08
ADT:  17100     SPEED:  45     ACTIVE HALF WIDTH (FT):  21
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE =  67.92
* *  DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *
70 CNEL  65 CNEL   60 CNEL   55 CNEL
-------  -------   -------   -------
   0.0      108.2      229.6      492.8
```

SAN PABLO AVE, W OF APPIAN WAY

```
      TRAFFIC DISTRIBUTION PERCENTAGES
      DAY        EVENING    NIGHT
      ---        -------    -----
AUTOS       75.51       12.57       9.34
M-TRUCKS        1.56        0.09        0.19
H-TRUCKS        0.64        0.02        0.08
ADT:  20600     SPEED:  35     ACTIVE HALF WIDTH (FT):  21
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE =  66.04
* *  DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *
70 CNEL  65 CNEL   60 CNEL   55 CNEL
-------  -------   -------   -------
   0.0       82.2      172.5      369.4
```

SAN PABLO AVE, E OF PINOLE VALLEY RD

```
      TRAFFIC DISTRIBUTION PERCENTAGES
      DAY        EVENING    NIGHT
      ---        -------    -----
AUTOS       75.51       12.57       9.34
M-TRUCKS        1.56        0.09        0.19
H-TRUCKS        0.64        0.02        0.08
ADT:  20900     SPEED:  25     ACTIVE HALF WIDTH (FT):  18
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE =  62.85
* *  DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *
70 CNEL  65 CNEL   60 CNEL   55 CNEL
-------  -------   -------   -------
   0.0        0.0      103.2      219.5
```

APPIAN WAY, S OF TARA HILLS DRIVE/CANYON DRIVE

```
      TRAFFIC DISTRIBUTION PERCENTAGES
      DAY        EVENING    NIGHT
      ---        -------    -----
AUTOS       75.51       12.57       9.34
M-TRUCKS        1.56        0.09        0.19
H-TRUCKS        0.64        0.02        0.08
ADT:  34300     SPEED:  35     ACTIVE HALF WIDTH (FT):  30
SITE CHARACTERISTICS: SOFT     GRADE (PERCENT):  .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE =  67.66
* *  DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *
70 CNEL  65 CNEL   60 CNEL   55 CNEL
-------  -------   -------   -------
  59.8      115.5      242.2      518.5
```

APPIAN WAY, S OF MICHAEL DRIVE

```
      TRAFFIC DISTRIBUTION PERCENTAGES
      DAY        EVENING    NIGHT
      ---        -------    -----
AUTOS       75.51       12.57       9.34
M-TRUCKS        1.56        0.09        0.19
H-TRUCKS        0.64        0.02        0.08
ADT:  27500     SPEED:  35     ACTIVE HALF WIDTH (FT):  21
```

SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE = 67.29
* * DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	98.6	208.7	447.6

PINOLE VALLEY ROAD, N OF HENRY AVE

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ADT: 14100 SPEED: 25 ACTIVE HALF WIDTH (FT): 18
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE = 61.14
* * DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	80.2	169.3

PINOLE VALLEY ROAD, S OF ESTATE AVE

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ADT: 19000 SPEED: 30 ACTIVE HALF WIDTH (FT): 21
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE = 64.08
* * DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	62.5	128.5	273.8

PINOLE VALLEY ROAD, S OF WRIGHT AVE

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	76.14	12.66	9.52
M-TRUCKS	1.56	0.08	0.01
H-TRUCKS	0.01	0.01	0.01

ADT: 3200 SPEED: 35 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE = 57.82
* * DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	0.0	86.1

HENRY AVE, E OF RIDGECREST RD

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	76.14	12.66	9.52
M-TRUCKS	1.56	0.08	0.01
H-TRUCKS	0.01	0.01	0.01

ADT: 1700 SPEED: 25 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE = 51.11
* * DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	0.0	0.0

FITZGERALD DRIVE, W OF APPIAN WAY

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19

H-TRUCKS 0.64 0.02 0.08
ADT: 18100 SPEED: 30 ACTIVE HALF WIDTH (FT): 18
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE = 64.09
* * DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *
70 CNEL 65 CNEL 60 CNEL 55 CNEL
--- --- --- ---
0.0 59.8 124.0 265.0

SHEA DRIVE, W OF PINOLE VALLEY RD
TRAFFIC DISTRIBUTION PERCENTAGES
DAY EVENING NIGHT
--- --- ---
AUTOS 76.14 12.66 9.52
M-TRUCKS 1.56 0.08 0.01
H-TRUCKS 0.01 0.01 0.01
ADT: 3500 SPEED: 25 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE = 54.25
* * DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *
70 CNEL 65 CNEL 60 CNEL 55 CNEL
--- --- --- ---
0.0 0.0 0.0 0.0

I-80, W OF APPIAN WAY
TRAFFIC DISTRIBUTION PERCENTAGES
DAY EVENING NIGHT
--- --- ---
AUTOS 74.91 12.58 8.33
M-TRUCKS 1.16 0.21 0.23
H-TRUCKS 1.64 0.55 0.39
ADT: 190000 SPEED: 65 ACTIVE HALF WIDTH (FT): 42
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE = 82.81
* * DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *
70 CNEL 65 CNEL 60 CNEL 55 CNEL
--- --- --- ---
585.8 1259.3 2711.3 5839.6

I-80, APPIAN WAY TO PINOLE VALLEY RD
TRAFFIC DISTRIBUTION PERCENTAGES
DAY EVENING NIGHT
--- --- ---
AUTOS 74.91 12.58 8.33
M-TRUCKS 1.16 0.21 0.23
H-TRUCKS 1.64 0.55 0.39
ADT: 194000 SPEED: 65 ACTIVE HALF WIDTH (FT): 42
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE = 82.90
* * DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *
70 CNEL 65 CNEL 60 CNEL 55 CNEL
--- --- --- ---
594.0 1276.9 2749.2 5921.3

I-80, E OF PINOLE VALLEY RD
TRAFFIC DISTRIBUTION PERCENTAGES
DAY EVENING NIGHT
--- --- ---
AUTOS 74.91 12.58 8.33
M-TRUCKS 1.16 0.21 0.23
H-TRUCKS 1.64 0.55 0.39
ADT: 182000 SPEED: 65 ACTIVE HALF WIDTH (FT): 42
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE = 82.62
* * DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *
70 CNEL 65 CNEL 60 CNEL 55 CNEL
--- --- --- ---
569.3 1223.7 2634.7 5674.6

CUMULATIVE CONDITIONS

SAN PABLO AVE, W OF DEL MONTE DR/BELMONT WAY
TRAFFIC DISTRIBUTION PERCENTAGES

DAY EVENING NIGHT
--- ------- -----
AUTOS 75.51 12.57 9.34
M-TRUCKS 1.56 0.09 0.19
H-TRUCKS 0.64 0.02 0.08
ADT: 29500 SPEED: 45 ACTIVE HALF WIDTH (FT): 21
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE = 70.29
* * DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *
70 CNEL 65 CNEL 60 CNEL 55 CNEL
------- ------- ------- -------
73.9 154.1 329.4 708.4

SAN PABLO AVE, W OF APPIAN WAY
TRAFFIC DISTRIBUTION PERCENTAGES
DAY EVENING NIGHT
--- ------- -----
AUTOS 75.51 12.57 9.34
M-TRUCKS 1.56 0.09 0.19
H-TRUCKS 0.64 0.02 0.08
ADT: 32000 SPEED: 35 ACTIVE HALF WIDTH (FT): 21
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE = 67.95
* * DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *
70 CNEL 65 CNEL 60 CNEL 55 CNEL
------- ------- ------- -------
0.0 108.7 230.6 495.1

SAN PABLO AVE, E OF PINOLE VALLEY RD
TRAFFIC DISTRIBUTION PERCENTAGES
DAY EVENING NIGHT
--- ------- -----
AUTOS 75.51 12.57 9.34
M-TRUCKS 1.56 0.09 0.19
H-TRUCKS 0.64 0.02 0.08
ADT: 47000 SPEED: 25 ACTIVE HALF WIDTH (FT): 18
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE = 66.37
* * DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *
70 CNEL 65 CNEL 60 CNEL 55 CNEL
------- ------- ------- -------
0.0 82.9 175.2 375.9

APPIAN WAY, S OF TARA HILLS DRIVE/CANYON DRIVE
TRAFFIC DISTRIBUTION PERCENTAGES
DAY EVENING NIGHT
--- ------- -----
AUTOS 75.51 12.57 9.34
M-TRUCKS 1.56 0.09 0.19
H-TRUCKS 0.64 0.02 0.08
ADT: 46600 SPEED: 35 ACTIVE HALF WIDTH (FT): 30
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE = 68.99
* * DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *
70 CNEL 65 CNEL 60 CNEL 55 CNEL
------- ------- ------- -------
70.3 140.1 296.3 635.6

APPIAN WAY, S OF MICHAEL DRIVE
TRAFFIC DISTRIBUTION PERCENTAGES
DAY EVENING NIGHT
--- ------- -----
AUTOS 75.51 12.57 9.34
M-TRUCKS 1.56 0.09 0.19
H-TRUCKS 0.64 0.02 0.08
ADT: 41000 SPEED: 35 ACTIVE HALF WIDTH (FT): 21
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE = 69.02
* * DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *
70 CNEL 65 CNEL 60 CNEL 55 CNEL
------- ------- ------- -------
62.0 127.5 271.7 583.8

PINOLE VALLEY ROAD, N OF HENRY AVE

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ADT: 18800 SPEED: 25 ACTIVE HALF WIDTH (FT): 18
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE = 62.39
* * DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	96.3	204.7

PINOLE VALLEY ROAD, S OF ESTATE AVE

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ADT: 19900 SPEED: 30 ACTIVE HALF WIDTH (FT): 21
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE = 64.28
* * DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	64.2	132.4	282.3

PINOLE VALLEY ROAD, S OF WRIGHT AVE

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	76.14	12.66	9.52
M-TRUCKS	1.56	0.08	0.01
H-TRUCKS	0.01	0.01	0.01

ADT: 6600 SPEED: 35 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE = 60.97
* * DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	64.8	139.2

HENRY AVE, E OF RIDGECREST RD

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	76.14	12.66	9.52
M-TRUCKS	1.56	0.08	0.01
H-TRUCKS	0.01	0.01	0.01

ADT: 8000 SPEED: 25 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE = 57.84
* * DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	0.0	86.3

FITZGERALD DRIVE, W OF APPIAN WAY

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ADT: 30000 SPEED: 30 ACTIVE HALF WIDTH (FT): 18
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE = 66.28
* * DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *

70 CNEL	65 CNEL	60 CNEL	55 CNEL

0.0 81.8 172.8 370.7

SHEA DRIVE, W OF PINOLE VALLEY RD

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	76.14	12.66	9.52
M-TRUCKS	1.56	0.08	0.01
H-TRUCKS	0.01	0.01	0.01

ADT: 8600 SPEED: 25 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE = 58.16
* * DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	0.0	90.5

I-80, W OF APPIAN WAY

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.91	12.58	8.33
M-TRUCKS	1.16	0.21	0.23
H-TRUCKS	1.64	0.55	0.39

ADT*: 226000 SPEED: 65 ACTIVE HALF WIDTH (FT): 42
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE = 83.56
* * DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *

70 CNEL	65 CNEL	60 CNEL	55 CNEL
657.3	1413.5	3043.7	6555.7

**ADT assumes 19% increase in projected future traffic volumes in comparison to existing conditions (CCTA 2009).*

I-80, APPIAN WAY TO PINOLE VALLEY RD

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.91	12.58	8.33
M-TRUCKS	1.16	0.21	0.23
H-TRUCKS	1.64	0.55	0.39

ADT*: 231000 SPEED: 65 ACTIVE HALF WIDTH (FT): 42
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE = 83.65
* * DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *

70 CNEL	65 CNEL	60 CNEL	55 CNEL
666.9	1434.3	3088.4	6652.0

**ADT assumes 19% increase in projected future traffic volumes in comparison to existing conditions (CCTA 2009).*

I-80, E OF PINOLE VALLEY RD

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.91	12.58	8.33
M-TRUCKS	1.16	0.21	0.23
H-TRUCKS	1.64	0.55	0.39

ADT*: 217000 SPEED: 65 ACTIVE HALF WIDTH (FT): 42
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5
CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE = 83.38
* * DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *

70 CNEL	65 CNEL	60 CNEL	55 CNEL
639.8	1375.8	2962.4	6380.5

**ADT assumes 19% increase in projected future traffic volumes in comparison to existing conditions (CCTA 2009).*

APPENDIX E BIOLOGICAL RESOURCES

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Scientific Name - Landscape
City of Pinole General Plan

	Scientific Name	Common Name	Element Code	Federal Status	State Status	Global Rank	State Rank	CNPS	CDFG
1	Accipiter cooperii	Cooper's hawk	ABNKC12040			G5	S3		
2	Actinemys marmorata	western pond turtle	ARAAD02030			G3G4	S3		SC
3	Adela oplerella	Opler's longhorn moth	IILEE0G040			G2G3	S2S3		
4	Agelaius tricolor	tricolored blackbird	ABPBXB0020			G2G3	S2		SC
5	Ambystoma californiense	California tiger salamander	AAAAA01180	Threatened	unknown code...	G2G3	S2S3		SC
6	Amsinckia lunaris	bent-flowered fiddleneck	PDBOR01070			G2	S2.2	1B.2	
7	Andrena blennospermatis	Blennosperma vernal pool andrenid bee	IIHYM35030			G2	S2		
8	Anomobryum julaceum	slender silver moss	NBMUS80010			G4G5	S1.3	2.2	
9	Antrozous pallidus	pallid bat	AMACC10010			G5	S3		SC
10	Aquila chrysaetos	golden eagle	ABNKC22010			G5	S3		
11	Archoplites interruptus	Sacramento perch	AFCQB07010			G3	S1		SC
12	Arctostaphylos franciscana	Franciscan manzanita	PDERI040J3			G1	S1	1B.1	
13	Arctostaphylos hookeri ssp. montana	Mt. Tamalpais manzanita	PDERI040J5			G3T2	S2.2	1B.3	
14	Arctostaphylos hookeri ssp. ravenii	Presidio manzanita	PDERI040J2	Endangered	Endangered	G3T1	S1	1B.1	
15	Arctostaphylos pallida	pallid manzanita	PDERI04110	Threatened	Endangered	G1	S1	1B.1	
16	Ardea alba	great egret	ABNGA04040			G5	S4		
17	Ardea herodias	great blue heron	ABNGA04010			G5	S4		
18	Arenaria paludicola	marsh sandwort	PDCAR040L0	Endangered	Endangered	G1	S1	1B.1	
19	Asio flammeus	short-eared owl	ABNSB13040			G5	S3		SC
20	Astragalus tener var. tener	alkali milk-vetch	PDFAB0F8R1			G1T1	S1.1	1B.2	
21	Athene cunicularia	burrowing owl	ABNSB10010			G4	S2		SC
22	Atriplex joaquiniana	San Joaquin spearscale	PDCHE041F3			G2	S2	1B.2	
23	Balsamorhiza macrolepis var. macrolepis	big-scale balsamroot	PDAST11061			G3G4T2	S2.2	1B.2	
24	Blennosperma bakeri	Sonoma sunshine	PDAST1A010	Endangered	Endangered	G1	S1.2	1B.1	
25	Blepharizonia plumosa	big tarplant	PDAST1C011			G1	S1.1	1B.1	
26	Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	Threatened		G3	S2S3		
27	Branta hutchinsii leucopareia	cackling (=Aleutian Canada) goose	ABNJB05035	Delisted		G5T4	S2		
28	Buteo regalis	ferruginous hawk	ABNKC19120			G4	S3S4		
29	Buteo swainsoni	Swainson's hawk	ABNKC19070		Threatened	G5	S2		
30	California macrophylla	round-leaved filaree	PDGER01070			G3	S3.1	1B.1	
31	Calochortus pulchellus	Mt. Diablo fairy-lantern	PMLIL0D160			G2	S2.1	1B.2	
32	Calochortus tiburonensis	Tiburon mariposa-lily	PMLIL0D1C0	Threatened	Threatened	G1	S1.2	1B.1	

	Scientific Name	Common Name	Element Code	Federal Status	State Status	Global Rank	State Rank	CNPS	CDFG
33	Calystegia purpurata ssp. saxicola	coastal bluff morning-glory	PDCON040D2			G4T2	S2.2	1B.2	
34	Carex comosa	bristly sedge	PMCYP032Y0			G5	S2?	2.1	
35	Castilleja affinis ssp. neglecta	Tiburon paintbrush	PDSCR0D013	Endangered	Threatened	G4G5T1	S1.2	1B.2	
36	Centromadia parryi ssp. congdonii	Congdon's tarplant	PDAST4R0P1			G4T3	S3.2	1B.2	
37	Centromadia parryi ssp. parryi	pappose tarplant	PDAST4R0P2			G4T2	S2.2	1B.2	
38	Charadrius alexandrinus nivosus	western snowy plover	ABNNB03031	Threatened		G4T3	S2		SC
39	Chorizanthe cuspidata var. cuspidata	San Francisco Bay spineflower	PDPGN04081			G2T2	S2.2	1B.2	
40	Chorizanthe robusta var. robusta	robust spineflower	PDPGN040Q2	Endangered		G2T1	S1.1	1B.1	
41	Cicindela hirticollis gravida	sandy beach tiger beetle	IICOL02101			G5T2	S1		
42	Cicuta maculata var. bolanderi	Bolander's water-hemlock	PDAPI0M051			G5T3T4	S2	2.1	
43	Circus cyaneus	northern harrier	ABNKC11010			G5	S3		SC
44	Cirsium andrewsii	Franciscan thistle	PDAST2E050			G2	S2.2	1B.2	
45	Clarkia concinna ssp. automixa	Santa Clara red ribbons	PDONA050A1			G5?T3	S3.3	4.3	
46	Clarkia franciscana	Presidio clarkia	PDONA050H0	Endangered	Endangered	G1	S1.1	1B.1	
47	Coastal Brackish Marsh	Coastal Brackish Marsh	CTT52200CA			G2	S2.1		
48	Coastal Terrace Prairie	Coastal Terrace Prairie	CTT41100CA			G2	S2.1		
49	Collinsia corymbosa	round-headed Chinese-houses	PDSCR0H060			G1	S1.2	1B.2	
50	Collinsia multicolor	San Francisco collinsia	PDSCR0H0B0			G2	S2.2	1B.2	
51	Cordylanthus maritimus ssp. palustris	Point Reyes bird's-beak	PDSCR0J0C3			G4?T2	S2.2	1B.2	
52	Cordylanthus mollis ssp. mollis	soft bird's-beak	PDSCR0J0D2	Endangered	Rare	G2T1	S1.1	1B.2	
53	Danaus plexippus	monarch butterfly	IILEPP2010			G5	S3		
54	Dipodomys heermanni berkeleyensis	Berkeley kangaroo rat	AMAFD03061			G3G4T1	S1		
55	Dirca occidentalis	western leatherwood	PDTHY03010			G2G3	S2S3	1B.2	
56	Downingia pusilla	dwarf downingia	PDCAM060C0			G3	S3.1	2.2	
57	Efferia antiochi	Antioch efferian robberfly	IIDIP07010			G1G3	S1S3		
58	Egretta thula	snowy egret	ABNGA06030			G5	S4		
59	Elanus leucurus	white-tailed kite	ABNKC06010			G5	S3		
60	Enhydra lutris nereis	southern sea otter	AMAJF09012	Threatened		G4T2	S2		
61	Eriogonum luteolum var. caninum	Tiburon buckwheat	PDPGN083S1			G5T3	S3.2	1B.2	
62	Eucyclogobius newberryi	tidewater goby	AFCQN04010	Endangered		G3	S2S3		SC
63	Euphydryas editha bayensis	Bay checkerspot butterfly	IILEPK4055	Threatened		G5T1	S1		
64	Falco peregrinus anatum	American peregrine falcon	ABNKD06071	Delisted	unknown code...	G4T3	S2		

	Scientific Name	Common Name	Element Code	Federal Status	State Status	Global Rank	State Rank	CNPS	CDFG
65	Fritillaria liliacea	fragrant fritillary	PMLIL0V0C0			G2	S2.2	1B.2	
66	Geothlypis trichas sinuosa	saltmarsh common yellowthroat	ABPBX1201A			G5T2	S2		SC
67	Gilia capitata ssp. chamissonis	blue coast gilia	PDPLM040B3			G5T2	S2.1	1B.1	
68	Gilia millefoliata	dark-eyed gilia	PDPLM04130			G2	S2.2	1B.2	
69	Grindelia hirsutula var. maritima	San Francisco gumplant	PDAST470D3			G5T2	S2.1	1B.2	
70	Haliaeetus leucocephalus	bald eagle	ABNKC10010	Delisted	Endangered	G5	S2		
71	Helianthella castanea	Diablo helianthella	PDAST4M020			G3	S3.2	1B.2	
72	Helminthoglypta nickliniana bridgesi	Bridges' coast range shoulderband	IMGASC2362			G2T1	S1		
73	Hemizonia congesta ssp. congesta	seaside tarplant	PDAST4R065			G5T2T3	S2S3	1B.2	
74	Hesperolinon congestum	Marin western flax	PDLIN01060	Threatened	Threatened	G2	S2.1	1B.1	
75	Hoita strobilina	Loma Prieta hoita	PDFAB5Z030			G2	S2.1	1B.1	
76	Holocarpha macradenia	Santa Cruz tarplant	PDAST4X020	Threatened	Endangered	G1	S1.1	1B.1	
77	Horkelia cuneata ssp. sericea	Kellogg's horkelia	PDROS0W043			G4T1	S1.1	1B.1	
78	Hydroprogne caspia	Caspian tern	ABNNM08020			G5	S4		
79	Hypomesus transpacificus	Delta smelt	AFCHB01040	Threatened	Threatened	G1	S1		
80	Juglans hindsii	Northern California black walnut	PDJUG02040			G1	S1.1	1B.1	
81	Lasionycteris noctivagans	silver-haired bat	AMACC02010			G5	S3S4		
82	Lasiurus blossevillii	western red bat	AMACC05060			G5	S3?		SC
83	Lasiurus cinereus	hoary bat	AMACC05030			G5	S4?		
84	Lasthenia conjugens	Contra Costa goldfields	PDAST5L040	Endangered		G1	S1.1	1B.1	
85	Laterallus jamaicensis coturniculus	California black rail	ABNME03041		Threatened	G4T1	S1		
86	Lathyrus jepsonii var. jepsonii	Delta tule pea	PDFAB250D2			G5T2	S2.2	1B.2	
87	Layia carnosa	beach layia	PDAST5N010	Endangered	Endangered	G2	S2.1	1B.1	
88	Legenere limosa	legenere	PDCAM0C010			G2	S2.2	1B.1	
89	Leptosiphon rosaceus	rose leptosiphon	PDPLM09180			G1	S1.1	1B.1	
90	Lessingia germanorum	San Francisco lessingia	PDAST5S010	Endangered	Endangered	G1	S1.1	1B.1	
91	Lichnanthe ursina	bumblebee scarab beetle	IICOL67020			G2	S2		
92	Lilaeopsis masonii	Mason's lilaeopsis	PDAPI19030		Rare	G3	S3.1	1B.1	
93	Limnanthes vinculans	Sebastopol meadowfoam	PDLIM02090	Endangered	Endangered	G2	S2.1	1B.1	
94	Linderiella occidentalis	California linderiella	ICBRA06010			G3	S2S3		
95	Malacothamnus hallii	Hall's bush-mallow	PDMAL0Q0F0			G1Q	S1.2	1B.2	
96	Masticophis lateralis euryxanthus	Alameda whipsnake	ARADB21031	Threatened	Threatened	G4T2	S2		
97	Meconella oregana	Oregon meconella	PDPAP0G030			G2G3	S1.1	1B.1	

	Scientific Name	Common Name	Element Code	Federal Status	State Status	Global Rank	State Rank	CNPS	CDFG
98	Melospiza melodia maxillaris	Suisun song sparrow	ABPBXA301K			G5T2	S2		SC
99	Melospiza melodia pusillula	Alameda song sparrow	ABPBXA301S			G5T2?	S2?		SC
100	Melospiza melodia samuelis	San Pablo song sparrow	ABPBXA301W			G5T2?	S2?		SC
101	Microcina leei	Lee's micro-blind harvestman	ILARA47040			G1	S1		
102	Microcina tiburona	Tiburon micro-blind harvestman	ILARA47060			G1	S1		
103	Microseris paludosa	marsh microseris	PDAST6E0D0			G2	S2.2	1B.2	
104	Microtus californicus sanpabloensis	San Pablo vole	AMAFF11034			G5T1T2	S1S2		SC
105	Monardella villosa ssp. globosa	robust monardella	PDLAM180P7			G5T2	S2.2	1B.2	
106	Northern Coastal Salt Marsh	Northern Coastal Salt Marsh	CTT52110CA			G3	S3.2		
107	Northern Maritime Chaparral	Northern Maritime Chaparral	CTT37C10CA			G1	S1.2		
108	Northern Vernal Pool	Northern Vernal Pool	CTT44100CA			G2	S2.1		
109	Nycticorax nycticorax	black-crowned night heron	ABNGA11010			G5	S3		
110	Nyctinomops macrotis	big free-tailed bat	AMACD04020			G5	S2		SC
111	Oncorhynchus mykiss irideus	steelhead - central California coast ESU	AFCHA0209G	Threatened		G5T2Q	S2		
112	Pandion haliaetus	osprey	ABNKC01010			G5	S3		
113	Pentachaeta bellidiflora	white-rayed pentachaeta	PDAST6X030	Endangered	Endangered	G1	S1.1	1B.1	
114	Phalacrocorax auritus	double-crested cormorant	ABNFD01020			G5	S3		
115	Plagiobothrys chorisianus var. chorisianus	Choris' popcorn-flower	PDBOR0V061			G3T2Q	S2.2	1B.2	
116	Plagiobothrys diffusus	San Francisco popcorn-flower	PDBOR0V080		Endangered	G1Q	S1.1	1B.1	
117	Plagiobothrys glaber	hairless popcorn-flower	PDBOR0V0B0			GH	SH	1A	
118	Plebejus icarioides missionensis	Mission blue butterfly	IILEPG801A	Endangered		G5T1	S1		
119	Pogonichthys macrolepidotus	Sacramento splittail	AFCJB34020			G2	S2		SC
120	Polemonium carneum	Oregon polemonium	PDPLM0E050			G4	S1	2.2	
121	Polygonum marinense	Marin knotweed	PDPGN0L1C0			G1Q	S1.1	3.1	
122	Potamogeton filiformis	slender-leaved pondweed	PMPOT03090			G5	S1S2	2.2	
123	Rallus longirostris obsoletus	California clapper rail	ABNME05016	Endangered	Endangered	G5T1	S1		
124	Rana boylii	foothill yellow-legged frog	AAABH01050			G3	S2S3		SC
125	Rana draytonii	California red-legged frog	AAABH01022	Threatened		G4T2T3	S2S3		SC
126	Reithrodontomys raviventris	salt-marsh harvest mouse	AMAFF02040	Endangered	Endangered	G1G2	S1S2		
127	Riparia riparia	bank swallow	ABPAU08010		Threatened	G5	S2S3		
128	Sanicula maritima	adobe sanicle	PDAPI1Z0D0		Rare	G2	S2.2	1B.1	
129	Scapanus latimanus insularis	Angel Island mole	AMABB02032			G5T1	S1		

	Scientific Name	Common Name	Element Code	Federal Status	State Status	Global Rank	State Rank	CNPS	CDFG
130	Scapanus latimanus parvus	Alameda Island mole	AMABB02031			G5T1Q	S1		SC
131	Senecio aphanactis	chaparral ragwort	PDAST8H060			G3?	S1.2	2.2	
132	Serpentine Bunchgrass	Serpentine Bunchgrass	CTT42130CA			G2	S2.2		
133	Silene verecunda ssp. verecunda	San Francisco campion	PDCAR0U213			G5T2	S2.2	1B.2	
134	Sorex ornatus sinuosus	Suisun shrew	AMABA01103			G5T1	S1		SC
135	Sorex vagrans halicoetes	salt-marsh wandering shrew	AMABA01071			G5T1	S1		SC
136	Speyeria callippe callippe	callippe silverspot butterfly	IILEPJ6091	Endangered		G5T1	S1		
137	Speyeria zerene myrtleae	Myrtle's silverspot	IILEPJ6089	Endangered		G5T1	S1		
138	Stebbinsoseris decipiens	Santa Cruz microseris	PDAST6E050			G2	S2.2	1B.2	
139	Sternula antillarum browni	California least tern	ABNNM08103	Endangered	Endangered	G4T2T3Q	S2S3		
140	Streptanthus albidus ssp. peramoenus	most beautiful jewel-flower	PDBRA2G012			G2T2	S2.2	1B.2	
141	Streptanthus niger	Tiburon jewel-flower	PDBRA2G0T0	Endangered	Endangered	G1	S1.1	1B.1	
142	Suaeda californica	California seablite	PDCHE0P020	Endangered		G1	S1.1	1B.1	
143	Symphyotrichum lentum	Suisun Marsh aster	PDASTE8470			G2	S2	1B.2	
144	Syncaris pacifica	California freshwater shrimp	ICMAL27010	Endangered	Endangered	G1	S1		
145	Taxidea taxus	American badger	AMAJF04010			G5	S4		SC
146	Trachusa gummifera	A leaf-cutter bee	IIHYM80010			G1	S1		
147	Trifolium amoenum	showy rancheria clover	PDFAB40040	Endangered		G1	S1.1	1B.1	
148	Trifolium depauperatum var. hydrophilum	saline clover	PDFAB400R5			G5T2?	S2.2?	1B.2	
149	Triphysaria floribunda	San Francisco owl's-clover	PDSCR2T010			G2	S2.2	1B.2	
150	Triquetrella californica	coastal triquetrella	NBMUS7S010			G1	S1.2	1B.2	
151	Tryonia imitator	mimic tryonia (=California brackishwater snail)	IMGASJ7040			G2G3	S2S3		
152	Valley Needlegrass Grassland	Valley Needlegrass Grassland	CTT42110CA			G1	S3.1		
153	Vespericola marinensis	Marin hesperian	IMGASA4140			G2G3	S2S3		
154	Viburnum ellipticum	oval-leaved viburnum	PDCPR07080			G5	S2.3	2.3	
155	Xanthocephalus xanthocephalus	yellow-headed blackbird	ABPBXB3010			G5	S3S4		SC
156	Zapus trinotatus orarius	Point Reyes jumping mouse	AMAFH01031			G5T1T3Q	S1S3		SC

United States Department of the Interior
FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825

April 16, 2010

Document Number: 100416011716

Angela Calderaro
PMC
2729 Prospect Park Drive, Suite 220
Rancho Cordova, CA 95670

Subject: Species List for City of Pinole General Plan Update

Dear: Interested party

We are sending this official species list in response to your April 16, 2010 request for information about endangered and threatened species. The list covers the California counties and/or U.S. Geological Survey 7½ minute quad or quads you requested.

Our database was developed primarily to assist Federal agencies that are consulting with us. Therefore, our lists include all of the sensitive species that have been found in a certain area *and also ones that may be affected by projects in the area*. For example, a fish may be on the list for a quad if it lives somewhere downstream from that quad. Birds are included even if they only migrate through an area. In other words, we include all of the species we want people to consider when they do something that affects the environment.

Please read Important Information About Your Species List (below). It explains how we made the list and describes your responsibilities under the Endangered Species Act.

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be July 15, 2010.

Please contact us if your project may affect endangered or threatened species or if you have any questions about the attached list or your responsibilities under the Endangered Species Act. A list of Endangered Species Program contacts can be found at www.fws.gov/sacramento/es/branches.htm.

Endangered Species Division

U.S. Fish & Wildlife Service

Sacramento Fish & Wildlife Office

Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Counties and/or U.S.G.S. 7 1/2 Minute Quads you requested

Document Number: 100416011716

Database Last Updated: December 1, 2009

Quad Lists

Listed Species

Invertebrates

Branchinecta conservatio
- Conservancy fairy shrimp (E)

Branchinecta lynchi
- Critical habitat, vernal pool fairy shrimp (X)
- vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus
- valley elderberry longhorn beetle (T)

Elaphrus viridis
- delta green ground beetle (T)

Haliotes cracherodii
- black abalone (E) (NMFS)

Haliotes sorenseni
- white abalone (E) (NMFS)

Icaricia icarioides missionensis
- mission blue butterfly (E)

Speyeria callippe callippe
- callippe silverspot butterfly (E)

Speyeria zerene myrtleae
- Myrtle's silverspot butterfly (E)

Syncaris pacifica
- California freshwater shrimp (E)

Fish

Acipenser medirostris
- green sturgeon (T) (NMFS)

Eucyclogobius newberryi
- tidewater goby (E)

Hypomesus transpacificus
- Critical habitat, delta smelt (X)
- delta smelt (T)

Oncorhynchus kisutch
- coho salmon - central CA coast (E) (NMFS)
- Critical habitat, coho salmon - central CA coast (X) (NMFS)

Oncorhynchus mykiss
Central California Coastal steelhead (T) (NMFS)
Central Valley steelhead (T) (NMFS)
Critical habitat, Central California coastal steelhead (X) (NMFS)
Critical habitat, Central Valley steelhead (X) (NMFS)

Oncorhynchus tshawytscha
Central Valley spring-run chinook salmon (T) (NMFS)
Critical habitat, winter-run chinook salmon (X) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense
California tiger salamander, central population (T)

Rana aurora draytonii
California red-legged frog (T)
Critical habitat, California red-legged frog (X)

Reptiles

Masticophis lateralis euryxanthus
Alameda whipsnake [=striped racer] (T)
Critical habitat, Alameda whipsnake (X)

Thamnophis gigas
giant garter snake (T)

Birds

Charadrius alexandrinus nivosus
western snowy plover (T)

Diomedea albatrus
short-tailed albatross (E)

Pelecanus occidentalis californicus
California brown pelican (E)

Rallus longirostris obsoletus
California clapper rail (E)

Sternula antillarum (=Sterna, =albifrons) browni
California least tern (E)

Strix occidentalis caurina
northern spotted owl (T)

Mammals

Arctocephalus townsendi
Guadalupe fur seal (T) (NMFS)

Balaenoptera borealis
sei whale (E) (NMFS)

Balaenoptera musculus
blue whale (E) (NMFS)

Balaenoptera physalus
finback (=fin) whale (E) (NMFS)

Enhydra lutris nereis
southern sea otter (T)

Eubalaena (=Balaena) glacialis
right whale (E) (NMFS)

Eumetopias jubatus
Critical Habitat, Steller (=northern) sea-lion (X) (NMFS)
Steller (=northern) sea-lion (T) (NMFS)

Physeter catodon (=macrocephalus)
sperm whale (E) (NMFS)

Reithrodontomys raviventris
salt marsh harvest mouse (E)

Plants

Arctostaphylos hookeri ssp. ravenii
Presidio (=Raven's) manzanita (E)

Arctostaphylos pallida
pallid manzanita (=Alameda or Oakland Hills manzanita) (T)

Blennosperma bakeri
Baker's stickyseed [=Sonoma Sunshine] (E)

Calochortus tiburonensis
Tiburon mariposa lily (T)

Castilleja affinis ssp. neglecta
Tiburon paintbrush (E)

Clarkia franciscana
Presidio clarkia (E)

Cordylanthus mollis ssp. mollis
soft bird's-beak (E)

Hesperolinon congestum
Marin dwarf-flax (=western flax) (T)

Holocarpha macradenia
Critical habitat, Santa Cruz tarplant (X)
Santa Cruz tarplant (T)

Lasthenia conjugens
Contra Costa goldfields (E)
Critical habitat, Contra Costa goldfields (X)

Lessingia germanorum
San Francisco lessingia (E)

Streptanthus niger
Tiburon jewelflower (E)

Suaeda californica
California sea blite (E)

Proposed Species

Amphibians

Rana aurora draytonii
Critical habitat, California red-legged frog (PX)

Plants

Cordylanthus mollis ssp. mollis

Critical habitat, soft bird's-beak (PX)

Quads Containing Listed, Proposed or Candidate Species:

WALNUT CREEK (465A)
BRIONES VALLEY (465B)
OAKLAND EAST (465C)
LAS TRAMPAS RIDGE (465D)
RICHMOND (466A)
SAN QUENTIN (466B)
SAN FRANCISCO NORTH (466C)
OAKLAND WEST (466D)
CORDELIA (482B)
BENICIA (482C)
VINE HILL (482D)
CUTTINGS WHARF (483A)
SEARS POINT (483B)
PETALUMA POINT (483C)
MARE ISLAND (483D)

County Lists

No county species lists requested.

Key:

(E) *Endangered* - Listed as being in danger of extinction.

(T) *Threatened* - Listed as likely to become endangered within the foreseeable future.

(P) *Proposed* - Officially proposed in the Federal Register for listing as endangered or threatened.

(NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service. Consult with them directly about these species.

Critical Habitat - Area essential to the conservation of a species.

(PX) *Proposed Critical Habitat* - The species is already listed. Critical habitat is being proposed for it.

(C) *Candidate* - Candidate to become a proposed species.

(V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.

(X) *Critical Habitat* designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, **or may be affected by** projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.

- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the area covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the surrounding quads through the California Native Plant Society's online Inventory of Rare and Endangered Plants.

Surveying

Some of the species on your list may not be affected by your project. A trained biologist and/or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list. See our Protocol and Recovery Permits pages.

For plant surveys, we recommend using the Guidelines for Conducting and Reporting Botanical Inventories. The results of your surveys should be published in any environmental documents prepared for your project.

Your Responsibilities Under the Endangered Species Act

All animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

> Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal consultation with the Service.

  During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.

- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.

  Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compensates for project-related loss of habitat. You should include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and

normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our Map Room page.

Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

Species of Concern

The Sacramento Fish & Wildlife Office no longer maintains a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. More info

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6580.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be July 15, 2010.

Inventory of Rare and Endangered Plants

v7-10a 1-19-10

Status: search results - Fri, Apr. 16, 2010 15:00 c

{QUADS_123} =~ m/465B|482C|482D|466A|466D|483D|465A|465(Search

Tip: +DNT Jun Jul returns Del Norte taxa with those blooming both months listed first.
[all tips and help.][search history]

Your Quad Selection: Briones Valley (465B) 3712282, Benicia (482C) 3812212, Vine Hill (482D) 3812211, Richmond (466A) 3712283, Oakland West (466D) 3712273, Mare Island (483D) 3812213, Walnut Creek (465A) 3712281, Oakland East (465C) 3712272, Las Trampas Ridge (465D) 3712271

Hits 1 to 44 of 44

Requests that specify topo quads will return only Lists 1-3.

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

open	save	hits	scientific	common	family	CNPS
		1	**Amsinckia lunaris**	bent-flowered fiddleneck	Boraginaceae	List 1B.2
		1	**Arctostaphylos pallida**	pallid manzanita	Ericaceae	List 1B.1
		1	**Astragalus tener var. tener**	alkali milk-vetch	Fabaceae	List 1B.2
		1	**Atriplex joaquiniana**	San Joaquin spearscale	Chenopodiaceae	List 1B.2
		1	**Balsamorhiza macrolepis var. macrolepis**	big-scale balsamroot	Asteraceae	List 1B.2
		1	**Blepharizonia plumosa**	big tarplant	Asteraceae	List 1B.1
		1	**California macrophylla**	round-leaved filaree	Geraniaceae	List 1B.1
		1	**Calochortus pulchellus**	Mt. Diablo fairy-lantern	Liliaceae	List 1B.2
		1	**Calystegia purpurata ssp. saxicola**	coastal bluff morning-glory	Convolvulaceae	List 1B.2
		1	**Centromadia parryi ssp. congdonii**	Congdon's tarplant	Asteraceae	List 1B.2
		1	**Chorizanthe cuspidata var. cuspidata**	San Francisco Bay spineflower	Polygonaceae	List 1B.2
		1	**Chorizanthe robusta var. robusta**	robust spineflower	Polygonaceae	List 1B.1
		1	**Cicuta maculata var. bolanderi**	Bolander's water-hemlock	Apiaceae	List 2.1
		1	**Cirsium andrewsii**	Franciscan thistle	Asteraceae	List 1B.2

		1	**Clarkia franciscana**	Presidio clarkia	Onagraceae	List 1B.1
		1	**Cordylanthus maritimus ssp. palustris**	Point Reyes bird's-beak	Scrophulariaceae	List 1B.2
		1	**Cordylanthus mollis ssp. mollis**	soft bird's-beak	Scrophulariaceae	List 1B.2
		1	**Dirca occidentalis**	western leatherwood	Thymelaeaceae	List 1B.2
		1	**Eriogonum luteolum var. caninum**	Tiburon buckwheat	Polygonaceae	List 1B.2
		1	**Fritillaria liliacea**	fragrant fritillary	Liliaceae	List 1B.2
		1	**Gilia capitata ssp. chamissonis**	blue coast gilia	Polemoniaceae	List 1B.1
		1	**Helianthella castanea**	Diablo helianthella	Asteraceae	List 1B.2
		1	**Hoita strobilina**	Loma Prieta hoita	Fabaceae	List 1B.1
		1	**Holocarpha macradenia**	Santa Cruz tarplant	Asteraceae	List 1B.1
		1	**Horkelia cuneata ssp. sericea**	Kellogg's horkelia	Rosaceae	List 1B.1
		1	**Juglans hindsii**	Northern California black walnut	Juglandaceae	List 1B.1
		1	**Lasthenia conjugens**	Contra Costa goldfields	Asteraceae	List 1B.1
		1	**Lathyrus jepsonii var. jepsonii**	Delta tule pea	Fabaceae	List 1B.2
		1	**Lilaeopsis masonii**	Mason's lilaeopsis	Apiaceae	List 1B.1
		1	**Meconella oregana**	Oregon meconella	Papaveraceae	List 1B.1
		1	**Micropus amphibolus**	Mt. Diablo cottonweed	Asteraceae	List 3.2
		1	**Monardella antonina ssp. antonina**	San Antonio Hills monardella	Lamiaceae	List 3
		1	**Monardella villosa ssp. globosa**	robust monardella	Lamiaceae	List 1B.2
		1	**Navarretia gowenii**	Lime Ridge navarretia	Polemoniaceae	List 1B.1
		1	**Plagiobothrys chorisianus var. chorisianus**	Choris' popcorn-flower	Boraginaceae	List 1B.2
		1	**Plagiobothrys diffusus**	San Francisco popcorn-flower	Boraginaceae	List 1B.1
		1	**Potamogeton filiformis**	slender-leaved pondweed	Potamogetonaceae	List 2.2
		1	**Sanicula maritima**	adobe sanicle	Apiaceae	List 1B.1
		1	**Senecio aphanactis**	chaparral ragwort	Asteraceae	List 2.2

		1	**Streptanthus albidus ssp. peramoenus**	most beautiful jewel-flower	Brassicaceae	List 1B.2
		1	**Suaeda californica**	California seablite	Chenopodiaceae	List 1B.1
		1	**Symphyotrichum lentum**	Suisun Marsh aster	Asteraceae	List 1B.2
		1	**Trifolium depauperatum var. hydrophilum**	saline clover	Fabaceae	List 1B.2
		1	**Viburnum ellipticum**	oval-leaved viburnum	Adoxaceae	List 2.3

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

No more hits.

Inventory of Rare and Endangered Plants

v7-10a 1-19-10

Status: search results - Fri, Apr. 16, 2010 14:57 c

{QUADS_123} =~ m/483D|466A|466B|482B|482C|465B|483A|483E Search

Tip: Terms prefixed by "+" are required, and by "-" excluded.[all tips and help.][search history]

Your Quad Selection: Mare Island (483D) 3812213, Richmond (466A) 3712283, San Quentin (466B) 3712284, Cordelia (482B) 3812222, Benicia (482C) 3812212, Briones Valley (465B) 3712282, Cuttings Wharf (483A) 3812223, Sears Point (483B) 3812224, Petaluma Point (483C) 3812214

Hits 1 to 49 of 49

Requests that specify topo quads will return only Lists 1-3.

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

open	save	hits	scientific	common	family	CNPS
		1	**Amsinckia lunaris**	bent-flowered fiddleneck	Boraginaceae	List 1B.2
		1	**Arctostaphylos pallida**	pallid manzanita	Ericaceae	List 1B.1
		1	**Astragalus tener var. tener**	alkali milk-vetch	Fabaceae	List 1B.2
		1	**Atriplex joaquiniana**	San Joaquin spearscale	Chenopodiaceae	List 1B.2
		1	**Balsamorhiza macrolepis var. macrolepis**	big-scale balsamroot	Asteraceae	List 1B.2
		1	**Blennosperma bakeri**	Sonoma sunshine	Asteraceae	List 1B.1
		1	**Blepharizonia plumosa**	big tarplant	Asteraceae	List 1B.1
		1	**Calochortus pulchellus**	Mt. Diablo fairy-lantern	Liliaceae	List 1B.2
		1	**Calochortus tiburonensis**	Tiburon mariposa lily	Liliaceae	List 1B.1
		1	**Calystegia purpurata ssp. saxicola**	coastal bluff morning-glory	Convolvulaceae	List 1B.2
		1	**Castilleja affinis ssp. neglecta**	Tiburon paintbrush	Scrophulariaceae	List 1B.2
		1	**Ceanothus purpureus**	holly-leaved ceanothus	Rhamnaceae	List 1B.2
		1	**Centromadia parryi ssp. congdonii**	Congdon's tarplant	Asteraceae	List 1B.2
		1	**Centromadia parryi ssp. parryi**	pappose tarplant	Asteraceae	List 1B.2
		1	**Cicuta maculata var.**	Bolander's water-hemlock	Apiaceae	List 2.1

			bolanderi			
		1	**Cirsium andrewsii**	Franciscan thistle	Asteraceae	List 1B.2
		1	**Cordylanthus maritimus ssp. palustris**	Point Reyes bird's-beak	Scrophulariaceae	List 1B.2
		1	**Cordylanthus mollis ssp. mollis**	soft bird's-beak	Scrophulariaceae	List 1B.2
		1	**Dirca occidentalis**	western leatherwood	Thymelaeaceae	List 1B.2
		1	**Downingia pusilla**	dwarf downingia	Campanulaceae	List 2.2
		1	**Erigeron biolettii**	streamside daisy	Asteraceae	List 3
		1	**Eriogonum luteolum var. caninum**	Tiburon buckwheat	Polygonaceae	List 1B.2
		1	**Fritillaria liliacea**	fragrant fritillary	Liliaceae	List 1B.2
		1	**Helianthella castanea**	Diablo helianthella	Asteraceae	List 1B.2
		1	**Hemizonia congesta ssp. congesta**	pale yellow hayfield tarplant	Asteraceae	List 1B.2
		1	**Hesperolinon congestum**	Marin western flax	Linaceae	List 1B.1
		1	**Hoita strobilina**	Loma Prieta hoita	Fabaceae	List 1B.1
		1	**Holocarpha macradenia**	Santa Cruz tarplant	Asteraceae	List 1B.1
		1	**Lasthenia conjugens**	Contra Costa goldfields	Asteraceae	List 1B.1
		1	**Lathyrus jepsonii var. jepsonii**	Delta tule pea	Fabaceae	List 1B.2
		1	**Legenere limosa**	legenere	Campanulaceae	List 1B.1
		1	**Lessingia hololeuca**	woolly-headed lessingia	Asteraceae	List 3
		1	**Lilaeopsis masonii**	Mason's lilaeopsis	Apiaceae	List 1B.1
		1	**Limnanthes vinculans**	Sebastopol meadowfoam	Limnanthaceae	List 1B.1
		1	**Meconella oregana**	Oregon meconella	Papaveraceae	List 1B.1
		1	**Micropus amphibolus**	Mt. Diablo cottonweed	Asteraceae	List 3.2
		1	**Monardella antonina ssp. antonina**	San Antonio Hills monardella	Lamiaceae	List 3
		1	**Monardella villosa ssp. globosa**	robust monardella	Lamiaceae	List 1B.2
		1	**Pentachaeta bellidiflora**	white-rayed pentachaeta	Asteraceae	List 1B.1
		1	**Polygonum marinense**	Marin knotweed	Polygonaceae	List 3.1
						List

		1	**Senecio aphanactis**	chaparral ragwort	Asteraceae	2.2
		1	**Streptanthus albidus ssp. peramoenus**	most beautiful jewel-flower	Brassicaceae	List 1B.2
		1	**Streptanthus niger**	Tiburon jewel-flower	Brassicaceae	List 1B.1
		1	**Suaeda californica**	California seablite	Chenopodiaceae	List 1B.1
		1	**Symphyotrichum lentum**	Suisun Marsh aster	Asteraceae	List 1B.2
		1	**Trifolium amoenum**	two-fork clover	Fabaceae	List 1B.1
		1	**Trifolium depauperatum var. hydrophilum**	saline clover	Fabaceae	List 1B.2
		1	**Triquetrella californica**	coastal triquetrella	Pottiaceae	List 1B.2
		1	**Viburnum ellipticum**	oval-leaved viburnum	Adoxaceae	List 2.3

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

No more hits.

Inventory of Rare and Endangered Plants

v7-10a 1-19-10

Status: search results - Fri, Apr. 16, 2010 14:59 c

{QUADS_123} =~ m/466A|483C|483D|465B|465C|482C|466B|466(Search

Tip: `Lathyrus Astragalus` returns species from both genera.[all tips and help.]
[search history]

Your Quad Selection: Richmond (466A) 3712283, Petaluma Point (483C) 3812214, Mare Island (483D) 3812213, Briones Valley (465B) 3712282, Oakland East (465C) 3712272, Benicia (482C) 3812212, San Quentin (466B) 3712284, San Francisco North (466C) 3712274, Oakland West (466D) 3712273

Hits 1 to 50 of 68

Requests that specify topo quads will return only Lists 1-3.

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

open	save	hits	scientific	common	family	CNPS
		1	**Amsinckia lunaris**	bent-flowered fiddleneck	Boraginaceae	List 1B.2
		1	**Arctostaphylos franciscana**	Franciscan manzanita	Ericaceae	List 1B.1
		1	**Arctostaphylos hookeri ssp. ravenii**	Presidio manzanita	Ericaceae	List 1B.1
		1	**Arctostaphylos pallida**	pallid manzanita	Ericaceae	List 1B.1
		1	**Arenaria paludicola**	marsh sandwort	Caryophyllaceae	List 1B.1
		1	**Astragalus tener var. tener**	alkali milk-vetch	Fabaceae	List 1B.2
		1	**Atriplex joaquiniana**	San Joaquin spearscale	Chenopodiaceae	List 1B.2
		1	**Balsamorhiza macrolepis var. macrolepis**	big-scale balsamroot	Asteraceae	List 1B.2
		1	**Blepharizonia plumosa**	big tarplant	Asteraceae	List 1B.1
		1	**California macrophylla**	round-leaved filaree	Geraniaceae	List 1B.1
		1	**Calochortus pulchellus**	Mt. Diablo fairy-lantern	Liliaceae	List 1B.2
		1	**Calochortus tiburonensis**	Tiburon mariposa lily	Liliaceae	List 1B.1
		1	**Calystegia purpurata ssp. saxicola**	coastal bluff morning-glory	Convolvulaceae	List 1B.2
		1	**Carex comosa**	bristly sedge	Cyperaceae	List 2.1

		1	**Castilleja affinis ssp. neglecta**	Tiburon paintbrush	Scrophulariaceae	List 1B.2
		1	**Centromadia parryi ssp. congdonii**	Congdon's tarplant	Asteraceae	List 1B.2
		1	**Chorizanthe cuspidata var. cuspidata**	San Francisco Bay spineflower	Polygonaceae	List 1B.2
		1	**Chorizanthe robusta var. robusta**	robust spineflower	Polygonaceae	List 1B.1
		1	**Cicuta maculata var. bolanderi**	Bolander's water-hemlock	Apiaceae	List 2.1
		1	**Cirsium andrewsii**	Franciscan thistle	Asteraceae	List 1B.2
		1	**Clarkia franciscana**	Presidio clarkia	Onagraceae	List 1B.1
		1	**Collinsia corymbosa**	round-headed Chinese-houses	Scrophulariaceae	List 1B.2
		1	**Collinsia multicolor**	San Francisco collinsia	Scrophulariaceae	List 1B.2
		1	**Cordylanthus maritimus ssp. palustris**	Point Reyes bird's-beak	Scrophulariaceae	List 1B.2
		1	**Cordylanthus mollis ssp. mollis**	soft bird's-beak	Scrophulariaceae	List 1B.2
		1	**Dirca occidentalis**	western leatherwood	Thymelaeaceae	List 1B.2
		1	**Eriogonum luteolum var. caninum**	Tiburon buckwheat	Polygonaceae	List 1B.2
		1	**Fritillaria liliacea**	fragrant fritillary	Liliaceae	List 1B.2
		1	**Gilia capitata ssp. chamissonis**	blue coast gilia	Polemoniaceae	List 1B.1
		1	**Gilia millefoliata**	dark-eyed gilia	Polemoniaceae	List 1B.2
		1	**Grindelia hirsutula var. maritima**	San Francisco gumplant	Asteraceae	List 1B.2
		1	**Helianthella castanea**	Diablo helianthella	Asteraceae	List 1B.2
		1	**Hemizonia congesta ssp. congesta**	pale yellow hayfield tarplant	Asteraceae	List 1B.2
		1	**Hesperolinon congestum**	Marin western flax	Linaceae	List 1B.1
		1	**Hoita strobilina**	Loma Prieta hoita	Fabaceae	List 1B.1
		1	**Holocarpha macradenia**	Santa Cruz tarplant	Asteraceae	List 1B.1
		1	**Horkelia cuneata ssp. sericea**	Kellogg's horkelia	Rosaceae	List 1B.1
		1	**Lasthenia conjugens**	Contra Costa goldfields	Asteraceae	List 1B.1
		1	**Lathyrus jepsonii var. jepsonii**	Delta tule pea	Fabaceae	List 1B.2

		1	**Layia carnosa**	beach layia	Asteraceae	List 1B.1
		1	**Leptosiphon rosaceus**	rose leptosiphon	Polemoniaceae	List 1B.1
		1	**Lessingia germanorum**	San Francisco lessingia	Asteraceae	List 1B.1
		1	**Lessingia hololeuca**	woolly-headed lessingia	Asteraceae	List 3
		1	**Lilaeopsis masonii**	Mason's lilaeopsis	Apiaceae	List 1B.1
		1	**Meconella oregana**	Oregon meconella	Papaveraceae	List 1B.1
		1	**Micropus amphibolus**	Mt. Diablo cottonweed	Asteraceae	List 3.2
		1	**Microseris paludosa**	marsh microseris	Asteraceae	List 1B.2
		1	**Monardella antonina ssp. antonina**	San Antonio Hills monardella	Lamiaceae	List 3
		1	**Monardella villosa ssp. globosa**	robust monardella	Lamiaceae	List 1B.2
		1	**Pentachaeta bellidiflora**	white-rayed pentachaeta	Asteraceae	List 1B.1

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

For more results click below:

TABLE C-1: SPECIAL-STATUS PLANT SPECIES

Scientific Name **Common Name**	**Status** Federal[1]/State[2] /CNPS[3]	**General Habitat Description**	**Considered in Impact Analysis**	**Rationale**
Amsinckia lunaris Bent-flowered fiddleneck	~/~/1B.2	Cismontane woodland and valley and foothill grassland. Blooming Period: March - June Elevation: 3 -500 m.	**Yes**	Suitable habitat is present. Thirteen previously recorded occurrences within five miles of Planning Area (CDFG 2010).
Anomobryum julaceum Slender silver moss	~/~/2.2	Moss found in broad-leafed upland forest, lower montane coniferous forest, North Coast coniferous forest on damp rock and soil on outcrops, usually on road-cuts. Elevation: 100 – 1,000 m.	No	Although suitable habitat is present, there are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Arctostaphylos franciscana Franciscan manzanita	~/~/1B.1	Evergreen shrub endemic to California. Coastal scrub (serpentinite). Blooming Period: February - April Elevation: 60 - 300 m.	No	Serpentine soil is not located within the Planning Area. This species' habitat is not present. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Arctostaphylos hookeri ssp. montana Mt. Tamalpais manzanita	~/~/1B.3	Evergreen shrub endemic to California. On serpentine slopes in chaparral and valley-foothill grassland. Blooming Period: February - April Elevation:160 - 760 m.	No	Serpentine soil is not located within the Planning Area. This species' habitat is not present. There is one previously recorded occurrence within five miles of Planning Area (CDFG 2010).
Arctostaphylos hookeri ssp. ravenii Presidio manzanita	FE/SE/1B.1	Evergreen shrub endemic to California. Found in chaparral, coastal prairie, and coastal scrub on serpentinite outcrops. Blooming Period: February - March Elevation: 45 – 215 m.	No	Serpentine soil is not located within the Planning Area. This species' habitat is not present. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).

Scientific Name **Common Name**	**Status** Federal[1]/State[2] /CNPS[3]	**General Habitat Description**	**Considered in Impact Analysis**	**Rationale**
Arctostaphylos pallida Pallid manzanita	FT/SE/1B.1	Broad-leaved upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, and coastal scrub. Grows on uplifted marine terraces on siliceous shale or thin chert. May require fire. Blooming Period: December - March Elevation: 185 - 465 m.	**Yes**	Suitable habitat is present. There are five previously recorded occurrences within five miles of Planning Area (CDFG 2010).
Arenaria paludicola Marsh sandwort	FE/SE/1B.1	Stoloniferous herb found in freshwater bogs and fens, marshes and swamps. Blooming Period: May - August Elevation: 3 – 170 m.	No	Habitat is not present. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Astragalus tener var. tener Alkali milk-vetch	~/~/1B.2	Alkali playa, valley and foothill grassland and vernal pools. On low ground, alkali flats, and flooded lands; in annual grasslands or in playas or vernal pools. Blooming Period: March - June Elevation: 1 - 60 m.	**Yes**	Alkaline soils may be present within the Planning Area. There are three previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Atriplex joaquiniana San Joaquin spearscale	~/~/1B.2	Chenopod scrub, alkali meadow and valley and foothill grassland in seasonal alkali wetlands or alkali sink scrub with *Distichlis spicata*, *Frankenia*, etc. Blooming Period: April - October Elevation: 1 - 835 m.	**Yes**	Suitable habitat is present. There are two previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Balsamorhiza macrolepis var. macrolepis Big-scale balsamroot	~/~/1B.2	Growing in valley and foothill grassland and cismontane woodland, sometimes on serpentine soils. Blooming Period: March - June Elevation: 90 – 1,400 m.	No	Serpentine soil is not located within the Planning Area. This species' habitat is not present. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Blennosperma bakeri Sonoma sunshine	FE/SE/1B.1	Vernal pools and swales in valley and foothill grassland. Blooming Period: March - May Elevation: 10 - 100 m.	No	Habitat is not present. No vernal pools are within the Planning Area. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).

Scientific Name **Common Name**	**Status** Federal[1]/State[2] /CNPS[3]	**General Habitat Description**	**Considered in Impact Analysis**	**Rationale**
Blepharizonia plumosa Big tarplant	~/~/1B.1	Valley and foothill grassland. Dry hills and plains in annual grassland. Clay to clay-loam soils. Usually on slopes and often in burned areas. Blooming Period: July - October Elevation: 30 - 505 m.	**Yes**	Suitable habitat is present. There are two previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
California macrophylla Round-leaved filaree	~/~/1B.1	Annual herb in the geranium family (Geraniaceae). Cismontane woodland, Valley and foothill grassland in clay. Blooming Period: March – May Elevation: 15 – 1,200 m.	**Yes**	Suitable habitat is present. There is one previously recorded occurrence within five miles of the Planning Area (CDFG 2010).
Calochortus pulchellus Mt. Diablo fairy-lantern	~/~/1B.2	Chaparral, cismontane woodland, riparian woodland and valley and foothill woodland. On wooded and brushy slopes. Blooming Period: April - June Elevation: 30 - 840 m.	**Yes**	Suitable habitat is present. There are seven previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Calochortus tiburonensis Tiburon mariposa lily	FT/ST/1B.1 SLC	On open, rocky slopes in serpentine grassland. Blooming Period: March - June Elevation: 50 - 150 m.	No	Serpentine soil is not located within the Planning Area. This species' habitat is not present. There is one previously recorded occurrence within five miles of the Planning Area (CDFG 2010).
Calystegia purpurata ssp. saxicola Coastal bluff morning-glory	~/~/1B.2	Coastal dunes and coastal scrub. Blooming Period: May - September Elevation: 15 - 105 m.	**Yes**	Marginal habitat is present within the Planning Area. There is one previously recorded occurrence within five miles of the Planning Area (CDFG 2010).
Carex comosa Bristly sedge	~/~/2.2	Rhizomatous herb found in coastal prairie, marshes and swamps (along lake margins), and valley and foothill grassland. Blooming Period: May - September Elevation: 0 – 625 m.	No	Limited habitat is present within the Planning Area. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).

Scientific Name **Common Name**	**Status** Federal[1]/State[2] /CNPS[3]	**General Habitat Description**	**Considered in Impact Analysis**	**Rationale**
Castilleja affinis ssp. neglecta Tiburon Indian paintbrush	FE/ST/1B.2	On rocky serpentine sites within valley and foothill grassland. Blooming Period: April - June Elevation: 60 - 400 m.	No	Serpentine soil is not located within the Planning Area. This species' habitat is not present. There are three previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Ceanothus purpureus Holly-leaved ceanothus	~/~/1B.2	Growing in chaparral on rocky, volcanic slopes. Blooming Period: February - June Elevation: 120 - 640 m.	No	Habitat is not present. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Centromadia parryi ssp. congdonii Congdon's tarplant	~/~/1B.2	Valley and foothill grassland. Alkaline soils, sometimes described as heavy white clay. Blooming Period: May – October (November) Elevation: 1 - 230 m.	**Yes**	Alkaline soils may be present within the Planning Area. There are five previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Centromadia parryi ssp. parryi Pappose tarplant	~/~/1B.2	Vernally mesic coastal prairie, meadows and seeps, coastal salt marsh, and valley-foothill grassland. Often alkaline sites. Blooming Period: May - November Elevation: 2 - 420 m.	No	Marginal habitat is present. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Chorizanthe cuspidata var. cuspidate San Francisco Bay spineflower	~/~/1B.2	Annual herb that is endemic to California and found in coastal bluff scrub, coastal dunes, coastal prairie, and coastal scrub in sandy soils. Blooming Period: April – July (August) Elevation: 3 – 215 m.	No	Marginal habitat is present. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Chorizanthe robusta var. robusta Robust spineflower	FE/~/1B.1	Annual herb endemic to California. Found in cismontane woodland (openings), coastal dunes, coastal scrub in sandy or gravelly soils. Blooming Period: April - September Elevation: 3 – 300 m.	No	Marginal habitat is present. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).

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Cicuta maculate var. bolanderi Bolander's water-hemlock	~/~/2.1	Perennial herb in the carrot family (Apiaceae). Marshes and swamps in coastal, fresh or brackish water. Blooming Period: July - September Elevation: 0 – 200 m.	**Yes**	Suitable habitat is present. There are two previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Cirsium andrewsii Franciscan thistle	~/~/1B.2	In coastal bluff scrub, broadleaved upland forest, and coastal scrub – sometimes within serpentine seeps. Blooming Period: March - July Elevation: 0 - 150 m.	No	Serpentine soil is not located within the Planning Area. This species' habitat is not present. There is one previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Clarkia franciscana Presidio clarkia	FE/SE/1B.1 SLC	Annual herb endemic to California. Found in coastal scrub, and valley and foothill grassland in serpentinite soils. Blooming Period: May - July Elevation: 25 – 335 m.	No	Serpentine soil is not located within the Planning Area. This species' habitat is not present. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Collinsia corymbosa Round-headed Chinese-houses	~/~/1B.2	Annual herb in the figwort family (Scrophulariaceae). Coastal dunes. Scattered distribution. Blooming Period: April - June Elevation: 0 – 20 m.	No	Habitat is not present. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Collinsia multicolor San Francisco collinsia	~/~/1B.2	Annual herb in the figwort family (Scrophulariaceae). Closed-cone coniferous forest, Coastal scrub/ sometimes serpentinite. Blooming Period: March – May Elevation: 30 – 250 m.	**Yes**	Suitable habitat is present. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Cordylanthus maritimus ssp. palustris Point Reyes bird's-beak	~/~/1B.2	Hemiparasitic annual herb found in marshes and swamps usually in coastal salt marsh with *Salicornia, Distichlis, Jaumea, Spartina*, etc. Blooming Period: June - October Elevation: 0 - 10 m.	**Yes**	Limited habitat is present within the Planning Area. There are five previously recorded occurrences within five miles of the Planning Area (CDFG 2010).

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Cordylanthus mollis ssp. mollis Soft bird's-beak	FE/CR/1B.2	Coastal salt marsh. In coastal salt marsh with *Distichlis, Salicornia, Frankenia*, etc. Blooming Period: July - November Elevation: 0 - 3 m.	**Yes**	Limited habitat is present within the Planning Area. There are six previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Dirca occidentalis Western leatherwood	~/~/1B.2	Broad-leafed upland forest, chaparral, closed-cone coniferous forest, cismontane woodlands, north coast coniferous forest, riparian forest and riparian woodland. On brushy slopes, mesic sites; mostly in mixed evergreen and foothill woodlands communities. Blooming Period: January – March (April) Elevation: 30 - 395 m.	**Yes**	Suitable habitat is present within the Planning Area. There are 17 previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Downingia pusilla Dwarf downingia	~/~/2.2	Vernal lake and vernal pool margins with a variety of associates, within valley and foothill grasslands (mesic sites). In several types of vernal pools. Blooming Period: March - May Elevation: 1 - 445 m.	No	Suitable habitat was not observed within the Planning Area. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Eriogonum luteolum var. caninum Tiburon buckwheat	~/~/1B.2	Annual herb in the knotweed family (Polygonaceae). Chaparral, Cismontane woodland, Coastal prairie, Valley and foothill grassland in serpentinite, sandy to gravelly. Blooming Period: May – September Elevation: 0 – 700 m.	No	Serpentine soil is not located within the Planning Area. There are five previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Fritillaria liliacea Fragrant fritillary	~/~/1B.2	Cismontane woodland, coastal prairie, coastal scrub, valley and foothill grassland. Often on serpentine; various soils reported though usually clay, in grassland. Blooming Period: February - April Elevation: 3 - 410 m.	**Yes**	Although serpentine soil is not located within the Planning Area, this species can grow in clay soils, which is found within the Planning Area. There are six previously recorded occurrences within five miles of the Planning Area (CDFG 2010).

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Gilia capitata ssp. chamissonis Dune gilia	~/~/1B.1	Annual herb endemic to California. Found in coastal dunes and coastal scrub. Blooming Period: April – July Elevation: 2 – 200 m.	No	Habitat is not present within the Planning Area. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Gilia millefoliata Dark-eyed gilia	~/~/1B.2	Annual herb found in coastal dunes. Blooming Period: April - July Elevation: 2 – 30 m.	No	Habitat is not present within the Planning Area. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Grindelia hirsutula var. maritima San Francisco gumplant	~/~/1B.2	Perennial herb endemic to California. Found in coastal bluff scrub, coastal scrub, and valley and foothill grassland in sandy or serpentinite soils. Blooming Period: June - September Elevation: 15 – 400 m.	No	Although serpentine soil is not located within the Planning Area, this species can grow in sandy soils. Limited habitat is present within the Planning Area. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Helianthella castanea Diablo helianthella	~/~/1B.2	Broad-leaved upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland. Usually in chaparral/oak woodland interface in rocky, azonal soils. Often in partial shade. Blooming Period: March - June Elevation: 60 – 1,300 m.	**Yes**	Limited habitat is present within the Planning Area. There are 27 previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Hemizonia congesta ssp. congesta Pale yellow hayfield (seaside) tarplant	~/~/1B.2	Annual herb in the sunflower family (Asteraceae). Valley and foothill grassland/ sometimes roadsides. Blooming Period: April – November Elevation: 20 – 560 m.	**Yes**	Suitable habitat is present within the Planning Area. There are two previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Hesperolinon congestum Marin western flax	FT/ST/1B.1 SLC	In serpentine barrens and in serpentine grassland and chaparral. Blooming Period: April - July Elevation: 5 - 370 m.	No	Serpentine soil is not located within the Planning Area. This species' habitat is not present. There are five previously recorded occurrences within five miles of the Planning Area (CDFG 2010).

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Hoita strobilina Loma Prieta hoita	~/~/1B.1	Chaparral, cismontane woodland, and riparian woodland. Growing on serpentine in mesic sites. Blooming Period: May – July (August-October) Elevation: 30 – 860 m.	No	Serpentine soil is not located within the Planning Area. This species' habitat is not present. There is one previously recorded occurrence within five miles of the Planning Area (CDFG 2010).
Holocarpha macradenia Santa Cruz tarplant	FT/SE/1B.1	Coastal prairie, valley and foothill grassland. Light, sandy soil or sandy clay; often with non-natives. Blooming Period: June - October Elevation: 10 - 220 m.	**Yes**	Suitable habitat is present within the Planning Area. There are 15 previously recorded occurrences within five miles of the Planning Area, two of which are within the Planning Area (CDFG 2010).
Horkelia cuneata ssp. sericea Kellogg's horkelia	~/~/1B.1	Perennial herb endemic to California. Found in closed-cone coniferous forest, maritime chaparral, coastal scrub in sandy or gravelly, openings. Blooming Period: April - September Elevation: 10 – 200 m.	No	Limited habitat is present within the Planning Area. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Juglans hindsii Northern California black walnut	~/~/1B.1	Predominantly along rivers and streams, occasionally in somewhat drier slopes, valleys, and canyons; on rocky/gravelly, well-drained soil. Only two of the three native stands of black walnut are still extant in California. It is widely naturalized in central and northern California. Blooming Period: April - May Elevation: 0 -440 m.	No	Although an individual of this species was observed during surveys, only native stands of this species are protected. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Lasthenia conjugens Contra Costa goldfields	FE/~/1B.1	Cismontane woodlands, playas, valley and foothill grasslands. Vernal pools, swales and low depression in open grassy areas. Blooming Period: March - June Elevation: 1 - 470 m.	No	Habitat is not present within the Planning Area. There are two previously recorded occurrences within five miles of the Planning Area (CDFG 2010).

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Lathyrus jepsonii var. jepsonii Delta tule pea	~/~/1B.2	Freshwater and brackish marshes. Often found with *Typha*, *Aster lentus*, *Rosa californica*, *Juncus*, *Scirpus* etc. usually on marsh and slough edges. Blooming Period: May – July (September) Elevation: 0 – 4 m.	**Yes**	Limited habitat is present within the Planning Area. There are nine previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Layia carnosa Beach layia	FE/SE/1B.1	Annual herb endemic to California. Found in coastal dunes and coastal scrub in sandy soils. Blooming Period: March - July Elevation: 0 – 60 m.	No	Habitat is not present within the Planning Area. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Legenere limosa Legenere	~/~/1B.1	In beds of vernal pools. Many historical occurrences are extirpated. Blooming Period: April - June Elevation: 1 - 880 m.	No	No vernal pools were observed within the Planning Area. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Leptosiphon rosaceus Rose leptosiphon	~/~/1B.1	Annual herb endemic to California. Found in coastal bluff scrub. Blooming Period: April - July Elevation: 0 – 100 m.	No	Limited habitat is present within the Planning Area. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Lessingia germanorum San Francisco lessingia	FE/SE/1B.1	Annual herb endemic to California. Found in coastal scrub in remnant dunes. Blooming Period: (June) August – November Elevation: 25 – 90 m.	No	Habitat is not present within the Planning Area. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Lilaeopsis masonii Mason's lilaeopsis	~/CR/1B.1	Freshwater and brackish marshes, riparian scrub. Tidal zones, in muddy or silty soil formed through river deposition or river bank erosion. Blooming Period: April - November Elevation: 0 - 10 m.	**Yes**	Limited habitat is present within the Planning Area. There are seven previously recorded occurrences within five miles of the Planning Area (CDFG 2010).

Scientific Name **Common Name**	**Status** Federal[1]/State[2] /CNPS[3]	**General Habitat Description**	**Considered in Impact Analysis**	**Rationale**
Limnanthes vinculans Sebastopol meadowfoam	FE/SE/1B.1	Annual herb in the meadowfoam (Limnanthaceae). Meadows and seeps, Valley and foothill grassland, Vernal pools/vernally mesic. Blooming Period: April – May Elevation: 15 – 305 m.	No	Habitat is not present within the Planning Area. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Malacothamnus hallii Hall's bush mallow	~/~/1B.2	Evergreen shrub endemic to California. Found in chaparral and coastal scrub. Blooming Period: May - September Elevation: 10 – 760 m.	No	Limited habitat is present within the Planning Area. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Meconella oregana Oregon meconella	~/~/1B.1	Coastal prairie and coastal scrub. Open moist places. Blooming Period: March - April Elevation: 250 - 620 m.	**Yes**	Limited habitat is present within the Planning Area. There are four previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Microseris paludosa Marsh microseris	~/~/1B.2	Perennial herb endemic to California. Found in closed-cone coniferous forest, cismontane woodland, coastal scrub, and valley and foothill grassland. Blooming Period: April – June (July) Elevation: 5 – 300 m.	No	Suitable habitat is present within the Planning Area. There is one previously recorded occurrence within five miles of the Planning Area (CDFG 2010).
Monardella villosa ssp. globosa Robust monardella	~/~/1B.2	Openings in broad-leaved upland forest, chaparral, cismontane woodland and valley and foothill grassland. Blooming Period: June - July Elevation: 100 - 915 m.	**Yes**	Suitable habitat is present within the Planning Area. There are four previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Navarretia gowenii Lime Ridge navarretia	~/~/1B.1	Annual herb in the phlox family (Polemoniaceae). Chaparral. Known from only four occurrences. Blooming Period: May - June Elevation: 180 – 305 m.	No	Limited habitat is present within the Planning Area. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).

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Pentachaeta bellidiflora White-rayed pentachaeta	FE/SE/1B.1 SLC	Open, dry rocky slopes and grassy areas, often on soils derived from serpentine bedrock. Blooming Period: March - May Elevation: 35 - 620 m.	No	Serpentine soil is not located within the Planning Area. This species' habitat is not present. There are four previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Plagiobothrys chorisianus var. chorisianus Choris' popcorn-flower	~/~/1B.2	Annual herb endemic to California. Found in chaparral, coastal prairie, and coastal scrub in mesic soils. Blooming Period: March - June Elevation: 15 – 160 m.	No	Suitable habitat is present within the Planning Area. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Plagiobothrys diffusus San Francisco popcorn-flower	~/SE/1B.1	Annual herb endemic to California. Found in coastal prairie, and valley and foothill grassland. Blooming Period: March - June Elevation: 60 – 360 m.	No	Suitable habitat is present. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Plagiobothrys glaber Hairless popcorn-flower	~/~/1A	Annual herb endemic to California. Found in coastal salt marshes and alkaline meadows. Blooming Period: March - May Elevation: 15 - 180 m.	No	Limited habitat is present within the Planning Area. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Polemonium carneum Oregon polemonium	~/~/2.2	Perennial herb. Coastal prairie, Coastal scrub, Lower montane coniferous forest. Blooming Period: April - September Elevation: 0 - 1,830 m.	**Yes**	Suitable habitat is present within the Planning Area. There is one previously recorded occurrence within five miles of the Planning Area (CDFG 2010).
Potamogeton filiformis Slender-leaved pondweed	~/~/2.2	Aquatic rhizomatous herb found in marshes and swamps in assorted shallow freshwater habitats. Blooming Period: May - July Elevation: 300 – 2,150 m.	**Yes**	Limited habitat is present within the Planning Area. There is one previously recorded occurrence within five miles of the Planning Area (CDFG 2010).

Scientific Name **Common Name**	**Status** Federal[1]/State[2] /CNPS[3]	**General Habitat Description**	**Considered in Impact Analysis**	**Rationale**
Sanicula maritime Adobe sanicle	~/CR/1B.1	Perennial herb endemic to California. Found in chaparral, coastal prairie, meadows and seeps, and valley and foothill grassland in clay and serpentinite soils. Blooming Period: February - May Elevation: 30 – 240 m.	No	Although serpentine soil is not located within the Planning Area, this species also grows in clay soils. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Senecio aphanactis Rayless ragwort	~/~/2.2	Cismontane woodland and coastal scrub on drying alkaline flat. Blooming Period: January - April Elevation: 15 - 800 m.	No	Habitat is not present within the Planning Area. There is one previously recorded occurrence within five miles of the Planning Area (CDFG 2010).
Silene verecunda ssp. verecunda San Francisco campion	~/~/1B.2	Perennial herb endemic to California. Found in coastal bluff scrub, chaparral, coastal prairie, coastal scrub, and valley and foothill grassland in sandy soils. Blooming Period: March – June (August) Elevation: 30 – 645 m.	No	Suitable habitat is present within the Planning Area. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Stebbinsoseris decipiens Santa Cruz microseris	~/~/1B.2	Annual herb endemic to California. Found in broad-leafed upland forest, closed-cone coniferous forest, chaparral, coastal prairie, coastal scrub and valley and foothill grassland in open areas, sometimes serpentinite soils. Blooming Period: April - May Elevation: 10 – 500 m.	**Yes**	Suitable habitat is present within the Planning Area. There is one previously recorded occurrence within five miles of the Planning Area (CDFG 2010).
Streptanthus albidus ssp. peramoenus Most beautiful jewel-flower	~/~/1B.2 SLC	Chaparral, valley and foothill grassland and cismontane woodland. Serpentine outcrops on ridges and slopes. Blooming Period: (March) April - June Elevation: 110 – 1,000 m.	No	Serpentine soil is not located within the Planning Area. This species' habitat is not present. There is one previously recorded occurrence within five miles of the Planning Area (CDFG 2010).

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Streptanthus niger Tiburon jewel-flower	FE/SE/1B.1 SLC	Shallow, rocky serpentine slopes in valley and foothill grassland. Blooming Period: May - June Elevation: 30 - 150 m.	No	Serpentine soil is not located within the Planning Area. This species' habitat is not present. There is one previously recorded occurrence within five miles of the Planning Area (CDFG 2010).
Suaeda californica California seablite	FE/~/1B.1	Marshes and swamps on margins of coastal salt marshes. Blooming Period: July - October Elevation: 0 - 15 m.	**Yes**	Limited habitat is present within the Planning Area. There is one previously recorded occurrence within five miles of the Planning Area (CDFG 2010).
Symphyotrichum lentum Suisun Marsh aster	~/~/1B.1	Perennial rhizomatous herb in the sunflower family (Asteraceae). Marshes and swamps (brackish and freshwater). Blooming Period: May - November Elevation: 0 – 3 m.	**Yes**	Suitable habitat is present within the Planning Area. There is one previously recorded occurrence within five miles of the Planning Area (CDFG 2010).
Trifolium amoenum Showy indian clover	FE/~/1B.1	Valley and foothill grassland and coastal bluff scrub. In open, sunny sites and swales, sometimes on serpentine soil. Most recently sighted on roadside and eroding cliff-face. Blooming Period: April - June Elevation: 5 - 415 m.	**Yes**	Suitable habitat is present within the Planning Area. There are three previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Trifolium depauperatum var. hydrophilum Saline clover	~/~/1B.2	Marshes and swamps, valley and foothill grassland and vernal pools. Growing in mesic, alkaline sites. Blooming Period: April- June Elevation: 0 - 300 m.	No	Habitat is not present within the Planning Area. There is one previously recorded occurrence within five miles of the Planning Area (CDFG 2010).
Triphysaria floribunda San Francisco owl's clover	~/~/1B.2	Annual herb endemic to California. Found in coastal prairie, coastal scrub, and valley and foothill grassland usually in serpentinite soils. Blooming Period: April - June Elevation: 10 – 160 m.	No	Serpentine soil is not located within the Planning Area. This species' habitat is not present. There is one previously recorded occurrence within five miles of the Planning Area (CDFG 2010).

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Triquetrella californica Coastal triquetrella	~/~/1B.2	Moss found in coastal bluff scrub and coastal scrub in soil. Elevation: 10 – 100 m.	No	Suitable habitat is present within the Planning Area. There is one previously recorded occurrence within five miles of the Planning Area (CDFG 2010).
Viburnum ellipticum Oval-leaved viburnum	~/~/2.3	Chaparral, cismontane woodland, and lower montane coniferous forest. Blooming Period: May - June Elevation: 215 – 1,400 m.	No	Suitable habitat is present within the Planning Area. There is one previously recorded occurrence within five miles of the Planning Area (CDFG 2010).

CODE DESIGNATIONS

Federal status[1]:	**State status[2]:**	**CNPS[3]:**
FE = Listed as endangered under the Federal Endangered Species Act (FESA)	**SE** = Listed as endangered under the California Endangered Species Act (CESA)	**1A** = Plants species that presumed extinct in California.
FT = Listed as threatened under the FESA	**ST** = Listed as threatened under the CESA	**1B** = Plant species that are rare, threatened, or endangered in California and elsewhere.
Other	**CR** = Species identified as rare by CDFG	**List 2** = Plant species that are rare, threatened, or endangered in California, but more common elsewhere.
SLC = Species of Local or Regional Concern or conservation significance (USFWS 1998)		**Threat Ranks** **0.1**-Seriously threatened in California (high degree/immediacy of threat) **0.2**-Fairly threatened in California (moderate degree/immediacy of threat) **0.3**-Not very threatened in California (low degree/immediacy of threats or no current threats known)
Habitat description[4]: Habitat description adapted from CNDDB (CDFG 2010) and CNPS online inventory (CNPS 2010)		

TABLE C-2: SPECIAL-STATUS WILDLIFE SPECIES

Scientific Name **Common Name**	**Status** Federal[1]/ State[2]	**General Habitat Description**	**Considered in Impact Analysis**	**Rationale**
Invertebrates				
Branchinecta conservatio Conservancy fairy shrimp	FE/~	Inhabits rather large, cool-water vernal pools with moderately turbid water. They have been collected from early November to early April.	No	No suitable habitat is present within the Planning Area. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Branchinecta lynchi Vernal pool fairy shrimp	FT/~	Occupies a variety of different vernal pool habitats. Vernal pool fairy shrimp have been collected from early December to early May.	No	No suitable habitat is present within the Planning Area. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Elaphrus viridis Delta green ground beetle	FT/~	A metallic green and golden colored ground beetle. Found along the margins of vernal pools within 1.5 meters of the water. Specifically the microhabitat seems to consist of areas where the sandy mud substrate slopes gently into the water, and where there is very low-growing vegetation providing 25-100% cover. Beetles have however been found hundreds of meters from vernal pools.	No	Suitable habitat is not present within the Planning Area. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Euphydryas editha bayensis Bay checkerspot butterfly	FT/~ SLC	This subspecies is restricted to serpentine outcrops near San Francisco Bay with thin soils that support dry native grasslands with an abundance of both larval foodplants which are plantain (*Plantago erecta*) and owl's clover (*Orthocarpus densiflorus*). General region is mainly chaparral but this subspecies does not occupy such habitats. Both permanent sites are over 800 acres and topographically diverse. Larval foodplant varies seasonally and both plantain and owl's clover are usually required to complete development.	No	Serpentine soil is not located within the Planning Area. This species' habitat is not present. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).

Scientific Name **Common Name**	**Status** Federal[1]/ State[2]	**General Habitat Description**	**Considered in Impact Analysis**	**Rationale**
Haliotes cracherodii Black abalone	FC/~ NMFS	Found in marine subtidal rocky habitats only.	No	Habitat may be present within the San Pablo Bay Conservation Area. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Haliotes sorenseni White abalone	FE/~ NMFS	Found in marine subtidal rocky habitats only.	No	Habitat may be present within the San Pablo Bay Conservation Area. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Icaricia icarioides missionensis Mission blue butterfly	FE/~	The Mission blue butterfly makes its adult appearance between early March and early July. Currently restricted to three locations in the San Francisco Bay Area, including—the Twin Peaks area of San Francisco; Fort Baker in Marin County; and San Bruno Mountain in San Mateo County. The latter hosts the largest population of Mission blue butterflies. Mission blues are found commonly at elevations around 700 ft. The Mission blue butterfly requires the type coastal scrub and grassland habitat found only near the Golden Gate of San Francisco. This species depends on any of three species of perennial lupine to reproduce—Lindley varied lupine (*Lupinus variicolor*), Silver lupine (*L. albifrons*), or Summer lupine (*L. fomosus*).	No	Habitat is not present within the Planning Area. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Speyeria callippe callippe Callippe silverspot butterfly	FE/~	Restricted to northern coastal scrub of the San Francisco peninsula. Host plant is *Viola pedunculata*. Most adults found on east-facing slopes; males congregate on hilltops in search of females.	No	Habitat is not present. The Planning Area is outside this species known range. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Speyeria zerene myrtleae Myrtle's silverspot butterfly	FE/~	Restricted to the foggy, coastal dunes and hills of the Point Reyes Peninsula. Extirpated from coastal San Mateo County. Larval food-plant thought to be *Viola adunca*.	No	Habitat is not present. There is one previously recorded occurrence within five miles of the Planning Area (CDFG 2010).

Scientific Name **Common Name**	**Status** Federal[1]/ State[2]	**General Habitat Description**	**Considered in Impact Analysis**	**Rationale**
Syncaris pacifica California freshwater shrimp	FE/SE	Endemic to Marin, Napa, and Sonoma Counties. Found in low elevation, low gradient streams where riparian cover is moderate to heavy. Prefers shallow pools away from main stream-flow. Winter: undercut banks with exposed roots. Summer: leafy branches touching water.	No	Outside of species known range. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Fish				
Acipenser medirostris Green sturgeon	FT/~ NMFS	The green sturgeon is a widely distributed, ocean-oriented sturgeon found in nearshore marine waters from Baja Mexico to Canada. Green sturgeon are anadromous, spawning in the Sacramento, Klamath and Rogue rivers in the spring. Individuals spawn every few years beginning about age 15. Green sturgeon congregate in these and other estuaries during the summer, where they appear to neither breed nor feed. Neither the purpose of these aggregations nor the portion of the population participating in them is known.	No	This species would not occur within Pinole Creek, but may occur offshore in the San Pablo Bay Conservation Area. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Archoplites interruptus Sacramento perch	~/CSC	Historically found in the sloughs, slow-moving rivers, and lakes of the Central Valley. Prefers warm water. Aquatic vegetation is essential for young. Tolerates a wide range of physico-chemical water conditions.	No	This species would not occur within Pinole Creek, but may occur offshore in the San Pablo Bay Conservation Area. There are two previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Eucyclogobius newberryi Tidewater goby	FE/CSC	Habitat consists of brackish shallow lagoons and lower stream reaches where the water is fairly still but not stagnant.	No	This species would not occur within Pinole Creek, but may occur offshore in the San Pablo Bay Conservation Area. There are three previously recorded occurrences within five miles of the Planning Area (CDFG 2010).

Scientific Name **Common Name**	**Status** Federal[1]/ State[2]	**General Habitat Description**	**Considered in Impact Analysis**	**Rationale**
Hypomesus transpacificus Delta smelt	FT/ST	Found in brackish water. Located exclusively in the Sacramento-San Joaquin Delta. They have been found as far upstream as the mouth of the American River on the Sacramento River and Mossdale on the San Joaquin River and extend downstream as far as San Pablo Bay.	No	This species would not occur within Pinole Creek, but may occur offshore in the San Pablo Bay Conservation Area. There are four previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Oncorhynchus kisutch Coho salmon: Central California Coast ESU	FE/~ NMFS	Federal Listing = Populations between Punta Gorda and San Lorenzo River. Requires beds of loose, silt-free, coarse gravel for spawning. Also needs cover, cool water, and sufficient dissolved oxygen.	No	This species would not occur within Pinole Creek, but may occur offshore in the San Pablo Bay Conservation Area. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Oncorhynchus mykiss irideus Steelhead: Central Valley ESU	FT/~ NMFS	The Central Valley ESU includes populations spawning in the Sacramento and San Joaquin rivers and their tributaries.	No	This species would not occur within Pinole Creek, but may occur offshore in the San Pablo Bay Conservation Area. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Oncorhynchus mykiss irideus Steelhead: Central California Coast ESU	FT/~	The Central California Coast ESU ranges from Russian River south to Soquel Creek and to (but not including) Pajaro River. Also includes San Francisco Bay and San Pablo Bay basins. Inhabit cool, clear, well-oxygenated streams.	No	This species would not occur within Pinole Creek, but may occur offshore in the San Pablo Bay Conservation Area. There is one previously recorded occurrence within five miles of the Planning Area (CDFG 2010).
Oncorhynchus tshawytscha Chinook salmon: Central Valley spring-run ESU	FT/~ NMFS	Central Valley spring-run ESU includes populations spawning in the Sacramento River and tributaries. Adult numbers depend upon pool depth and volume, amount of cover, and proximity to gravel. Water temperatures greater than 27C is lethal to adults.	No	This species would not occur within Pinole Creek, but may occur offshore in the San Pablo Bay Conservation Area. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).

Scientific Name **Common Name**	**Status** Federal[1]/ State[2]	**General Habitat Description**	**Considered in Impact Analysis**	**Rationale**
Oncorhynchus tshawytscha Chinook salmon: Sacramento River winter-run ESU	FE/~ NMFS	Sacramento River winter run ESU spawns primarily in the mainstem of the Sacramento River below Keswick dam, with a small number in Battle Creek. Some juveniles rear non-natally for brief periods in lower reaches of tributaries. Requires clean, cold water over gravel beds with water temperatures between 6 and 14C for spawning.	No	This species would not occur within Pinole Creek, but may occur offshore in the San Pablo Bay Conservation Area. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Pogonichthys macrolepidotus Sacramento splittail	~/CSC	Endemic to the lakes and rivers of the Central Valley, but now confined to the Delta, Suisun Bay, and associated marshes. Found in slow-moving river sections and dead-end sloughs. Requires flooded vegetation for spawning and foraging for young.	No	This species would not occur within Pinole Creek, but may occur offshore in the San Pablo Bay Conservation Area. There are seven previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Amphibians				
Ambystoma californiense California tiger salamander	FT/ST	Requires vernal pools or other seasonal water sources for breeding. Need underground refuges, especially ground squirrel burrows.	No	Suitable habitat is not present within the Planning Area. There are two previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Rana aurora draytonii California red-legged frog	FT/CSC	Lowlands and foothill streams, pool, and marshes in or near permanent or late season sources of deep water with dense, shrubby, riparian, or emergent vegetation (e.g. ponds, perennial drainages, well-developed riparian) below 3,936 ft. in elevation. Requires 11-20 weeks of permanent water for larval development. Must have access to estivation habitat.	**Yes**	Suitable habitat is present within the Pinole Creek. A previously recorded occurrence is located upstream in Pinole Creek. There are 25 previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Rana boylii Foothill yellow-legged frog	~/CSC	Partly shaded, shallow streams and riffles with a rocky substrate in various habitats, with adjacent sunny banks or open woodlands. Breeding season begins mid-March to May.	**Yes**	Suitable habitat is present within Pinole Creek; however, there are no records of this species occurring within the creek. There is one previously recorded occurrence within five miles of the Planning Area (CDFG 2010).
Reptiles				

Scientific Name **Common Name**	**Status** Federal[1]/ State[2]	**General Habitat Description**	**Considered in Impact Analysis**	**Rationale**
Actinemys marmorata Western pond turtle	~/CSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches with aquatic vegetation. Need basking sites and suitable (sandy banks or grassy open fields) upland habitat for egg-laying. The western pond turtle includes two subspecies, the northwestern pond turtle (*A. m. marmorata)* and the southwestern pond turtle (*A. m. pallida*). The two subspecies range is interconnected within and around the San Francisco Bay Area.	**Yes**	Suitable habitat is present within Pinole Creek. There are 12 previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Masticophis lateralis euryxanthus Alameda whipsnake	FT/ST	Restricted to valley-foothill hardwood habitat of the coast ranges between vicinity of Monterey and north San Francisco Bay. Inhabits south-facing slopes and ravines where shrubs form a vegetative mosaic with oak trees and grasses.	**Yes**	Suitable habitat is present within the Planning Area. There are 41 previously recorded occurrences within five miles of the Planning Area, 13 of which are within the Planning Area (CDFG 2010).
Thamnophis gigas Giant garter snake	FT/~	Freshwater marsh, sloughs, drainage canals, irrigation ditches and slow-moving rivers. Also require adjacent upland habitat for basking and burrows	No	The Planning Area is outside of species known range. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Birds				
		CHARADRIIFORMES (shorebirds, gulls)		
Charadrius alexandrinus nivosus Western snowy plover	FT/CSC MNBMC	Sandy beaches, salt pond levees; needs sandy, gravelly, or friable soils for nesting.	No	Habitat is not present within the Planning Area. There is one previously recorded occurrence within five miles of the Planning Area (CDFG 2010).
Sternula antillarum browni California least tern	FE/SE; CFP MNBMC	Summer/nesting in Bay Area; isolated colony in San Francisco Bay on sandy beaches bordering shallow water in estuaries; bulk of distribution in southern California coast.	**Yes**	Limited habitat is present within the Planning Area. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
		PROCELLARIIFORMES (tube-nosed seabirds)		

Scientific Name **Common Name**	**Status** Federal[1]/ State[2]	**General Habitat Description**	**Considered in Impact Analysis**	**Rationale**
Diomedea albatrus Short-tailed albatross	FE/~ MNBMC	Short-tailed albatrosses require remote islands for breeding habitat. These birds nest in open, treeless areas with low, or no, vegetation. They spend much of their time feeding in shelf-break areas of the Bering Sea, Aleutian chain and in other Alaskan, Japanese and Russian waters. They feed mainly on squid and have been recorded following ships to feed on scraps and fish offal.	No	Habitat is not present within the Planning Area. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
		FALCONIFORMES (hawks, falcons)		
Aquila chrysaetos Golden eagle	~/CFP MNBMC	Nests and winters in rolling foothills of mountain areas, sage-juniper flats, and deserts. Cliff-walled canyons provide nesting habitat in most parts of range; also large trees in open areas.	**Yes**	Suitable nesting and foraging habitat is present within the Planning Area. There are two previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Buteo swainsoni Swainson's hawk	~/ST MNBMC	Breeds and nests in stands with few trees in juniper-sage flats, riparian areas and oak savannah. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	**Yes**	Suitable nesting and foraging habitat is present within the Planning Area. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Circus cyaneus Northern harrier	~/CSC MNBMC	Nests in coastal salt marsh, fresh-water marsh, and grasslands. Forages in grasslands, from salt grass in desert sinks to mountain cienagas. Nests on ground in shrubby vegetation, usually at marsh edge. Nest built of a large mound of sticks in wet areas.	**Yes**	Suitable nesting and foraging habitat is present within the Planning Area. There are four previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Elanus leucurus White-tailed kite	~/CFP	Nests in rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. Forages in open grasslands, meadows and marshes close to isolated, dense-topped trees used for nesting and perching.	**Yes**	Suitable nesting and foraging habitat is present within the Planning Area. There are four previously recorded occurrences within five miles of the Planning Area (CDFG 2010).

Scientific Name **Common Name**	**Status** Federal[1]/ State[2]	**General Habitat Description**	**Considered in Impact Analysis**	**Rationale**
Falco peregrinus anatum American peregrine falcon	FD/SD; CFP MNBMC	Seasonal migrant in Bay Area; open country near water where shorebirds feed. May nest in high cliffs near rivers, wetlands, lakes, and human-made structures.	**Yes**	Suitable nesting and foraging habitat is present within the Planning Area. There is one previously recorded occurrence within five miles of the Planning Area (CDFG 2010).
Haliaeetus leucocephalus Bald eagle	FT/SE; CFP MNBMC	Breeds and roosts in remote coniferous forests in close proximity to a river, stream lake, reservoir, marsh, or other large wetland areas. Inhabits ocean shores, lake margins, and rivers for both nesting and wintering. Builds stick nests within large tall trees and typically within 1 mile of permanent water. Wintering populations along major rivers and reservoirs in Yuba County. Breeds February to July.	**Yes**	Suitable nesting and foraging habitat is present within the Planning Area. There is one previously recorded occurrence within five miles of the Planning Area (CDFG 2010).
		GRUIFORMES (rails, cranes)		
Laterallus jamaicensis coturniculus California black rail	~/ST; CFP MNBMC	Mainly inhabits salt marshes bordering larger bays. Occurs in tidal salt marsh with heavy growth of Salicornia; also in fresh water and brackish marshes – all at low elevation.	**Yes**	Suitable habitat is present within the Planning Area. There are 34 previously recorded occurrences within five miles of the Planning Area, one of which is within the Planning Area (CDFG 2010).
Rallus longirostris obsoletus California clapper rail	FE/SE; CFP MCBMC	Salt water and brackish marshes traversed by tidal sloughs in the vicinity of the San Francisco Bay. Typically associated with abundant growths of pickleweed and cordgrass.	**Yes**	Suitable habitat is present within the Planning Area. There are 33 previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
		PASSERIFORMES (perching birds)		
Agelaius tricolor Tricolored blackbird	~/CSC MNBMC	Highly colonial; requires open water and foraging area (insect prey) within a few km of colony. Prefers dense cattails or tules, but also nests in willow and blackberry thickets.	**Yes**	Habitat is present within the Planning Area. There are four previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Geothlypis trichas sinuosa Saltmarsh common yellowthroat	~/CSC	Resident of the San Francisco Bay region, in fresh and salt water marshes. Requires thick, continuous cover down to water surface for foraging and tall grasses, tule patches and willows for nesting.	**Yes**	Suitable habitat is present within the Planning Area. There are 32 previously recorded occurrences within five miles of the Planning Area (CDFG 2010).

Scientific Name **Common Name**	**Status** Federal[1]/ State[2]	**General Habitat Description**	**Considered in Impact Analysis**	**Rationale**
Melospiza melodia maxillaris Suisun song sparrow	~/CSC MNBMC	Resident of brackish water marshes. Its range includes the Carquinez Strait and Suisun Bay east to Antioch, at the confluence of the San Joaquin and Sacramento rivers (Shuford and Gardali 2008). Inhabits cattails, tules and other sedges, and *Salicornia;* also known to frequent tangles of vegetation bordering sloughs.	No	The Planning Area is outside the range for this species. There are nine previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Melospiza melodia pusillula Alameda song sparrow	~/CSC MNBMC	Resident of salt marshes bordering south arm of San Francisco Bay. Inhabits *Salicornia* marshes and nests low in *Grindelia* bushes (high enough to escape high tides) and in *Salicornia*.	**Yes**	Suitable habitat is present within the Planning Area. There are five previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Melospiza melodia samuelis San Pablo song sparrow	~/CSC MNBMC	Resident of salt marshes along the north side of San Francisco Bay and San Pablo Bay. Inhabits tidal sloughs in the *Salicornia* marshes. Nests in *Grindelia* bordering slough channels.	**Yes**	Suitable nesting and foraging habitat is present within the Planning Area. There are 31 previously recorded occurrences within five miles of the Planning Area, one of which is within the Planning Area (CDFG 2010).
Riparia riparia Bank swallow	~/ST MNBMC	Primarily riparian and other lowland habitats in California. In summer, restricted to riparian, lacustrine, and coastal areas with vertical banks, bluffs, and cliffs with fine-textured or sandy soils for nesting holes. Breeds early May to July.	No	Habitat is not present within the Planning Area. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Xanthocephalus xanthocephalus Yellow-headed blackbird	~/CSC MNBMC	Nests in freshwater emergent wetlands with dense vegetation and deep water. Often along the borders of lakes or ponds. Nests only where large insects such as Odonata are abundant. Nesting is timed with maximum emergence of aquatic insects.	**Yes**	Habitat is present within the Planning Area. There is one previously recorded occurrence within the Planning Area (CDFG 2010).
		PELECANIFORMES (pelicans, cormorants)		
Pelacanus occidentalis californicus California brown pelican	FE/~ MNMBC	(Nesting colony) Colonial nester on coastal islands just outside the surf line; nests on coastal islands of small to moderate size which afford immunity from attack by ground-dwelling predators.	No	Habitat is not present within the Planning Area. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
		STRIGIFORMES (owls)		

Scientific Name **Common Name**	**Status** Federal[1]/ State[2]	**General Habitat Description**	**Considered in Impact Analysis**	**Rationale**
Asio flammeus Short-eared owl	~/CSC MNMBC	Nesting habitat located in swamp lands (fresh and salt), lowland meadows, and irrigated alfalfa fields. Tule patches or tall grass needed for nesting and daytime seclusion. Nests on dry ground in depression concealed in vegetation.	**Yes**	Suitable habitat is present within the Planning Area. There is one previously recorded occurrence within five miles of the Planning Area (CDFG 2010).
Athene cunicularia Burrowing owl	~/CSC MNMBC	Open, dry annual or perennial grasslands, deserts, and scrublands with low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	**Yes**	Suitable habitat is present within the Planning Area. There are 10 previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Strix occidentalis Northern spotted owl	FT/~ MNMBC	Habitat includes old growth (at least 150-200 years old), but sometimes they occur in younger forests that include patches of older growth. Nests on broken tree top, cliff ledge, in natural tree cavity, or in tree on stick platform, often the abandoned nest of hawk or mammal; sometimes in cave. Pairs tend to occupy the same nesting territories in successive years, as long as habitat remains suitable. Breeds April to September.	No	Habitat is not present within the Planning Area. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Mammals				
Antrozous pallidus Pallid bat	~/CSC	Deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	**Yes**	Suitable habitat is present within the Planning Area. There are 12 previously recorded occurrences within five miles of the Planning Area, one of which is within the Planning Area (CDFG 2010).
Arctocephalus townsendi Guadalupe fur seal	FT/~ NMFS	Guadalupe fur seals only live on rocky coasts and in the caves found along these shores. They can dive to an average maximum depth of 17m for an average of 2.5 minutes. The northernmost border of the range of *A. townsendi* is the Channel Islands, CA. The southern range border is Cedros Island, Baja California, Mexico. The only current breeding area is on Guadalupe Island, 290 km west of Baja California.	No	Habitat is not present within the Planning Area. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).

Scientific Name **Common Name**	**Status** Federal[1]/ State[2]	**General Habitat Description**	**Considered in Impact Analysis**	**Rationale**
Balaenoptera borealis *Sei whale*	FE/~ NMFS	The sei whale is a baleen whale (having baleen plates for filtering food from water, rather than having teeth). It can be found worldwide in all oceans and adjoining seas, and prefers deep off-shore waters. It tends to avoid polar and tropical waters and semi-enclosed bodies of water.	No	Habitat is not present within the Planning Area. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Balaenoptera musculus Blue whale	FE/~ NMFS	The blue whale is a baleen whale (having baleen plates for filtering food from water, rather than having teeth). The blue whale is the largest mammal, possibly the largest animal, to ever inhabit the earth. Blue whales may be found in all the oceans. They migrate to tropical-to-temperate waters during winter months to mate and give birth to calves.	No	Habitat is not present within the Planning Area. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Balaenoptera physalus Finback whale	FE/~ NMFS	The finback whale is a baleen whale (having baleen plates for filtering food from water, rather than having teeth). It can be found worldwide in all oceans and in waters ranging from the polar to the tropical. It is absent only from waters close to the ice pack at both the north and south poles and relatively small areas of water away from the large oceans.	No	Habitat is not present within the Planning Area. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Enhydra lutris nereis Southern sea otter	FT/CFP	Sea otters are marine mammals. They inhabit temperate coastal waters with rocky or soft sediment ocean bottoms less than 1 km from shore. Kelp forest ecosystems are characteristic of otter habitats. This species is found off the coast of central California.	No	Habitat is not present within the Planning Area. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Eubalaena (=Balaena) glacialis Right whale	FE/~ NMFS	Right whales will spend much of their time near bays and peninsulas and in shallow, coastal waters. These whales inhabit the temperate and subpolar waters of the north Atlantic and north Pacific oceans.	No	Habitat is not present within the Planning Area. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Eumetopias jubatus Steller (=northern) sea-lion	FT/~ NMFS	Steller sea lions prefer colder waters over warm waters. Their range includes the North Pacific Rim from northern Japan to California, but most are found in the Gulf of Alaska and Aleutian Islands.	No	Habitat is not present within the Planning Area. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).

Scientific Name **Common Name**	**Status** Federal[1]/ State[2]	**General Habitat Description**	**Considered in Impact Analysis**	**Rationale**
Lasiurus blossevillii Western red bat	~/CSC	Solitary creatures that roost in broad leaved trees, especially cottonwoods and willows in foothills and lower mountains and in fruit and nut orchards. Often found near streams.	**Yes**	Limited habitat is present within the Planning Area. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Lasionycteris noctivagans Silver-haired bat	~/CSC	Prefers forested (frequently coniferous) areas adjacent to lakes, ponds, and streams. Summer roosts and nursery sites are in tree foliage, cavities, or under loose bark, sometimes in buildings.	**Yes**	Limited habitat is present within the Planning Area. There are two previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Microtus californicus sanpabloensis San Pablo vole	~/CSC	Salt marshes of San Pablo Creek, on the south shore of San Pablo Bay. Constructs burrow in soft soil. Feeds on grasses, sedges and herbs. Forms a network of runways leading from the burrow.	**Yes**	Suitable habitat is present within the Planning Area. There are eight previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Nyctinomops macrotis Big free -tailed bat	~/CSC	Low-lying arid areas in Southern California. Needs high cliffs or rocky outcrops for roosting sites. Feeds principally on large moths.	No	Habitat is not present within the Planning Area. There are two previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Physeter catodon (=macrocephalus) Sperm whale	FE/~ NMFS	Sperm whales swim through deep waters to depths of 2 miles. Sperm whales roam the deep waters of all the oceans, though they seldom approach polar ice fields and are most common in temperate and tropical latitudes.	No	Habitat is not present within the Planning Area. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Reithrodontomys raviventris Salt-marsh harvest mouse	FE/SE; CFP	Only in the saline emergent wetlands of San Francisco Bay and its tributaries. *Salicornia* is primary habitat. Does not burrow, builds loosely organized nests. Requires higher areas for flood escape.	**Yes**	Limited habitat is present within the Planning Area. There are 36 previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Scapanus latimanus insularis Angel Island mole	~/CSC	Endemic to Angel Island in San Francisco Bay. The species seem to prefer moist soils, but will inhabit dry areas with large boulders.	No	The Planning Area is outside of species known range. There is one previously recorded occurrence within five miles of the Planning Area, which is on Angel Island in the Bay (CDFG 2010).

Scientific Name Common Name	Status Federal[1]/ State[2]	General Habitat Description	Considered in Impact Analysis	Rationale
Sorex ornatus sinuosus Suisun shrew	~/CSC	Tidal marshes of the northern shores of San Pablo Bay and Suisun Bay. Requires dense, low-lying cover and driftwood and other litter above the mean high tide line for nesting and foraging.	**Yes**	Marginal habitat is present within the Planning Area. There are nine previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Sorex vagrans halicoetes Salt-marsh wandering shrew	~/CSC	Salt Marshes of the south arm of San Francisco Bay. Found in medium-high marshes 6-8 feet above sea level where abundant driftwood is scattered among *Salicornia*.	**Yes**	Marginal habitat is present within the Planning Area. There are two previously recorded occurrences within five miles of the Planning Area (CDFG 2010).
Taxidea taxus American badger	~/CSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils and open, uncultivated ground. Preys upon burrowing rodents; digs burrows.	**Yes**	Suitable habitat is present within the Planning Area. There is one previously recorded occurrence within five miles of the Planning Area (CDFG 2010).
Zapus trinotatus orarius Point Reyes jumping mouse	~/CSC	Bunch grass marshes on the uplands of Point Reyes. This species occurs in moist areas that are safe from continuous inundation. This species is confined to a small area on the Point Reyes Peninsula, Marin County, California.	No	The Planning Area is outside the range for this species. There are no previously recorded occurrences within five miles of the Planning Area (CDFG 2010).

CODE DESIGNATIONS

Federal status[1]: 2007 USFWS Listing	State status[2]: 2007 USFWS and CDFG Listing
FE = Listed as endangered under the Federal Endangered Species Act (FESA)	**SE** = Listed as endangered under the California Endangered Species Act (CESA)
FT = Listed as threatened under the FESA	**ST** = Listed as threatened under the CESA
FC = Candidate for listing (threatened or endangered) under FESA	**SD =** Delisted in accordance with the CESA
FD = Delisted in accordance with the FESA	**CSC** = Species of Concern as identified by the CDFG
ESU = Evolutionary Significant Unit is a distinctive population.	**CFP** = Listed as fully protected under CDFG code
MNBMC = Migratory Nongame Bird of Management Concern, protected under the Migratory Bird Treaty Act	**Other**
	SLC = Species of Local or Regional Concern or conservation significance (USFWS 1998)
Habitat description[3]: Habitat description information adapted from CNDDB and www.natureserve.org	

APPENDIX F CULTURAL RESOURCES

CITY OF PINOLE

Community Development Department

2131 Pear Street
Pinole, CA 94564

Tel: (510) 724-8912
Fax: (510) 724-4921

May 28, 2010

Amah/Mutsun Tribal Band
Ms. Irene Zwielein, Chairperson
789 Canada Road
Woodside, CA 94062

Dear Ms. Zwielein:

The City of Pinole is preparing a General Plan Update. The City will be the lead agency for preparation of environmental documents associated with the General Plan Update project. The City had previously sent correspondence to the Tribe in December 2006 and had not received a response. The City invites you to request consultation regarding the proposed General Plan Update pursuant to California Government Code Section 65352.3. The City recognizes the importance of contacting the Tribe and values your participation in the planning process for this project.

The proposed project consists of an update to the City of Pinole General Plan, a Specific Plan for portions of three major transportation corridors within the City, and a Zoning Ordinance Update. The City of Pinole General Plan Update will address the State-mandated requirements and local issues through inclusion of appropriate general plan elements, required Specific Plan content, and revised zoning regulations. The documents are needed to reflect current legal requirements and changes within the City and surrounding area. Topics addressed include land use, transportation, growth patterns, protection of natural resources and open space, public safety, community services, and economic development.

The City of Pinole acknowledges that your Tribe wants to protect its cultural heritage and may possess information regarding the General Plan Update Planning Area (see enclosed Planning Area Boundary Map). Please review your records and consult with your elders regarding any information that your Tribe may have regarding the area. The City invites you to participate in the planning process for this project and seeks your assistance in the effort to avoid any potential impacts to your cultural and spiritual sites.

If you require additional information or have any questions regarding the City of Pinole General Plan Update, please contact me by phone at 510-724-9832 or via email at wrhodes@ci.pinole.ca.us by August 31, 2010, (per California Government Code Section 65352.3(a)(2)). We appreciate your participation any input you may have.

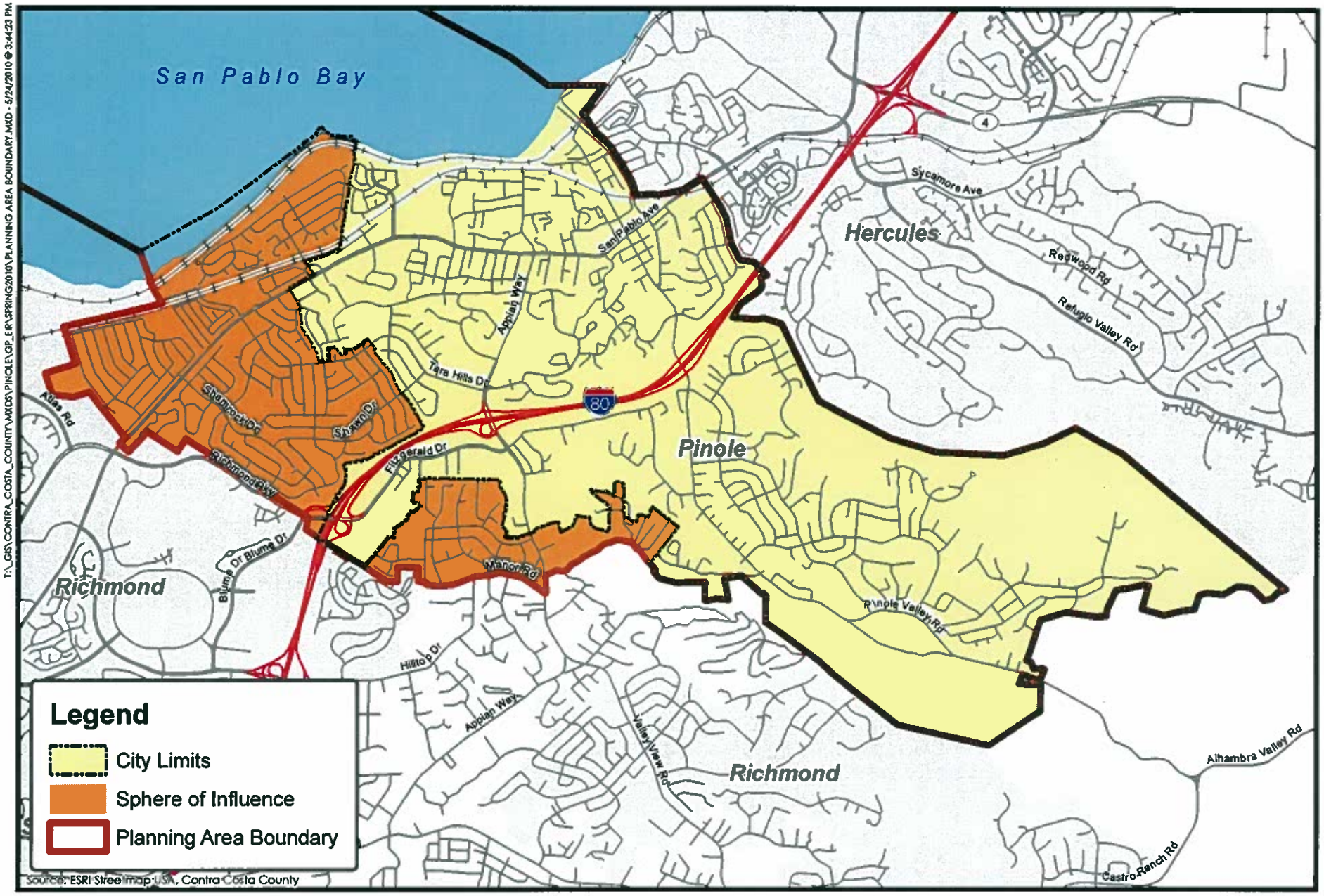
Sincerely,

Winston Rhodes

Winston Rhodes
Planning Manager, City of Pinole

Enclosure: Project Area Map

CC: Project File
Belinda B. Espinosa, City Manager



1,500 0 1,500
FEET
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Figure 3.0-2
Planning Area Boundary

PMC

CITY OF PINOLE

Community Development Department

2131 Pear Street
Pinole, CA 94564

Tel: (510) 724-8912
Fax: (510) 724-4921

May 28, 2010

Indian Canyon Mutsun Band of Coastanoan
Ms. Ann Marie Sayers, Chairperson
P.O. Box 28
Hollister, CA 95024

Dear Ms. Sayers:

The City of Pinole is preparing a General Plan Update. The City will be the lead agency for preparation of environmental documents associated with the General Plan Update project. The City had previously sent correspondence to the Tribe in December 2006 and had not received a response. The City invites you to request consultation regarding the proposed General Plan Update pursuant to California Government Code Section 65352.3. The City recognizes the importance of contacting the Tribe and values your participation in the planning process for this project.

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wrhodes@ci.pinole.ca.us by August 31, 2010, (per California Government Code Section 65352.3(a)(2)). We appreciate your participation any input you may have.

Sincerely,

Winston Rhodes

Winston Rhodes
Planning Manager, City of Pinole

Enclosure: Project Area Map

CC: Project File
Belinda B. Espinosa, City Manager

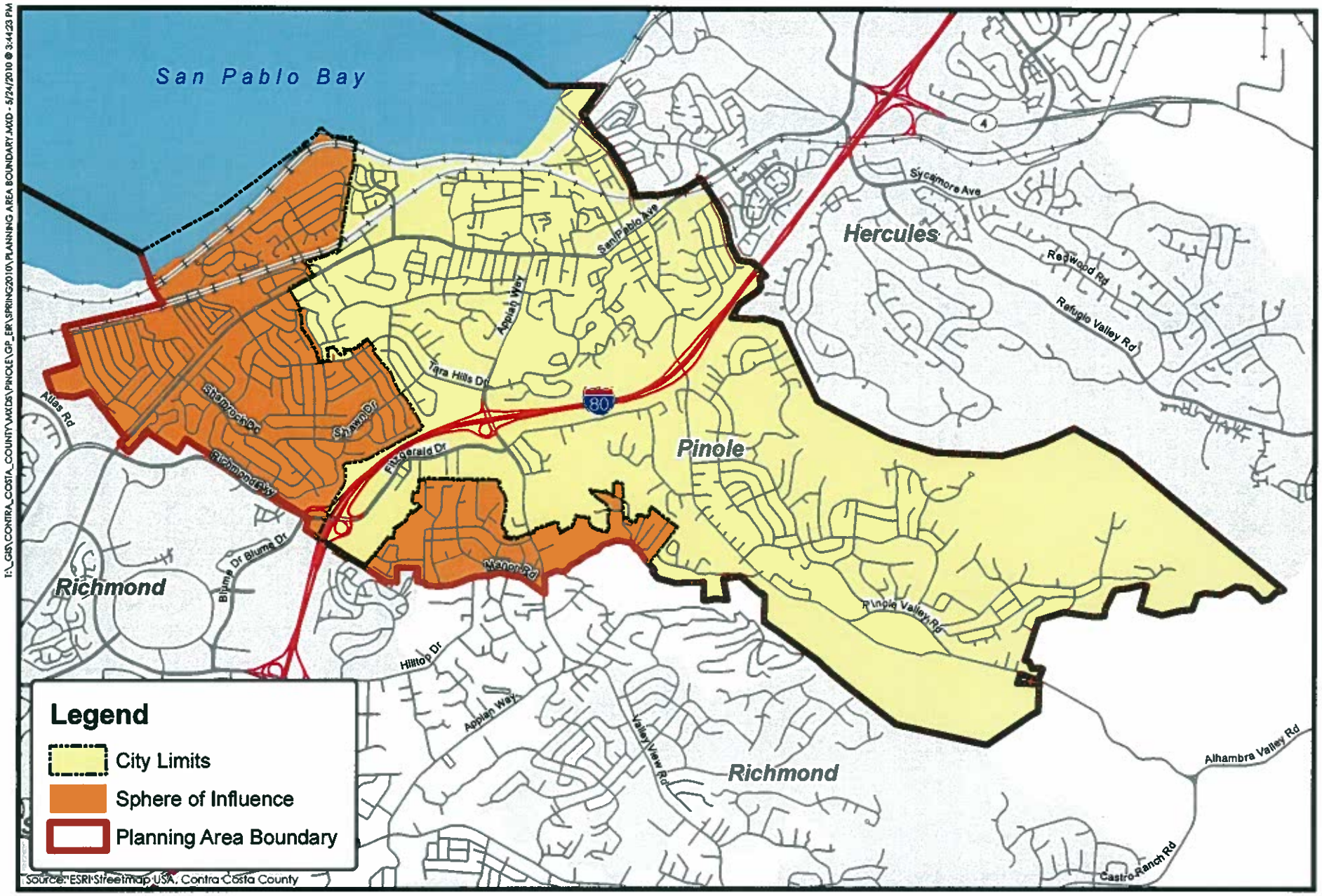

Figure 3.0-2
Planning Area Boundary

PMC

CITY OF PINOLE

Community Development Department

2131 Pear Street
Pinole, CA 94564

Tel: (510) 724-8912
Fax: (510) 724-4921

May 28, 2010

The Ohlone Indian Tribe
Mr. Andrew Galvin
P.O. Box 3152
Mission San Jose, CA 94539

Dear Mr. Galvin:

The City of Pinole is preparing a General Plan Update. The City will be the lead agency for preparation of environmental documents associated with the General Plan Update project. The City had previously sent correspondence to the Tribe in December 2006 and had not received a response. The City invites you to request consultation regarding the proposed General Plan Update pursuant to California Government Code Section 65352.3. The City recognizes the importance of contacting the Tribe and values your participation in the planning process for this project.

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Winston Rhodes

Winston Rhodes
Planning Manager, City of Pinole

Enclosure: Project Area Map

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Belinda B. Espinosa, City Manager

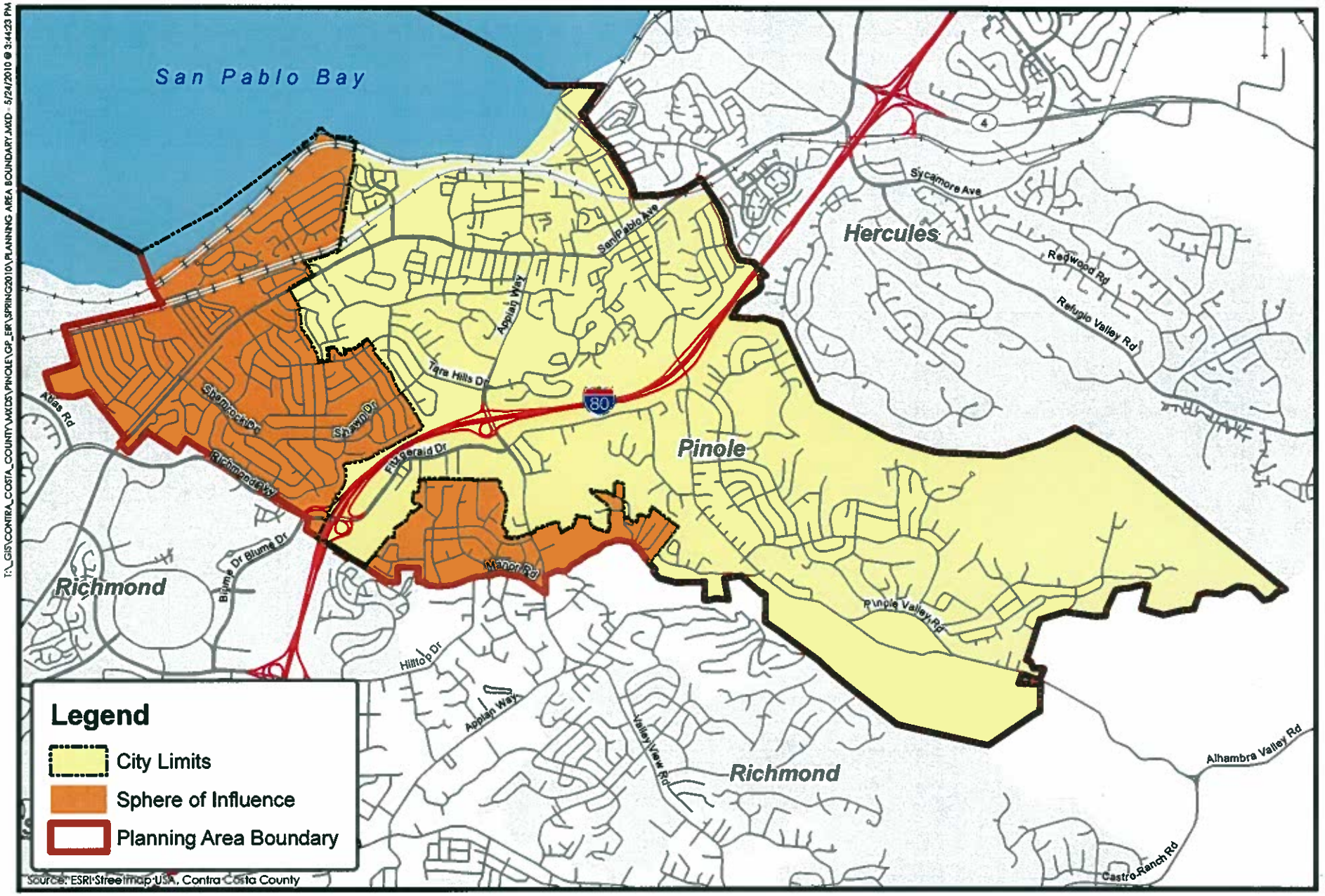

Figure 3.0-2
Planning Area Boundary

PMC

APPENDIX G CLIMATE CHANGE

Existing Conditions: 2010

Contra Costa Co	Passanger Car	Light-Duty Truck1	Light-Duty Truck2	Medium Duty Truck	Light-Heavy-Duty Truck1	Light-Heavy-Duty Truck2	Medium-Heavy-Duty Truck	Heavy-Heavy-Duty Truck	Other Buses	Urban Buses	Motorcycle	School Bus	Motor homes	Total
VMT														
Gasoline	13,452,000	3,465,000	5,520,000	2,240,000	269,000	88,000	45,000	23,000	11,000	14,000	232,000	7,000	61,000	25,427,000
Diesel	31,000	116,000	11,000	7,000	98,000	75,000	220,000	408,000	7,000	37,000	-	105,000	8,000	1,123,000
Total	13,483,000	3,581,000	5,531,000	2,247,000	367,000	163,000	265,000	431,000	18,000	51,000	232,000	112,000	69,000	26,550,000
Gallons														
Gasoline	618,700	198,290	314,510	173,050	30,870	10,240	4,390	2,050	950	1,170	6,320	650	4,880	1,366,070
Diesel	1,090	4,000	390	230	5,100	3,990	33,050	77,020	1,030	9,190	-	16,250	1,240	152,580
Total	619,790	202,290	314,900	173,280	35,970	14,230	37,440	79,070	1,980	10,360	6,320	16,900	6,120	1,518,650

Source: ARB BURDEN2007 VMT and fuel consumption data for base year

Pinole	Passanger Car	Light-Duty Truck1	Light-Duty Truck2	Medium Duty Truck	Light-Heavy-Duty Truck1	Light-Heavy-Duty Truck2	Medium-Heavy-Duty Truck	Heavy-Heavy-Duty Truck	Other Buses	Urban Buses	Motorcycle	School Bus	Motor homes	Total
VMT														
Gasoline	314,133	80,915	128,904	52,309	6,282	2,055	1,051	537	257	327	5,418	163	1,424	593,776
Diesel	724	2,709	257	163	2,289	1,751	5,137	9,528	163	864	-	2,452	187	26,224
Total	314,857	83,624	129,161	52,472	8,570	3,806	6,188	10,065	420	1,191	5,418	2,615	1,611	620,000
Gallons														
Gasoline	14,448	4,631	7,344	4,041	721	239	103	48	22	27	148	15	114	31,901
Diesel	25	93	9	5	119	93	772	1,799	24	215	-	379	29	3,563
Total	14,473	4,724	7,354	4,046	840	332	874	1,846	46	242	668	395	143	35,464

Future Conditions: 2030

Contra Costa Co	Passanger Car	Light-Duty Truck1	Light-Duty Truck2	Medium Duty Truck	Light-Heavy-Duty Truck1	Light-Heavy-Duty Truck2	Medium-Heavy-Duty Truck	Heavy-Heavy-Duty Truck	Other Buses	Urban Buses	Motorcycle	School Bus	Motor homes	Total
VMT														
Gasoline	17,130,000	4,581,000	6,772,000	2,611,000	313,000	119,000	61,000	5,000	5,000	21,000	294,000	10,000	80,000	32,002,000
Diesel	1,000	14,000	1,000	1,000	77,000	89,000	284,000	418,000	19,000	41,000	-	126,000	9,000	1,080,000
Total	17,131,000	4,595,000	6,773,000	2,612,000	390,000	208,000	345,000	423,000	24,000	62,000	294,000	136,000	89,000	33,082,000
Gallons														
Gasoline	767,450	258,200	390,160	204,510	36,080	13,760	5,200	430	410	1,770	8,130	960	6,210	1,693,270
Diesel	40	500	30	40	4,020	4,630	42,560	78,700	2,830	9,700	-	19,450	1,310	163,810
Total	767,490	258,700	390,190	204,550	40,100	18,390	47,760	79,130	3,240	11,470	8,130	20,410	7,520	1,857,080

Source: ARB BURDEN2007 VMT and fuel consumption data for 2035 horizon year

Pinole	Passanger Car	Light-Duty Truck1	Light-Duty Truck2	Medium Duty Truck	Light-Heavy-Duty Truck1	Light-Heavy-Duty Truck2	Medium-Heavy-Duty Truck	Heavy-Heavy-Duty Truck	Other Buses	Urban Buses	Motorcycle	School Bus	Motor homes	Total
VMT														
Gasoline	429,778	114,933	169,904	65,508	7,853	2,986	1,530	125	125	527	7,376	251	2,007	802,904
Diesel	25	351	25	25	1,932	2,233	7,125	10,487	477	1,029	-	3,161	226	27,096
Total	429,803	115,285	169,929	65,533	9,785	5,219	8,656	10,613	602	1,556	7,376	3,412	2,233	830,000
Gallons														
Gasoline	19,255	6,478	9,789	5,131	905	345	130	11	10	44	204	24	156	42,483
Diesel	1	13	-	1	101	116	1,068	1,975	71	243	-	488	33	4,109
Total	19,256	6,491	9,789	5,132	1,006	461	1,198	1,985	81	288	204	512	189	46,592

Without Pavley

With Pavley, reduction in emission from LDA, LDT1, LDT2, and MDV

Post 2016 LDA and LDT1 fuel economy of 39.9; LDT2 and MDV fuel economy of 25.2

Gallons														
Gasoline	10,771	2,881	6742.21727	2599.51703	905	345	130	11	10	44	204	24	156	24,824
Diesel	1	9	0.99560208	0.99560208	101	116	1,068	1,975	71	243	-	488	33	4,106
Total	10,772	2,889	6,743	2,601	1,006	461	1,198	1,985	81	288	204	512	189	28,930

Source: http://www.eia.doe.gov/oiaf/aeo/otheranalysis/aeo_2005analysispapers/pdf/tbl10.pdf

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