RAVENSWOOD / 4 CORNERS TOD SPECIFIC PLAN EIR

CITY OF EAST PALO ALTO





Public Review Draft | January 16, 2012

SCH # 2011052006

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1 INTRODUCTION

This Draft Environmental Impact Report (EIR) has been prepared to assess the potential environmental consequences of adopting and implementing the Draft Ravenswood/4 Corners Transit-Oriented Development (TOD) Specific Plan (Specific Plan). This Draft EIR is intended to inform City decision-makers, other responsible agencies, and the public of the nature of the project. This Draft EIR has been prepared in accordance with the California Environmental Quality Act (CEQA). The City of East Palo Alto is the lead agency for this project. The Notice of Preparation is included in Appendix 1.

The Specific Plan covers an approximately 350-acre area in the in the northeast portion of East Palo Alto. It provides a greater level of specificity than the General Plan for the Specific Plan Area, including the Ravenswood and 4 Corners area. The Specific Plan is a planning and regulatory tool available to local governments in the State of California. As allowed under California State law (Government Code 65450 et seq.), the City of East Palo Alto would use the Specific Plan, in part, to implement its adopted General Plan.[1] Although the Specific Plan is broadly consistent with the adopted General Plan, the City will need to adopt minor revisions to the General Plan to ensure that it is fully consistent with the Specific Plan as required under State law.

The project also includes adoption of amendments to the East Palo Alto General Plan and Zoning Ordinance, changing the current land use designations in the Plan Area and establishing new development standards to replace some of the current zoning provisions applicable to the Plan Area. These amendments must be completed to ensure consistency between the Specific Plan, General Plan, and Zoning Ordinance. This EIR will be used by decision-makers in determining whether or not to adopt the Specific Plan, as well as by the public to clearly understand the environmental implications associated with adoption and implementation of the Specific Plan.

[1] City of East Palo Alto, 1999. *General Plan.*

This document is a programmatic EIR, as described in Section 15168 of the CEQA Guidelines. A program-level document is appropriate when a project consists of a series of smaller projects or phases that may be implemented separately. Under the programmatic EIR approach, future projects or phases may require additional, project-specific environmental analysis. In order to identify whether additional analysis would be necessary when the project is implemented, the Lead Agency (the City) will need to determine the following:

- Whether the planned characteristics of the project are substantially different from those defined in the Programmatic EIR;
- Whether the project would require additional mitigation measures; or
- Whether specific impacts were not evaluated in sufficient detail in the Program EIR.

If any of these conditions apply, then a project-specific Initial Study or EIR would be necessary to identify how the impacts of the project differ from those identified in this EIR or what additional mitigation measures would be necessary. This EIR is anticipated to provide a basis for future project-level CEQA analysis.

A. Proposed Action

The proposed project, the Ravenswood/4 Corners TOD Specific Plan, contains land use, urban design, and circulation goals, policies, and actions to guide investment and development in the Ravenswood/4 Corners area of East Palo Alto over the next 25 years (2010 to 2035). The Plan is described in more detail in Chapter 3, Project Description.

B. Report Organization

This EIR is organized into the following chapters:

- **Chapter 1: Introduction.** Provides a preface and overview describing both the intended use of the document and the review and certification process of both the Plan and the EIR.
- **Chapter 2: Report Summary.** Summarizes environmental consequences that would result from the Plan; describes recommended mitigation measures; and indicates the level of significance of environmental impacts before and after mitigation. A Summary Table is also included for clarity.
- **Chapter 3: Project Description.** Describes the Plan in detail, including the Plan Area location and characteristics; Plan objectives; the planning process used to create the Plan; proposed capital improvements; and implementation.
- **Chapter 4: Environmental Evaluation.** Provides an analysis of the potential environmental impacts of the Plan and presents recommended mitigation measures, if required, to reduce their significance.
- **Chapter 5: Alternatives to the Proposed Project.** Considers three alternatives to the proposed project, including the CEQA-required "No Project Alternative."
- **Chapter 6: CEQA-Required Assessment Conclusions.** Discusses growth inducement, unavoidable significant effects, and significant irreversible changes as a result of the project.
- **Chapter 7: Report Preparation.**

C. Environmental Review Process

This Draft EIR will be available for review by the public and interested parties, agencies and organizations for a 45-day comment period. During the comment period, the public is invited to submit written or e-mail comments

on the Draft EIR and/or requested entitlements to the City of East Palo Alto. The City will also hold one or more public hearings on the Draft EIR during the review period. The public is invited to attend the hearing(s) to offer oral comments on the Draft EIR. Written comments should be submitted to:

Sean Charpentier
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2 REPORT SUMMARY

This summary presents an overview of the proposed project and conclusions of the analysis contained in Chapter 4, Environmental Evaluation. The chapter also summarizes areas of controversy and alternatives to the project. For a complete description of the project, please consult Chapter 3, Project Description. For more information about project alternatives, please consult Chapter 5.

A. Proposed Project

The Specific Plan would permit a mix of office, retail, industrial/research & development (R&D), single-family and multi-family residential, civic/community, and open space uses within the Plan Area. Table 3-1 shows development estimates for future buildout of the Plan Area. Figure 3-4 shows the proposed land use map for the Specific Plan Area, which would be used to amend the General Plan. It is assumed that this development would occur through 2035, which is considered the Plan Horizon. The rate of development within the Plan Area, and the timeframe, is subject to variation based on market demands, the regional economy, and other socioeconomic factors.

Bay Road is envisioned as an active and vibrant spine that serves as a focal point for Ravenswood and 4 Corners, as well as for East Palo Alto as a whole. It would become a mixed-use area to ensure an active pedestrian environment along Bay Road. Mixed uses would generally consist of upper-floor residential dwellings or offices with ground-floor active uses that would be mostly retail storefronts, although some ground-floor office uses would be allowed. Housing in this area would help provide activity into the nighttime hours.

Office uses are planned for the easternmost areas of the Plan Area along the Bay, as well as at the northern edge of Ravenswood. The offices would take advantage of views of the San Francisco Bay and recreational opportunities provided by the Bay Trail. It is anticipated that this office development would offer a large number of jobs to both local residents and people from around the region, helping to bring new tax dollars and spending to East Palo Alto.

Industrial uses are planned for the central portions of Ravenswood both north and south of Bay Road. The Specific Plan assumes that many of the existing industrial uses in this area would remain, but also that research and development (R&D) and other new industrial uses would likely develop in these areas. This would result in a mix of uses ranging from the heavier manufacturing, storage, and trucking uses that exist today, to new development of R&D uses including biotechnical research facilities, light manufacturing and supporting professional offices.

B. Areas of Controversy

A total of 17 comment letters were received during the scoping period and are included in Appendix 1. Comments were also received verbally at a public meeting held on May 19, 2011. Several comments pertained to the detailed contents of the Specific Plan. The Project Description of the EIR presents an abbreviated version of the Specific Plan, which itself describes development on a general level, and the land uses that would be permitted in the future. Development will occur on a project-by-project basis, at which time further details will be presented. Each of these projects (unless exempt) will undergo CEQA review.

The EIR analyzes the potential environmental impacts from the Plan and the merits of the Specific Plan are outside the scope of the analysis. The Specific Plan has already undergone a separate period of public input over a number of years. Issues of the merits of rezoning of particular parcels are outside the scope of the EIR.

Impacts from the possible location of a rail and Rapid Bus/BRT station in the Specific Plan Area for proposed Dumbarton Rail project were raised, as a station was shown just outside the western Plan boundary in some early presentations. The train service and station are not analyzed in the EIR. The Dumbarton Rail project is not part of the Specific Plan and will undergo separate CEQA review. As station locations have not yet been chosen, it would be highly speculative to analyze the traffic impacts from a station close

to the Specific Plan Area, at this point in time. If a future decision is made to site the station adjacent to the Plan Area, road crossings would be designed, and the project would undergo a separate environmental review in which safety and traffic issues would be assessed.

Several comments requested an economic analysis and asked why this was not specified as a component of the EIR. Economic analysis is not a component of an EIR under the CEQA Statute (Section 15382) unless there is evidence that the project would result in blight or physical deterioration. As the project would revitalize the area and bring in more people, no economic analysis is required. The Planning effort has included a Market Study, Fiscal Impact Report, and employment generation analysis. [1]

A letter was received requesting a public health, community health, or environmental justice subsection of the EIR. The EIR format and contents follow the standard CEQA Appendix G checklist. Environmental Justice is an issue required under the National Environmental Policy Act (NEPA) framework, but not under CEQA. However, health concerns are incorporated in several of the CEQA topics, as indicated below.

The following issues were raised in the scoping comments and will be addressed in these sections of the EIR:

- **Traffic/Transportation.** Buildout of the Specific Plan with its strong industrial, office, and mixed-use component will cause large changes in traffic volumes and patterns. This will affect adjacent jurisdictions such as the City of Menlo Park. A traffic impact study should be undertaken.

[1] http://www.ci.east-palo-alto.ca.us/economicdev/pdf/110910_CAC_Agenda_Staff_Report.pdf.

http://www.ci.east-palo-alto.ca.us/economicdev/pdf/12110_PC_CC_Jnt_Study_Session_Staff_Report.pdf.

http://www.ci.east-palo-alto.ca.us/economicdev/pdf/121310_PC_Staff_Report.pdf.

http://www.ci.east-palo-alto.ca.us/economicdev/pdf/021511_CC_Staff_Report_CPA.pdf.

- **Hazards and Hazardous Substances.** The Plan Area has a large number of industrial sites contaminated by past activities. Some of these have deed restrictions that prevent some future uses. Impact to humans from the rezoning or redevelopment of these parcels should be addressed.
- **Air Quality**. There is a high occurrence of asthma in the population. The impacts of newly industrial-zoned properties on the existing residential areas and schools, as well as recreational and open space areas, should be considered. The existing industrial parcels contain high levels of contamination that places residents at risk of cancer from toxic air contaminants.
- **Population and Housing.** Implementation of the Plan will bring a large number of new jobs to the Plan Area and City of East Palo Alto. The City has relatively large young population and a large sector without high educational skills. The number and type of jobs should be evaluated. There is a need for affordable housing, and the housing provided should be appropriate to the neighborhood.
- **Biological Resources**. There are several endangered species in East Palo Alto, such as the Salt Harvest Mouse and California Clapper Rail, that could be impacted by buildout under the Specific Plan.
- **Land Use & Planning**. The Plan Area is adjacent to lands under the jurisdiction of the Bay Area Conservation and Development Commission (BCDC), and BCDC authority may extend over parts of the Plan Area. In addition, the Plan Area intersects the area of the Comprehensive Airport Land Use Compatibility Plan (CLUP) for the Palo Alto Airport.

C. Summary of Impacts and Mitigation Measures

According to CEQA (Section 15382), a significant impact on the environment is defined as a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic and aesthetic significance.

Table 2-1 presents a summary of impacts and mitigation measures identified in this report. It is organized to correspond with the environmental issues discussed in Chapter 4.

The table is arranged in four columns: 1) environmental impacts, 2) significance prior to mitigation, 3) mitigation measures, and 4) significance after mitigation. For a complete description of potential impacts and suggested mitigation measures, please refer to the specific discussions in Chapter 4.

D. Alternatives to the Plan

This Draft EIR analyzes alternatives to the Plan that may feasibly attain some of the project objectives identified by the Plan. A total of four alternatives, including the CEQA-mandated No Project Alternative, are analyzed in detail. All are listed below, and each is described and analyzed in Chapter 5, Alternatives.

1. **No Project Alternative.** Under this alternative, the Plan would not be adopted, and future development in the Plan Area would be subject to existing policies, regulations, and land use designations as per the existing General Plan.
2. **Reduced Density Alternative.** Development under this alternative would occur as under the policies of the Plan, but with less intensive development of office and mixed uses, achieved through height restrictions, setbacks and reduced floor area ratios (FARs).
3. **Housing on 391 Demeter Street Alternative.** Development under this alternative would occur as under the policies of the Plan, but the developable area of the property at 391 Demeter Street is assumed to be developed with residential land uses (at approximately 20 dwelling units per acre) rather than office/industrial flex uses.
4. **Wetlands Setback Alternative.** With this alternative, a buffer zone would be drawn around the existing wetland edge, and new development would be prohibited in this zone. The buffer zone would be re-

stored as upland plant and wildlife habitat that would also serve to absorb flood waters. The same level of development would be accommodated on land set back from the wetlands edge, but at higher densities than the project. An optional item would be to build a new levee system on the landward side of the buffer and remove the existing levee to connect the newly restored area to the tidal wetlands in the Ravenswood Open Space area. An additional option would build a bridge over the wetlands area to Cooley Landing Park and restore the wetlands under the bridge, creating a continuous corridor for wildlife habitat from Menlo Park to Palo Alto.

TABLE 2-1 ***SUMMARY OF IMPACTS AND MITIGATION MEASURES***

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
AESTHETICS			
The project would not result in significant project or cumulative impacts related to aesthetics; therefore, no mitigation measures are required.			
AGRICULTURE AND FORESTRY RESOURCES			
The project would not result in significant project or cumulative impacts related to agriculture and forestry resources; therefore, no mitigation measures are required.			
AIR QUALITY			
Impact AQ-1: Conflict with Clean Air Plan Projections and Control Measures. The proposed Plan would increase the rate of vehicle use at a greater rate than population growth. This would lead to greater regional emissions of nonattainment air pollutants (or their precursors) than assumed in the latest Air Quality Plan.	S	Mitigation Measure AQ-1: There are no measures available to mitigate this impact related to inconsistency with the Clean Air Plan.	SU
Impact AQ-2: The proposed Plan could locate sensitive receptors within 60 feet of University Avenue, which may expose sensitive receptors to unhealthy levels of TACs and $PM_{2.5}$ emitted by traffic. In addition, future development could generate new sources of TACs in the Plan Area, which could locate near existing or new sensitive receptors.	S	Mitigation Measure AQ-2: The following measures shall be utilized in site planning and building designs to reduce TAC and $PM_{2.5}$ exposure where new receptors are located within 60 feet of University Avenue: ♦ Future development under the Plan that includes sensitive receptors (such as schools, hospitals, daycare centers, or retirement homes) located within 60 feet of University Avenue shall require site-specific analysis to determine the level of TAC and $PM_{2.5}$ exposure. This analysis shall be conducted following procedures outlined by BAAQMD. If the site-specific analysis reveals significant exposures, such as cancer risk greater than 10 in one million, additional measures shall be employed to reduce the risk to below the threshold. If this is not possible, the sensitive receptors shall be relocated. ♦ For significant cancer risk exposure, as defined by BAAQMD, indoor air	LTS

S = Significant, LTS = Less Than Significant, SU = Significant Unavoidable Impact

TABLE 2-1 ***SUMMARY OF IMPACTS AND MITIGATION MEASURES*** (CONTINUED)

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		filtration systems shall be installed to effectively reduce particulate levels to a less-than-significant level. Project sponsors shall submit performance specifications and design details to demonstrate that lifetime residential exposures would result in less-than-significant cancer risks (less than 10 in one million chances). ♦ Tiered plantings of trees or shrubs along project boundaries closest to University Avenue shall be provided. Tiered plantings may include layering of trees or shrubs between the roadway and buildings within medians, setbacks, or within open spaces associated with buildings.	
Impact AQ-3: New restaurants in mixed-use projects in the Plan Area could be a source of odors that result in complaints from new or existing residences.	S	Mitigation Measure AQ-3: New restaurants located in mixed-use developments, or adjacent to residential developments, shall install kitchen exhaust vents with filtration systems, re-route vents away from residential development, or use other accepted methods of odor control, in accordance with local building and fire codes.	LTS
Impact AQ-CUM-1: Conflict with Clean Air Plan Projections and Control Measures. The proposed Plan would contribute to a regional impact by increasing the rate of vehicle use at a greater rate than population growth. This would lead to greater regional emissions of nonattainment air pollutants (or their precursors) than assumed in the latest Air Quality Plan.	S	Mitigation Measure AQ-1: There are no measures available to mitigate this impact related to inconsistency with the Clean Air Plan.	SU
BIOLOGICAL RESOURCES			
Impact BIO-1: Special-status plant species, such as Congdon's tarplant, alkali milk vetch, Point Reyes' bird's beak, and California seablite, that could occur in the Plan Area, could be impacted by construction activities.	S	Mitigation Measure BIO-1: If development is proposed on a site identified as "Natural Habitat" in Figure 4.4-1 of the Draft EIR, the site shall first be subjected to focused pre-construction surveys during the appropriate blooming seasons by a qualified biologist to assess for the presence of Congdon's tarplant, alkali milk vetch, Point Reyes' bird's beak, and California seablite. Survey	LTS

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TABLE 2-1 ***SUMMARY OF IMPACTS AND MITIGATION MEASURES*** (CONTINUED)

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		methods shall comply with CNPS/CDFG rare plant survey protocols, and shall be performed by qualified field botanists. Any populations of special-status plant species that are detected shall be mapped. If special-status plant populations are detected, they shall be avoided to the greatest extent feasible; however, where construction would have unavoidable impacts, a compensatory mitigation plan shall be prepared and implemented in coordination with regulatory agencies. Such plans may include salvage, propagation, on-site reintroduction in restored habitats, and monitoring.	
Impact BIO-2: Salt marsh harvest mouse and salt marsh wandering shrew could be impacted by construction activities.	S	Mitigation Measure BIO-2a: Any development project in an area identified as Salt Marsh on Figure 4.4-1 of the Draft EIR shall be subject to a wetland delineation and habitat assessment prepared by a qualified biologist. All jurisdictional wetlands and areas of dense pickleweed identified by the biologist as suitable habitat for the salt marsh harvest mouse shall be avoided for development and preserved in their existing state, unless Mitigation Measure BIO-2b is implemented. This would also avoid impacts to the salt marsh wandering shrew, whose habitat overlaps with wetlands and that of the salt marsh harvest mouse. Mitigation Measure BIO-2b: Where avoidance of suitable habitat for salt marsh harvest mouse or salt marsh wandering shrew is not possible, the U.S. Fish and Wildlife Service shall be consulted.	LTS
Impact BIO-3: Project construction activities could result in impacts to nesting birds, including California black rail, California clapper rail, and western burrowing owl, as a result of disturbance to active nests and breeding behavior.	S	Mitigation Measure BIO-3a: If construction activities are scheduled to occur during the breeding season (February 1 through August 31), a qualified wildlife biologist shall conduct pre-construction surveys of all potentially suitable nesting habitat within 0.25 miles of active construction areas, including trees, shrubs, grasslands and wetland vegetation. The qualified wildlife biologist shall determine the timing of pre-construction surveys based on the time of year and habitats that are present, and shall conduct the surveys no more than 15 days prior to construction.	LTS

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TABLE 2-1 ***SUMMARY OF IMPACTS AND MITIGATION MEASURES*** (CONTINUED)

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		a. If active California clapper rail or California black rail nests are found, a 500-foot no-disturbance setback zone shall be flagged and maintained around active nests until it is determined that young have fledged. If active nests for other bird species are found, a 250-foot no-disturbance setback zone shall be flagged and maintained around active nests until it is determined that young have fledged. b. If pre-construction surveys indicate that nests are inactive or potential habitat is unoccupied during the construction period, no further mitigation shall be required. c. If construction is scheduled to occur during the non-nesting season (September 1 – January 31), then no nesting bird surveys shall be required before the start of construction activity, except for provisions for surveys for wintering western burrowing owls, as specified in Mitigation Measure BIO-3b. d. A worker education program shall be provided to the construction crew. This program shall review sensitive species and habitats that might be present on the site. Workers shall be informed of mitigation and avoidance measures. Mitigation Measure BIO-3b: The following guidelines, adapted from the CDFG Staff Report on Burrowing Owl Mitigation (CDFG 1995), shall be implemented: a. Pre-construction western burrowing owl surveys shall be conducted in all areas that may provide suitable nesting habitat according to CDFG (1995) guidelines. These likely areas are shown as areas of upland habitat on Figure 4.4-1 of the Draft EIR. i. No more than 30 days before construction, a habitat survey, including documentation of burrows and western burrowing owls, shall be con-	

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TABLE 2-1 ***SUMMARY OF IMPACTS AND MITIGATION MEASURES*** (CONTINUED)

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		ducted by a qualified wildlife biologist within 500 feet of the construction area in areas suitable for western burrowing owls. If no suitable habitat is found, no further mitigation is needed. ii. The survey shall conform to the protocol described by the California Burrowing Owl Consortium, including up to four surveys on different dates if there are suitable burrows present. iii. The survey shall identify as any impact any disturbance within 160 feet of occupied burrows during the non-breeding season of September 1 through January 31, or within approximately 250 feet during the breeding season of February 1 through August 31. b. If, as determined by a qualified biologist, construction activities will not adversely affect occupied burrows or disrupt breeding behavior, construction may proceed without any restriction or mitigation measures for western burrowing owls. c. If construction could adversely affect occupied burrows during the February 1 through August 31 breeding season, a 250-foot no disturbance buffer shall be maintained around the occupied burrow until a qualified biologist has determined that the chicks have fledged. If construction could adversely affect occupied burrows during the September 1 through January 31 non-breeding season, the subject owls may be passively relocated from the occupied burrow(s) using one-way doors, according to CDFG guidelines, using the following measures: i There shall be at least two unoccupied burrows suitable for western burrowing owl within 300 feet of the occupied burrow before one-way doors are installed in the occupied burrow. ii The unoccupied burrows shall also be located at least 160 feet from construction activities and can be natural burrows or artificial burrows constructed according to current design specifications. iii. If artificial burrows are created, these burrows shall be in place at least	

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TABLE 2-1 ***SUMMARY OF IMPACTS AND MITIGATION MEASURES*** (CONTINUED)

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		one week before one-way doors are installed on the currently occupied burrows. iv. One-way doors must be in place for a minimum of 48 hours to ensure that owls have left the burrow before the burrow is excavated.	
Impact BIO-4: Northern coastal salt marsh could be impacted as a consequence of development under the Specific Plan.	S	Mitigation Measure BIO-4: See Mitigation Measure BIO-5.	LTS
Impact BIO-5: Wetland habitat including northern coastal salt marsh could be disturbed to install subsurface infrastructure, or filled and lost as a consequence of development under the Specific Plan.	S	Mitigation Measure BIO-5: During or prior to project design, a wetland delineation of the project area shall be conducted to determine precise boundaries of jurisdictional wetlands. If wetlands under State or federal jurisdiction occur in the construction areas and involve the placement of fill or dredged materials or other alteration, the necessary and appropriate permits and approvals from responsible resources agencies shall be secured. As appropriate for the type of permit to be considered, options that avoid, minimize, or mitigate potential impacts on jurisdictional wetlands shall be evaluated. Conditions of approval attached to the permits shall be followed. In addition, the following mitigations as described below shall be carried out. ♦ Sensitive habitat areas including wetlands adjacent to, but outside of, the construction area shall be demarcated with orange construction fencing to exclude workers, vehicles, and equipment. ♦ Construction and staging areas shall be flagged to clearly define the limits of the work area. The locations of habitats to be avoided shall be identified in the contract documents (plans and specifications) as "Sensitive Biological Resources – Do Not Disturb." ♦ Jack-and-bore or other trenchless methods shall be used to reduce the need for surface construction within identified sensitive habitats and exclusion zones, and construction activities and vehicles shall be restricted to a specified right-of-way.	LTS

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TABLE 2-1 ***SUMMARY OF IMPACTS AND MITIGATION MEASURES*** (CONTINUED)

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		♦ Where possible, pre-project topography shall be restored. ♦ Where possible, trenches shall be worked from only one side to minimize impacts on adjacent habitat. ♦ Watering of exposed earth shall be conducted consistent with construction BMPs to minimize dust production. ♦ Trench lines shall be reseeded with native vegetation appropriate for the affected habitat type, and/or a double-trenching technique shall be used through sensitive habitats to help preserve the existing seedbank. ♦ When wetland impact avoidance is not possible, mitigation in the form of on-site or offsite habitat restoration/revegetation, or purchase of mitigation bank credits shall be secured in accordance with resource agency guidelines, and subject to approval of all resource agencies with jurisdiction on the site.	
CULTURAL RESOURCES			
Impact CULT-1: Excavation of unique fossil deposits during development in the Plan Area could result in their destruction.	S	Mitigation Measure CULT-1: If paleontological resources are encountered during grading or excavation, all construction activities within 50 feet shall stop and the City shall be notified. A qualified paleontologist shall inspect the findings within 24 hours of discovery. If it is determined that the proposed development could damage unique paleontological resources, mitigation shall be implemented in accordance with Public Resources Code Section 21083.2 and Section 15126.4 of the CEQA Guidelines. Possible mitigation under Public Resources Code Section 21083.2 requires that reasonable efforts be made for resources to be preserved in place or left undisturbed. If preservation in place is not feasible, project applicants shall pay in-lieu fees to mitigate significant effects. Excavation as mitigation shall be limited to those parts of resources that would be damaged or destroyed by a project. Possible mitigation under CEQA emphasizes preservation-in-place measures, including planning construction avoid paleontologic sites, incorporating sites into parks and other open spaces,	LTS

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TABLE 2-1 ***SUMMARY OF IMPACTS AND MITIGATION MEASURES*** (CONTINUED)

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		covering sites with stable soil, and deeding the site into a permanent conservation easement. Under CEQA Guidelines, when preservation in place is not feasible, data recovery through excavation shall be conducted with a data recovery plan in place. Therefore, when considering these possible mitigations, the City shall have a preference for preservation in place.	
GEOLOGY, SOILS, AND MINERAL RESOURCES			
Impact GEO-1: Strong ground shaking from earthquakes could cause major damage to buildings and other structures.	S	Mitigation Measure GEO-1: All structures shall be designed using sound engineering judgment and the latest California Building Code (CBC) requirements as a minimum. Seismic design provisions of current building codes generally prescribe minimum lateral forces, applied statically to the structure, combined with the gravity forces of dead and live loads. The code-prescribed lateral forces are generally substantially smaller than the expected peak forces that would be associated with a major earthquake. Therefore, structures shall be able to do all of the following: ♦ Resist minor earthquakes without damage. ♦ Resist moderate earthquakes without structural damage but with some nonstructural damage. ♦ Resist major earthquakes without collapse but with some structural as well as nonstructural damage.	LTS
Impact GEO-2: Soils underlying the Plan Area could liquefy and/or settle differentially due to an earthquake.	S	Mitigation Measure GEO-2: Foundations shall be designed to compensate for effects of liquefaction, differential settlement, and lateral spreading due to earthquakes. Foundations shall be designed by a qualified structural engineer using soil design parameters developed by qualified geotechnical consultants and verified by the City Building Department.	LTS
Impact GEO-3: Construction in areas close to the Bay could be subject to lateral spreading due to earthquakes.	S	Mitigation Measure GEO-3: Implement Mitigation Measure GEO-1 above. In addition, site development plans and foundations shall be designed to compensate for effects of lateral spreading due to earthquakes. Earthwork activities, including remedial grading, shall be performed using the recommendations pro-	LTS

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TABLE 2-1 ***SUMMARY OF IMPACTS AND MITIGATION MEASURES*** (CONTINUED)

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		vided by qualified geotechnical consultants, and foundations shall be designed by a qualified structural engineers using soil design parameters developed by qualified geotechnical consultants and verified by the City Building Department.	
Impact GEO-4: Areas of soft Bay Mud and artificial fill may be differentially compressed when structures and site improvements are built on these substrates, causing cracking, subsidence, and other damage to the overlying structure and adjacent structures.	S	Mitigation GEO-4: Improvements on areas of soft Bay Mud and artificial fill must be designed with under the guidance of suitably qualified geotechnical consultants to ensure that the underlying substrate is capable of withstanding the load. Existing fills may need to be removed and replaced with engineered fills.	LTS
Impact GEO-5: Foundations could heave and crack due to underlying expansive soils, unless they are appropriately designed.	S	Mitigation Measure GEO-5: Earthwork and foundations shall be designed to compensate for effects of expansive soils. Fill placement and foundation design criteria shall be developed by qualified geotechnical consultants and verified by the City Building Department.	LTS
GREENHOUSE GAS EMISSIONS			
The project would not result in significant project or cumulative impacts related to greenhouse gases; therefore, no mitigation measures are required.			
HAZARDS AND HAZARDOUS MATERIALS			
The project would not result in significant project or cumulative impacts related to hazards and hazardous materials; therefore, no mitigation measures are required.			
HYDROLOGY AND WATER QUALITY			
The project would not result in significant project or cumulative impacts related to hydrology and water quality; therefore, no mitigation measures are required.			
LAND USE			
The project would not result in significant project or cumulative impacts related to land use; therefore, no mitigation measures are required.			

S = Significant, LTS = Less Than Significant, SU = Significant Unavoidable Impact

TABLE 2-1 ***SUMMARY OF IMPACTS AND MITIGATION MEASURES*** (CONTINUED)

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
NOISE			
Impact NOI-1: Future residential development in the Plan Area and existing residences bordering the Plan Area may be exposed to outdoor and indoor noise levels in excess of City and State 60 dBA CNEL outdoor and 45 dBA CNEL indoor noise limits. In addition, new residential uses proposed adjacent to existing and proposed noise-generating uses, including commercial uses could be exposed to noise levels that exceed the City's Noise Ordinance limits.	S	Mitigation Measure NOI-1: In areas where new residential development would be exposed to a CNEL of greater than 60 dBA, site-specific noise studies shall be conducted to determine the area of impact and to present appropriate mitigation measures, which may include the following: ♦ Minimize noise in shared residential outdoor activity areas by locating the areas behind buildings or in courtyards, or by orienting the terraces to alleyways rather than streets, wherever possible. ♦ Provide mechanical ventilation in conformance with UBC requirements and specified in the General Plan, in all residential units proposed along roadways or in areas where noise levels could exceed 60 dBA CNEL so that windows can remain closed at the choice of the occupants to maintain interior noise levels below 45 dBA CNEL. ♦ Install sound-rated windows and use appropriate construction methods to provide the requisite noise control for residential units proposed along roadways or in areas where noise levels could exceed 70 dBA CNEL.	LTS
Impact NOI-2: Mixed-use buildings identified in the Specific Plan may include residential uses within the same building as noise-generating commercial and retail uses. Noise levels resulting from operational noise from the non-residential use may exceed the City's noise ordinance limits within the affected residences.	S	Mitigation Measure NOI-2: Incorporate appropriate noise controls in residential mixed-use buildings so that noise levels produced by the non-residential use with the building comply with the exterior and interior noise standards contained in Sections 8.52.320 and 8.52.330 of the East Palo Alto Municipal Code.	LTS
Impact NOI-3: Under the Specific Plan industrial uses and residential uses (with civic use envisioned) would be developed adjacent to existing and proposed residential areas. Noise levels resulting from the operation of these new uses could result in	S	Mitigation Measure NOI-3: Limit exterior noise levels in noise sensitive outdoor use areas to levels specified in Section 8.52.320 of the East Palo Alto Municipal Code as specified in Table 4.11-7 of this document. Meeting these noise performance standards would be the responsibility of the developer of the proposed use. In areas where new residential development would be located adja-	LTS

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TABLE 2-1 ***SUMMARY OF IMPACTS AND MITIGATION MEASURES*** (CONTINUED)

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
noise levels exceeding the City's Noise Element and/or Ordinance limits at these existing residential uses.		cent to noise-generating uses, site-specific noise studies shall be conducted to determine the area of impact and to present appropriate mitigation measures, which would include the measures recommended in Mitigation Measure NOI-1.	
Impact NOI-4: Structures in the vicinity of the Specific Plan Area could be exposed to construction-related vibration during the excavation and foundation work associated with individual development projects.	S	Mitigation Measure NOI-4a: The following measures, in addition to the best practices specified in Mitigation Measure NOI-5b, shall be followed to reduce vibration from construction activities and should be employed where feasible: ♦ Avoid impact pile driving, where feasible. Drilled piles cause lower vibration levels where geological conditions permit their use. ♦ Avoid using vibratory rollers and tampers near sensitive areas, where feasible. Mitigation Measure NOI-4b: In areas where project construction is anticipated to include vibration-generating activities, such as pile driving, in close proximity to existing structures, site-specific vibration studies shall be conducted to determine the area of impact and to present appropriate mitigation measures that may include the following: ♦ Identify projects that would include vibration generating activities, such as pile driving and heavy construction equipment, which have the potential to generate high ground-borne vibration levels at, nearby vibration sensitive structures. Vibration limits appropriate to the type of use and building structure shall be applied to all vibration-sensitive structures located within 200 feet of the project. Safe vibration limits that can be applied to assess the potential for damaging a structure vary by researcher and there is no general consensus as to what amount of vibration may pose a threat for structural damage to the building. However, the Federal Transit Administration's (FTA) has established guidelines for transit and related construction projects, which are deemed appropriate for the type of projects expected in the Specific Plan Area. Therefore these criteria, as shown in Table 4.11-10, should be utilized to assess potential construction vibration impacts due to project	LTS

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TABLE 2-1 ***SUMMARY OF IMPACTS AND MITIGATION MEASURES*** (CONTINUED)

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		implementation. This task shall be conducted by a qualified structural engineer. ♦ Develop a vibration monitoring and construction contingency plan to identify structures where monitoring would be conducted; set up a vibration monitoring schedule; define structure-specific vibration limits; and address the need to conduct photo, elevation, and crack surveys to document before and after construction conditions. Construction contingencies shall be identified for when vibration levels approach the limits identified in Table 4.11-10. ♦ At a minimum, monitor vibration during initial demolition activities and during pile-driving activities. Monitoring results approaching the vibration thresholds shown in Table 4.11-10 may indicate the need for a more intensive measurement schedule and results significantly below the vibration thresholds may indicate a less intensive measurement schedule.	
Impact NOI-5: Although construction noise would be localized to the individual construction sites, businesses and residences throughout the Plan Area would be exposed to high levels of noise as construction occurs in the Plan Area. Noise levels at adjacent businesses and residences could increase by 15 to 20 dBA or more for relatively short periods of time during specific construction activity.	S	Mitigation Measure NOI-5a: Implement the provisions of Section 8.52.350-E of the East Palo Alto Municipal Code that regulate construction hours. Mitigation Measure NOI-5b: Construction equipment shall be well-maintained and used judiciously to be as quiet as practical. The following measures, when applicable, shall be required to reduce noise from construction activities: ♦ Ensure that all internal combustion engine-driven equipment is equipped with mufflers that are in good operating condition and appropriate for the equipment. ♦ Utilize "quiet" models of air compressors and other stationary noise sources where such technology exists. ♦ Locate stationary noise-generating equipment as far as reasonable from sensitive receptors where sensitive receptors adjoin or are near a construction project area.	LTS

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TABLE 2-1 ***SUMMARY OF IMPACTS AND MITIGATION MEASURES*** (CONTINUED)

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		♦ Prohibit unnecessary idling of internal combustion engines in excess of 5 minutes. ♦ Pre-drill foundation pile holes to minimize the number of impacts required to seat the pile. ♦ Construct solid plywood fences around construction sites adjacent to operational business, residences or noise-sensitive land uses. ♦ Erect a temporary noise control blanket barrier, if necessary, along building facades facing construction sites. This mitigation would only be necessary if conflicts occurred that were irresolvable by proper scheduling. Noise control blanket barriers can be rented and quickly erected and with proper installation can typically lower construction noise levels by 10 dBA (10 dBA represents a perceived halving of noise levels). ♦ Route construction-related traffic along major roadways and as far as feasible from sensitive receptors. ♦ Ensure that construction activities, including the loading and unloading of materials and truck movements, are limited to the hours specified in Section 8.52 of the East Palo Alto Municipal Code. ♦ Notify businesses, residences, and noise-sensitive land uses adjacent to construction sites of the construction schedule in writing. Designate a "construction liaison" who is responsible for responding to any local complaints about construction noise. The liaison shall determine the cause of the noise complaints (for example starting too early, or a bad muffler) and institute reasonable measures to correct the problem. Conspicuously post a telephone number for the liaison at the construction site.	
Impact NOI-CUM-1: If the Dumbarton Rail Service Corridor Project is implemented, and the Loop Road used according to cumulative traffic projections, the existing residences at the northern	S	Mitigation Measure NOI-CUM-1: In areas where existing residential development would be exposed to a CNEL of greater than 60 dBA due to Loop Road traffic and/or Dumbarton Rail project noise, site-specific noise studies shall be conducted to determine the area of impact and to provide appropriate mitiga-	LTS

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TABLE 2-1 ***SUMMARY OF IMPACTS AND MITIGATION MEASURES*** (CONTINUED)

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
edge of the Specific Plan Area may be exposed to outdoor and indoor noise levels in excess of City and State 60 dBA CNEL outdoor and 45 dBA CNEL indoor noise limits.		tion measures, which may include the following: ♦ Conduct area-specific noise studies to determine the need for sound walls, or sound walls in combination with earthen berms, to reduce noise levels to 60 dBA CNEL or less in rear yards of homes adjacent to the loop road. ♦ Utilize roadway and site planning in the loop road design and layout to minimize noise in adjacent residential outdoor activity areas through the use of increased distances to these areas or the placement of intervening earthen berms. ♦ If 60 dBA CNEL or less is not achieved in rear yards, mechanical ventilation shall be provided in the affected residences so that windows can remain closed at the choice of the occupants to maintain interior noise levels below 45 dBA CNEL as per the requirements of the City's Noise Ordinance.	
POPULATION AND HOUSING			
The project would not result in significant project or cumulative impacts related to population and housing; therefore, no mitigation measures are required.			
PUBLIC SERVICES AND RECREATION			
The project would not result in significant project or cumulative impacts related to public services and recreation; therefore, no mitigation measures are required.			
TRANSPORTATION/TRAFFIC			
Impact TRA-1 (Willow Road and Bayfront Expressway): During the PM peak hour, the intersection currently operates at an unacceptable level of service (LOS E). The addition of project-generated traffic is expected to cause the critical-movement delay on the southbound approach to increase by three seconds. This constitutes a *significant adverse impact* according to the thresholds established by	S	Mitigation Measure TRA-1: The shared left-through lane on eastbound Willow Road shall be converted into a left-turn only lane and the signal phasing on the east and west approaches from split phase modified to protected lefts. With this improvement, the intersection would continue to operate at LOS E (58.2 seconds); however, the average delay would be less than that under existing conditions (60.8 seconds). Alternatively, the addition of a third right-turn lane on northbound Willow Road would reduce the intersection's average control delay to an acceptable LOS D. Implementation of any improvement at this intersec-	SU

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TABLE 2-1 ***SUMMARY OF IMPACTS AND MITIGATION MEASURES*** (CONTINUED)

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
the City of Menlo Park.		tion would require coordination with and approval by Caltrans and the City of Menlo Park.	
Impact TRA-2 (University Avenue and Bayfront Expressway): During the PM peak hour, the intersection currently operates at an unacceptable level of service (LOS E). The addition of project-generated traffic is expected to cause the average control delay at the intersection to increase by 31.6 seconds. This constitutes a ***significant adverse impact*** according to the thresholds established by the City of Menlo Park.	S	Mitigation Measure TRA-2: The implementation of adaptive signal timing could reduce delays and improve intersection operation; however, there are no feasible improvements within the existing right-of-way that would substantially reduce delay at this intersection.	SU
Impact TRA-3 (University Avenue and Purdue Avenue): During the PM peak hour, the stop-controlled movements on Purdue Avenue currently operate at LOS F with over 100 seconds of delay. The loop road would reduce the traffic on Purdue Avenue. However, the project would add traffic to University Avenue. The addition of project-generated traffic to University Avenue is expected to cause the delay for the stop-controlled movements on Purdue Avenue to increase by more than 100 seconds, and the approach volumes on Purdue Avenue are expected to continue to satisfy the Peak-Hour Volume Warrant. This constitutes a ***significant adverse impact*** according to the thresholds established by the City of East Palo Alto.	S	Mitigation Measure TRA-3: A new traffic signal shall be installed at this intersection. Along with a new traffic signal, appropriate pedestrian and bicycle accommodation should be provided. This includes pedestrian countdown timers, Americans with Disabilities Act (ADA) compliant curbs, and bicycle detection loops. To facilitate this, the City must implement **Specific Plan Policy TRA-2.5**, which requires a "nexus study" be undertaken and a traffic impact fee developed that ensures that developers pay their "fair share" of necessary traffic improvements in the Specific Plan Area. With this improvement the intersection would operate at an acceptable level (LOS A) during both the AM and PM peak hours.	LTS
Impact TRA-4 (University Avenue and Bay Road): This intersection currently operates at	S	Mitigation Measure TRA-4: An exclusive northbound right-turn lane and a second westbound left-turn lane shall be built. The second westbound left-turn	LTS

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TABLE 2-1 ***SUMMARY OF IMPACTS AND MITIGATION MEASURES*** (CONTINUED)

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
acceptable levels (LOS D or better) during the AM and PM peak hours. The addition of project-generated traffic is expected to cause the intersection to degrade to LOS F during the AM (94.7 seconds delay) and PM (109.8 seconds delay) peak hours. This constitutes a ***significant adverse impact*** according to the thresholds established by the City of East Palo Alto.		lane would result in two left turn lanes, one through lane, and one right-turn lane in the westbound direction on Bay Road. With these changes the signal phasing on Bay Road could be modified from split phase operation to a standard phase sequence with protected left turns. The recommended mitigation measure would require the acquisition of additional right-of-way and roadway widening. At least 2 feet of additional right-of-way would be required on the east side of University Avenue. About 12 feet of additional right-of-way would be required on the north side of Bay Road. Roadway widening has the potential to make pedestrian and bicycle travel more difficult through the intersection. Therefore, any intersection widening or reconstruction should incorporate pedestrian and bicycle accommodation. This may include pedestrian countdown timers, Americans with Disabilities Act (ADA) compliant curbs, and bicycle detection loops. With this improvement, the intersection would operate at an acceptable level (LOS D) during the AM and PM peak hours. To facilitate this, the City must implement **Specific Plan Policy TRA-2.5**, which requires a "nexus study" be undertaken and a traffic impact fee developed that ensures that developers pay their "fair share" of necessary traffic improvements in the Specific Plan Area. The Plan includes the requirement for TDM programs for new development. An effective TDM program would reduce the project impact at this intersection. However, to reduce the impact to a level of insignificance without any of the geometric improvements described above, the TDM program would need to achieve over a 50 percent reduction in trip generation, which is unlikely to be achieved	
Impact TRA-5 (University Avenue and Donohoe Street): This intersection currently operates at an acceptable level (LOS D) during the PM peak hour. The addition of project-generated traffic is expected to cause the intersection to degrade to LOS E with 77.5 seconds of delay during the PM peak hour. This constitutes a ***significant adverse***	S	Mitigation Measure TRA-5: An exclusive southbound right-turn lane shall be built, restriping the westbound approach to include dual left-turn lanes, one through lane and one right-turn only lane, and the signal phasing on Donohoe Street modified from split phase operation to a standard phase sequence with protected left turns. The recommended mitigation measure would require the acquisition of additional right-of-way and roadway widening that affects properties outside the Plan area. About 12 feet of additional right-of-way would be	LTS

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TABLE 2-1 ***SUMMARY OF IMPACTS AND MITIGATION MEASURES*** (CONTINUED)

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
impact according to the thresholds established by the City of East Palo Alto.		needed on the west side of University Avenue. Roadway widening has the potential to make pedestrian and bicycle travel more difficult through the intersection. Therefore, any intersection widening or reconstruction should incorporate pedestrian and bicycle accommodation. This includes pedestrian countdown timers, Americans with Disabilities Act (ADA) compliant curbs, and bicycle detection loops. With this improvement, the intersection would operate at LOS D with 42.6 seconds of delay during the PM peak hour. To facilitate this, the City must implement **Specific Plan Policy TRA-2.5**, which requires a "nexus study" be undertaken and a traffic impact fee developed that ensures that developers pay their "fair share" of necessary traffic improvements in the Specific Plan Area. The Plan includes the requirement for TDM programs for new development. An effective TDM program would reduce the project impact at this intersection. However, to reduce the impact to a level of insignificance without any of the geometric improvements described above, the TDM program would need to achieve over a 50 percent reduction in trip generation, which is unlikely to be achieved.	
Impact TRA-6 (Clarke Avenue and Bay Road): The intersection currently operates at acceptable levels (LOS B) during the AM and PM peak hours. The addition of project-generated traffic is expected to cause the intersection to degrade to LOS F with 95 to 100 seconds of delay during the AM and PM peak hours, and the intersection traffic volumes are expected to satisfy the Peak-Hour Volume Warrant. This constitutes a ***significant adverse impact*** according to the thresholds established by the City of East Palo Alto.	S	Mitigation Measure TRA-6: A new traffic signal shall be installed at this intersection. Along with a new traffic signal, appropriate pedestrian and bicycle accommodation should be provided. This includes pedestrian countdown timers, Americans with Disabilities Act (ADA) compliant curbs, and bicycle detection loops. With this improvement, the intersection would operate at an acceptable level LOS C with 24 to 28 seconds of delay during both the AM and PM peak hours. To facilitate this, the City must implement **Specific Plan Policy TRA-2.5**, which requires a "nexus study" be undertaken and a traffic impact fee developed that ensures that developers pay their "fair share" of necessary traffic improvements in the Specific Plan Area.	LTS
Impact TRA-7 (Demeter Street and Bay Road): The intersection currently operates at acceptable	S	Mitigation Measure TRA-7: A new traffic signal at this intersection shall be installed at this location. Along with a new traffic signal, appropriate pedestrian	LTS

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TABLE 2-1 ***SUMMARY OF IMPACTS AND MITIGATION MEASURES*** (CONTINUED)

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
levels (LOS A and B during the AM and PM peak hours, respectively). The addition of project-generated traffic is expected to cause the stop-controlled movements on Demeter Street to degrade to LOS F with over 100 seconds of delay during the AM and PM peak hours, and the intersection traffic volumes are expected to satisfy the Peak-Hour Volume Warrant. This constitutes a ***significant adverse impact*** according to the thresholds established by the City of East Palo Alto.		and bicycle accommodation should be provided. This includes pedestrian countdown timers, Americans with Disabilities Act (ADA) compliant curbs, and bicycle detection loops. With this improvement, the intersection would operate at an acceptable level (LOS B and C during the AM and PM peak hours, respectively). To facilitate this, the City must implement **Specific Plan Policy TRA-2.5**, which requires a "nexus study" be undertaken and a traffic impact fee developed that ensures that developers pay their "fair share" of necessary traffic improvements in the Specific Plan Area.	
Impact TRA-8 (Pulgas Avenue and Bay Road): The intersection currently operates at acceptable levels (LOS B) during the AM and PM peak hours. The addition of project-generated traffic is expected to cause the stop-controlled movements on Pulgas Avenue to degrade to LOS F) with over 100 seconds of delay during the AM and PM peak hours, and the intersection traffic volumes are expected to satisfy the Peak-Hour Volume Warrant. This constitutes a ***significant adverse impact*** according to the thresholds established by the City of East Palo Alto.	S	Mitigation Measure TRA-8: A new traffic signal shall be installed at this intersection. Along with a new traffic signal, appropriate pedestrian and bicycle accommodation should be provided. This includes pedestrian countdown timers, Americans with Disabilities Act (ADA) compliant curbs, and bicycle detection loops. With this improvement, the intersection would operate at LOS C with 23.2 seconds of delay during the AM peak hour and LOS D with 48.2 seconds of delay during the PM peak hour. To facilitate this, the City must implement **Specific Plan Policy TRA-2.5**, which requires a "nexus study" be undertaken and a traffic impact fee developed that ensures that developers pay their "fair share" of necessary traffic improvements in the Specific Plan Area.	LTS

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TABLE 2-1 ***SUMMARY OF IMPACTS AND MITIGATION MEASURES*** (CONTINUED)

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Impact TRA-9 (Freeway): All of the freeway segments evaluated would be significantly impacted by the implementation of the Specific Plan. Project impacts on freeway segments would diminish as the distance from the Plan Area increases until eventually the project's impact on freeway segments would be below the threshold established for significant impacts. This would be considered a ***significant adverse impact*** to freeway segments close to the Plan Area.	S	Mitigation Measure TRA-9: It is not within the City's jurisdiction nor is it financially feasible for the City of East Palo Alto to implement an extensive freeway widening project in order to mitigate the significant impacts associated with the Specific Plan.	SU
Impact TRA-10: There are many portions of streets in the Plan Area that do not have continuous sidewalks. This is a major impediment to pedestrian travel in the Plan Area.	S	Mitigation Measure TRA-10a: Continuous sidewalks shall be developed on all streets in the Plan Area as required under **Specific Plan Policy TRA-1.1**. Mitigation Measure TRA-10b: Off-street pedestrian paths shall be provided as per **Specific Plan Policy TRA-1.2**. The paths can help promote walking by providing shorter connections between sites and buildings than could be offered by the street system. For example, a pedestrian path could be developed as an extension of Purdue Avenue. This would allow a much easier pedestrian connection to University Avenue than the existing street system.	LTS
Impact TRA-CUM-1 (Willow Road and Bayfront Expressway): During the PM peak hour, the intersection is expected to operate at an unacceptable level of service (LOS F) under cumulative no project conditions. The addition of project-generated traffic is expected to cause the critical-movement delay on the southbound approach to increase by 3.0 seconds. This constitutes a ***significant adverse impact*** according to the thresholds established by the City of Menlo Park.	S	Mitigation Measure TRA-CUM-1: The shared left-through lane on northbound Willow Road shall be converted into a left-turn only lane and the signal phasing on the east and west approaches from split phase modified to protected lefts. With this improvement, the intersection would continue to operate at LOS F (287.7 seconds of delay); however, the average delay would be less than that under cumulative no project conditions (327.5 seconds). Alternately, the addition of a third right-turn lane on northbound Willow Road would further reduce the intersection's average control delay although not to an acceptable level. Implementation of any improvement at this intersection would require coordination with and approval by Caltrans and the City of Menlo Park.	SU

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TABLE 2-1 ***SUMMARY OF IMPACTS AND MITIGATION MEASURES*** (CONTINUED)

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Impact TRA-CUM-2 (University Avenue and Bayfront Expressway): During the AM and PM peak hours, the intersection is expected to operate at an unacceptable level of service (LOS F) under cumulative no project conditions. The addition of project-generated traffic is expected to cause the average control delay at the intersection to increase by 17 to 28 seconds. This constitutes a ***significant adverse impact*** according to the thresholds established by the City of Menlo Park.	S	Mitigation Measure TRA-CUM-2: There are no feasible improvements within the existing right-of-way that would substantially reduce delay at this intersection. The implementation of adaptive signal timing could reduce delays and improve intersection operation, but would not reduce cumulative impacts to a less-than-significant level. Any potential mitigation measure would require coordination with and approval by Caltrans and the City of Menlo Park. This intersection is expected to operate at a poor level of service (LOS F) under the cumulative no project AM and PM peak-hour traffic volumes. Buildout of the Specific Plan would add a substantial number of trips to this intersection, which serves as a gateway to the East Bay. The threshold that defines a significant impact is an increase in the average control delay of four or more seconds. Buildout of the Specific Plan would increase the average control delay by as much as 34.6 seconds during the PM peak hour. Therefore, trip reduction measures alone would not be sufficient to fully mitigate the significant project impact at this intersection.	SU
Impact TRA-CUM-3 (University Avenue and Purdue Avenue)**:** During the AM and PM peak hours, the stop-controlled movements on Purdue Avenue are expected to operate at LOS F with over 100 seconds of delay under cumulative no project conditions. The loop road would reduce the traffic on Purdue Avenue. However, the project would add traffic to University Avenue. The addition of project-generated traffic on University Avenue is expected to cause the average delay for the stop-controlled movements on Purdue Avenue to increase by over 100 seconds, and the approach volumes on Purdue Avenue are expected to continue to satisfy the Peak-Hour Volume Warrant.	S	Mitigation Measure TRA-CUM-3: A new traffic signal shall be installed at this intersection. Along with a new traffic signal, appropriate pedestrian and bicycle accommodation should be provided. This includes pedestrian countdown timers, Americans with Disabilities Act (ADA) compliant curbs, and bicycle detection loops. With this improvement, the intersection would operate at LOS A with 6.2 seconds of delay during the AM peak hour and LOS C with 24.6 seconds of delay during the PM peak hour. To facilitate this, the City must implement **Specific Plan Policy TRA-2.5**, which requires a "nexus study" be undertaken and a traffic impact fee developed that ensures that developers pay their "fair share" of necessary traffic improvements in the Specific Plan Area.	LTS

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TABLE 2-1 ***SUMMARY OF IMPACTS AND MITIGATION MEASURES*** (CONTINUED)

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
This constitutes a ***significant adverse impact*** according to the thresholds established by the City of East Palo Alto.			
Impact TRA-CUM-4 (University Avenue and Bay Road): This intersection is expected to operate at an unacceptable level (LOS F) during the AM and PM peak hours under cumulative no project conditions. The addition of project-generated traffic is expected to cause the intersection critical-movement delay to increase by at least 143 seconds and the V/C ratio to increase by at least 0.3 during the AM and PM peak hours. The average delay would be 265.1 seconds during the AM peak hour and 346.9 seconds during the PM peak hour. This constitutes a ***significant adverse impact*** according to the thresholds established by the City of East Palo Alto.	S	Mitigation Measure TRA-CUM-4: Fully mitigating the project impacts at this intersection under cumulative conditions would require adding through lanes on University Avenue and/or Bay Road. Because such improvements would entail extensive right-of-way acquisition and roadway widening extending beyond the Plan Area, this mitigation measure is considered to be infeasible. Under cumulative conditions, the impact from buildout of the Specific Plan could be partially mitigated by constructing the following improvements: an exclusive northbound right-turn lane and a second northbound left turn lane on University Avenue, a second westbound left-turn lane on Bay Road, a second southbound left-turn lane on University Avenue, and modified signal phasing. These recommended improvements would require additional right-of-way and roadway widening affecting only those properties in the immediate vicinity of the intersection. At least 14 feet of additional right-of-way would be required along the east side of University Avenue. About 12 feet of additional right-of-way would be required on the north side of Bay Road. Roadway widening has the potential to make pedestrian and bicycle travel more difficult through the intersection. Therefore, any intersection widening or reconstruction should incorporate pedestrian and bicycle accommodation. This includes pedestrian countdown timers, Americans with Disabilities Act (ADA) compliant curbs, and bicycle detection loops. With the recommended improvements, the intersection would continue to operate at an LOS F (124.5 seconds and 217.7 seconds in the AM and PM peak hours, respectively). The implementation of TDM measures outlined in the Specific Plan and the future construction of the Dumbarton Rail Corridor may cause a reduction in the vehicle trips generated by the buildout of the Specific Plan. In order to fully mitigate the Specific Plan's impact under cumulative conditions, a 19 percent	SU

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TABLE 2-1 ***SUMMARY OF IMPACTS AND MITIGATION MEASURES*** (CONTINUED)

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		reduction in trips would need to be achieved in addition to the above listed intersection improvements.	
Impact TRA-CUM-5 (University Avenue and Donohoe Street): This intersection is expected to operate at an unacceptable level (LOS F) during the AM and PM peak hours. The addition of Specific Plan-generated traffic is expected to cause the intersection critical-movement delay to increase by at least 35 seconds and the V/C ratio to increase by at least 0.09 during the AM and PM peak hours. The resulting delay would be 116 seconds during the AM peak hour and 186.7 seconds during the PM peak hour. This constitutes a ***significant adverse impact*** according to the thresholds established by the City of East Palo Alto.	S	Mitigation Measure TRA-CUM-5: An exclusive southbound right-turn lane on University Avenue, restriping the westbound approach on Donohoe Street to include dual left-turn lanes, one through lane and one right-turn only lane, shall be installed, and the signal phasing on Donohoe Street should be modified from split phase operation to a standard phase sequence with protected left turns. The recommended mitigation measure would require the acquisition of additional right-of-way and roadway widening that affects properties outside the Plan Area. About 12 feet of additional right-of-way would be required on the west side of University Avenue. Roadway widening has the potential to make pedestrian and bicycle travel more difficult through the intersection. Therefore, any intersection widening or reconstruction should incorporate pedestrian and bicycle accommodation. This includes pedestrian countdown timers, Americans with Disabilities Act (ADA) compliant curbs, and bicycle detection loops. With this improvement, the intersection would continue to operate at a LOS F, however the average delay (84.1 seconds and 93.1 seconds during the AM and PM peak hours, respectively) would be less than that under cumulative no project conditions. The Plan includes the requirement for TDM programs for new development. An effective TDM program would reduce the project impact at this intersection. However, to reduce the impact to a level of insignificance without any geometric improvements, the TDM program would need to achieve over a 50 percent reduction in trip generation. This level of reduction is unlikely to be achieved. To facilitate this, the City must implement **Specific Plan Policy TRA-2.5**, which requires a "nexus study" be undertaken and a traffic impact fee developed that ensures that developers pay their "fair share" of necessary traffic improvements in the Specific Plan Area.	LTS

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TABLE 2-1 ***SUMMARY OF IMPACTS AND MITIGATION MEASURES*** (CONTINUED)

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Impact TRA-CUM-6 (University Avenue and Highway 101 SB Off-Ramp): This intersection is expected to operate at an unacceptable level (LOS F) during the PM peak hour under cumulative no project conditions. The addition of Specific Plan-generated traffic is expected to cause the intersection critical-movement delay to increase by 45.9 seconds and the V/C ratio to increase by 0.14 during the PM peak hour. The resulting average delay would be 155.2 seconds. This constitutes a ***significant adverse impact*** according to the thresholds established by the City of East Palo Alto.	S	Mitigation Measure TRA-CUM-6: Mitigation of the Specific Plan's impact at this intersection under cumulative conditions is considered to be infeasible as it would require reconstructing the interchange and/or widening the University Avenue overpass. Implementing such improvements would require the coordination with and approval of Caltrans. The Specific Plan includes the requirement for TDM programs for new development. An effective TDM program would reduce the project impact at this intersection. However, to reduce the impact to a level of insignificance, the TDM program would need to achieve over a 50 percent reduction in trip generation. This level of reduction is unlikely to be achieved.	SU
Impact TRA-CUM-7 (University Avenue and Woodland Avenue): This intersection is expected to operate at an unacceptable level (LOS F) during the PM peak hour under cumulative no project conditions. The addition of project-generated traffic is expected to cause the intersection critical-movement delay to increase by 8.5 seconds and the V/C ratio to increase by 0.02 during the PM peak hour. The resulting average delay would be 144.4 seconds. This constitutes a ***significant adverse impact*** according to the thresholds established by the City of East Palo Alto.	S	Mitigation Measure TRA-CUM-7: Mitigation of the Specific Plan's impact at this intersection under cumulative conditions is considered to be infeasible at it would require extensive right-of-way acquisition in order to add through lanes to University Avenue and/or Woodland Avenue. The Specific Plan includes the requirement for TDM programs for new development. An effective TDM program would reduce the project impact at this intersection. However, to reduce the impact to a level of insignificance, the TDM program would need to achieve over a 50 percent reduction in trip generation. This level of reduction is unlikely to be achieved.	SU

S = Significant, LTS = Less Than Significant, SU = Significant Unavoidable Impact

TABLE 2-1 ***SUMMARY OF IMPACTS AND MITIGATION MEASURES*** (CONTINUED)

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Impact TRA-CUM-8 (Clarke Avenue and Bay Road): The intersection is expected to operate at acceptable levels (LOS B) during the AM and PM peak hours under cumulative no project conditions. The addition of Specific Plan-generated traffic is expected to cause the intersection to degrade to LOS F with 115.7 seconds of delay during the AM and peak hour and 95.4 seconds of delay during the PM peak hour, and the intersection traffic volumes are expected to satisfy the Peak-Hour Volume Warrant. This constitutes a ***significant adverse impact*** according to the thresholds established by the City of East Palo Alto.	S	Mitigation Measure TRA-CUM-8: A new traffic signal shall be installed at this intersection. Along with a new traffic signal, appropriate pedestrian and bicycle accommodation should be provided. This includes pedestrian countdown timers, Americans with Disabilities Act (ADA) compliant curbs, and bicycle detection loops. With this improvement, the intersection would operate at an acceptable level (LOS C) with 28.1 seconds of delay during the AM peak hour and 24.0 seconds of delay during the PM peak hour under cumulative plus project conditions. To facilitate this, the City must implement **Specific Plan Policy TRA-2.5**, which requires a "nexus study" be undertaken and a traffic impact fee developed that ensures that developers pay their "fair share" of necessary traffic improvements in the Specific Plan Area.	LTS
Impact TRA-CUM-9 (Demeter Street and Bay Road): The intersection is expected to operate at acceptable levels (LOS A and B during the AM and PM peak hours, respectively) under cumulative no project conditions. The addition of project-generated traffic is expected to cause the stop-controlled movements on Demeter Street to degrade to an unacceptable level (LOS F) with over 100 seconds of delay during the AM and PM peak hours, and the intersection traffic volumes are expected to satisfy the Peak-Hour Volume Warrant. This constitutes a ***significant adverse impact*** according to the thresholds established by the City of East Palo Alto.	S	Mitigation Measure TRA-CUM-9: A new traffic signal shall be installed at this intersection. Along with a new traffic signal, appropriate pedestrian and bicycle accommodation should be provided. This includes pedestrian countdown timers, Americans with Disabilities Act (ADA) compliant curbs, and bicycle detection loops. With this improvement, the intersection would operate at LOS B with 18.6 seconds of delay during the AM peak hour and LOS C with 27.6 seconds of delay during the PM peak hour under cumulative plus project conditions. To facilitate this, the City must implement **Specific Plan Policy TRA-2.5**, which requires a "nexus study" be undertaken and a traffic impact fee developed that ensures that developers pay their "fair share" of necessary traffic improvements in the Specific Plan Area.	LTS

S = Significant, LTS = Less Than Significant, SU = Significant Unavoidable Impact

TABLE 2-1 ***SUMMARY OF IMPACTS AND MITIGATION MEASURES*** (CONTINUED)

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Impact TRA-CUM-10 (Pulgas Avenue and Bay Road): The intersection is expected to operate at an acceptable level (LOS B) during the AM and PM peak hours under cumulative no project conditions. The addition of project-generated traffic is expected to cause the stop-controlled movements on Pulgas Avenue to degrade to LOS F with over 100 seconds of delay during the AM and PM peak hours, and the intersection traffic volumes are expected to satisfy the Peak-Hour Volume Warrant. This constitutes a ***significant adverse impact*** according to the thresholds established by the City of East Palo Alto.	S	Mitigation Measure TRA-CUM-10: A new traffic signal shall be installed at this intersection. Along with a new traffic signal, appropriate pedestrian and bicycle accommodation should be provided. This includes pedestrian countdown timers, Americans with Disabilities Act (ADA) compliant curbs, and bicycle detection loops. With this improvement, the intersection would operate at LOS C with 23.2 seconds of delay during the AM peak hour and LOS D with 48.2 seconds of delay during the PM peak hour under cumulative plus project conditions. To facilitate this, the City must implement **Specific Plan Policy TRA-2.5**, which requires a "nexus study" be undertaken and a traffic impact fee developed that ensures that developers pay their "fair share" of necessary traffic improvements in the Specific Plan Area.	LTS
Impact TRA-CUM-11 (Pulgas Avenue and Bayshore Road): This intersection is expected to operate at an acceptable level (LOS D) during the PM peak hour under cumulative no project conditions. The addition of project-generated traffic is expected to cause the intersection to degrade to LOS E with 74.5 seconds of delay during the PM peak hour. This constitutes a ***significant adverse impact*** according to the thresholds established by the City of East Palo Alto.	S	Mitigation Measure TRA-CUM-11: Mitigation of the Specific Plan's impact at this intersection under cumulative conditions is considered to be infeasible at it would require acquisition of additional right-of-way and demolition of existing structures on abutting parcels in order to widen the roadway. The possible implementation of TDM measures may cause a reduction in the vehicle trips generated by the proposed project. While the precise magnitude of trip reduction that may be achieved through TDM measures is uncertain, it is expected to be below the 50 percent reduction in trips that would be needed to fully mitigate the project impact under cumulative conditions.	SU

S = Significant, LTS = Less Than Significant, SU = Significant Unavoidable Impact

TABLE 2-1 ***SUMMARY OF IMPACTS AND MITIGATION MEASURES*** (CONTINUED)

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Impact TRA-CUM-12 (Embarcadero Road and Bayshore Road): This intersection is expected to operate at an unacceptable level (LOS E) during the AM peak hour under cumulative no project conditions. During the AM peak hour, the addition of project-generated traffic is expected to cause the intersection critical-movement delay to increase by 21.4 seconds and the V/C ratio to increase by 0.056. The intersection would degrade to LOS F with an average delay of 97.4 seconds. During the PM peak hour, the intersection is expected to operate at an acceptable level (LOS D) under cumulative no project conditions. The addition of project-generated traffic is expected to cause the intersection to degrade to LOS E with 67.3 seconds of delay. This constitutes a ***significant adverse impact*** according to the thresholds established by the City of Palo Alto.	S	Mitigation Measure TRA-CUM-12: There are no feasible improvements that would fully mitigate the project impact under cumulative conditions at this intersection. This intersection is expected to operate at an acceptable LOS D under the cumulative no project PM peak-hour traffic volumes; however the intersection average control delay (53.0 seconds) is very close to the LOS D/E threshold (55.1 seconds). Thus, an increase in average control delay of only 2.1 seconds would be considered a significant impact since the intersection would degrade to an unacceptable level. Buildout of the Specific Plan would increase the average control delay by 14.3 seconds during the PM peak hour. Therefore, trip reduction measures alone would not be sufficient to fully mitigate the significant impact at this intersection.	SU
Impact TRA-CUM-13 (University Avenue and Loop Road (new intersection): This intersection would be constructed as part of the Specific Plan. The projected traffic volumes and assumed lane geometry under cumulative plus project conditions is expected to result in LOS F with 98.6 seconds of delay during the PM peak hour. This constitutes a ***significant adverse impact*** according to the thresholds established by the City of East Palo Alto.	S	Mitigation Measure TRA-CUM-13: There are no feasible improvements that would achieve an acceptable level of service under cumulative plus project conditions at this intersection. The poor level of service is primarily due to the heavy traffic volumes forecast on University Avenue in the year 2035. A major roadway widening project to add through lanes on University Avenue would be necessary to achieve an acceptable level of service at this intersection under cumulative plus project conditions. The Plan includes the requirement for TDM programs for new development. An effective TDM program would reduce the project impact at this intersection. However, to reduce the impact to a level of insignificance, the TDM program would need to achieve over a 50 percent reduction in trip generation. This level of reduction is unlikely to be achieved.	SU

S = Significant, LTS = Less Than Significant, SU = Significant Unavoidable Impact

TABLE 2-1 ***SUMMARY OF IMPACTS AND MITIGATION MEASURES*** (CONTINUED)

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Impact TRA-CUM-14 (Freeway): The project trips on study area freeways are expected to be the same under the cumulative plus project scenario as under the existing plus project scenario. Thus, as previously concluded, the Specific Plan is expected to result in ***significant adverse impacts*** to segments of Highway 101 and State Route 84 in the vicinity of the project.	S	Mitigation Measure TRA-CUM-14: It is infeasible for the City of East Palo Alto to undertake an extensive freeway widening project as it is outside City of East Palo Alto jurisdiction.	SU
UTILITIES AND SERVICE SYSTEMS			
The project would not result in significant project or cumulative impacts related to utilities and service systems; therefore, no mitigation measures are required.			

S = Significant, LTS = Less Than Significant, SU = Significant Unavoidable Impact

3 PROJECT DESCRIPTION

This chapter describes the overall location and character of the Plan Area, the land use changes proposed in the Specific Plan, potential new roadways and other infrastructure, and the regulatory actions that must follow adoption of the Specific Plan. For greater detail and clarification, please refer to the Specific Plan.

A. Regional and Local Location

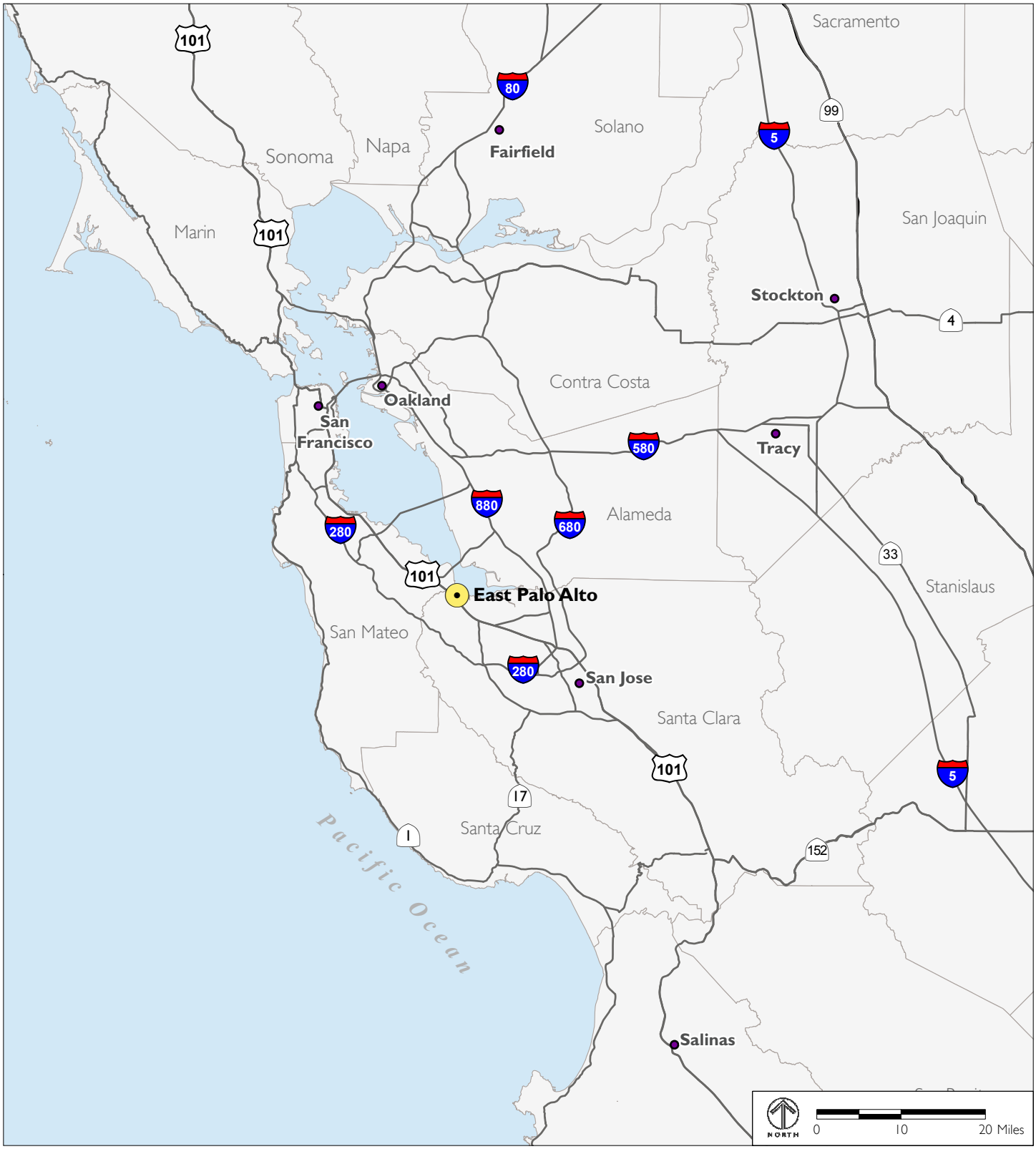
East Palo Alto is located in the southeast portion of the San Francisco Peninsula, approximately 30 miles southeast of San Francisco and 18 miles northwest of San Jose. U.S. Highway 101 crosses through southeast East Palo Alto. The city is bordered at the south by Palo Alto and at the west and north by Menlo Park. The San Francisco Bay forms the city's eastern boundary. Figure 3-1 shows the regional location of East Palo Alto.

The Specific Plan Area is located in the northeast portion of the city, west of San Francisco Bay. A portion of the Plan Area shares a boundary with the East Palo Alto City limits. Figure 3-2 shows how the Plan Area fits within the city.

B. Plan Area

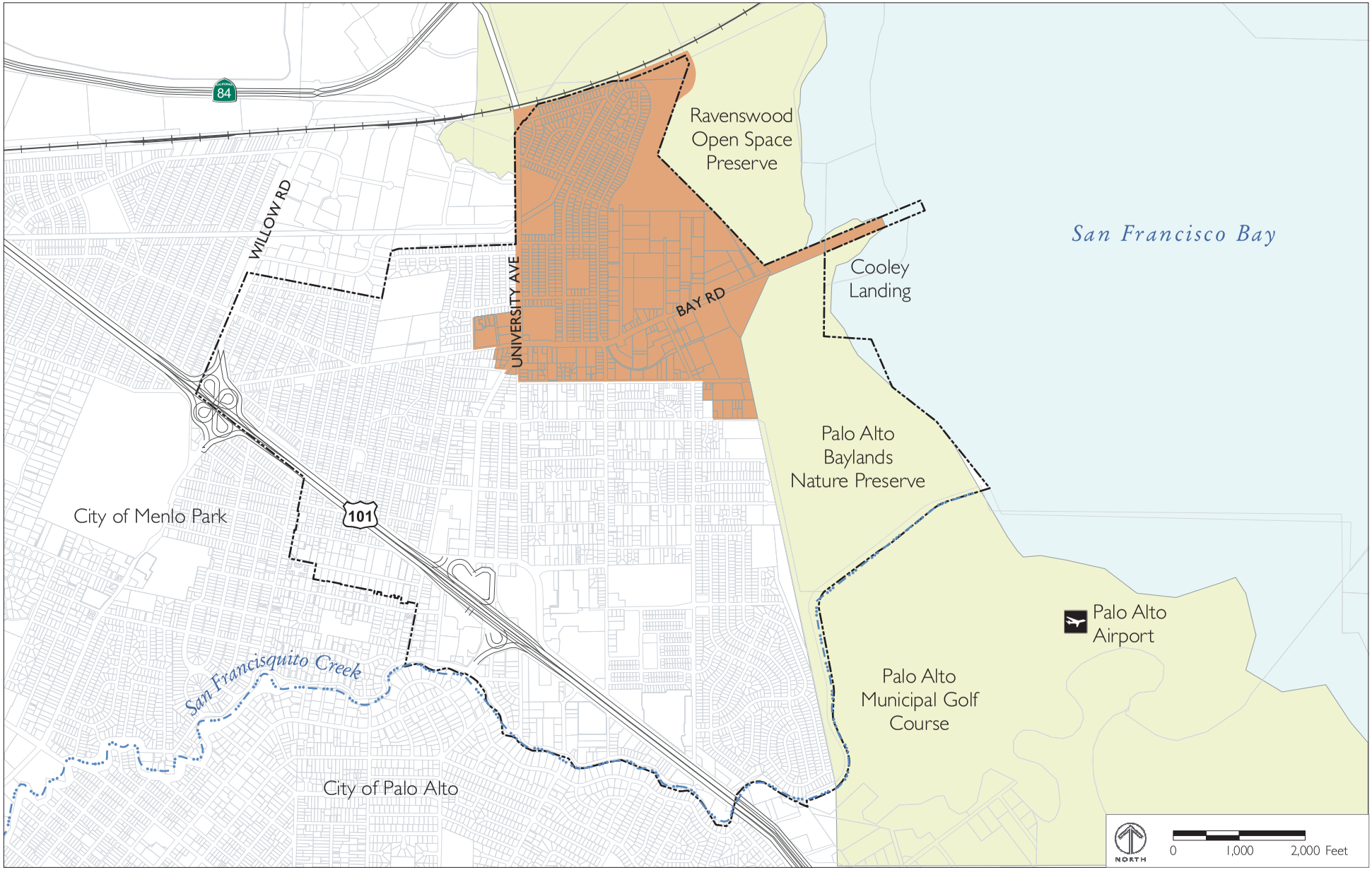
The Plan Area encompasses approximately 350 acres. It is generally bounded at the west by University Avenue; at the north by a rail line that crosses the Bay on a drawbridge;[1] and at the south by Weeks Street. To the east are tidal wetlands in the Ravenswood Open Space Preserve, owned and managed by the Midpeninsula Open Space District and in the City of Menlo Park; and to the southeast are wetlands that are part of the Palo Alto Baylands Nature Preserve, owned by the City of Palo Alto, and managed by the U.S. Fish and Wildlife Service as part of the Don Edwards San Francisco Bay National

[1] Passenger service on this rail line, known as "Dumbarton Rail," is currently being studied in a separate project.



Source: The Planning Center | DC&E, 2009.

FIGURE 3-1
REGIONAL LOCATION



Source: City of East Palo Alto, 2009.

City Limits
Plan Area
Baylands
Railroad

FIGURE 3-2
LOCAL CONTEXT

Wildlife Refuge. In addition to University Avenue, which is an important transit corridor within the city as well as the region, the Plan Area includes Bay Road, a major east-west corridor in East Palo Alto.

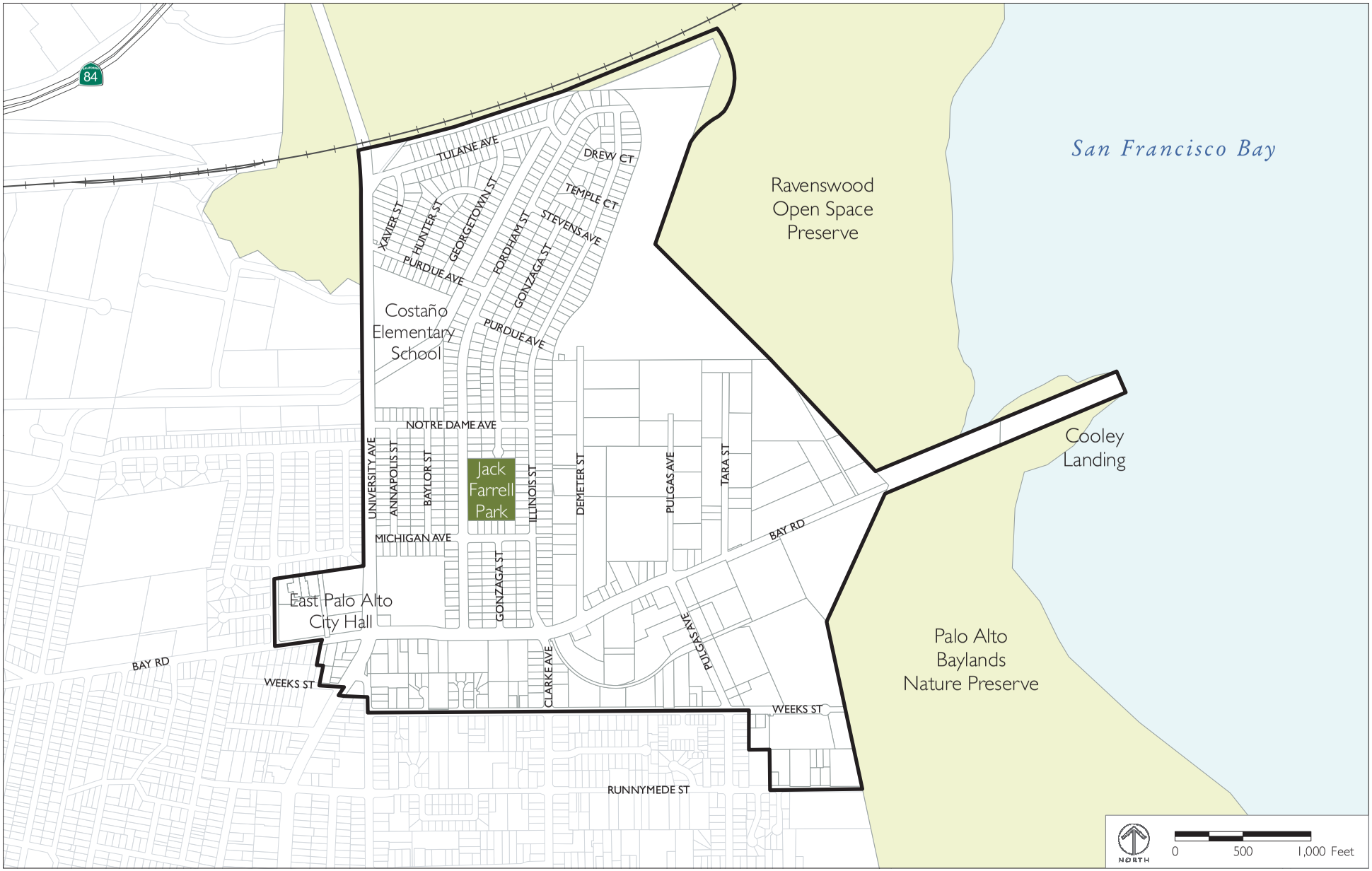
Some small parts of the Plan Area are located outside of the general boundaries described above. At the southeast boundary, a small area south of Weeks Street is included, because it is part of the City's Redevelopment Area. Similarly, the southwest boundary extends to include blocks west of University Avenue in the 4 Corners Area, to include all parcels within the Ravenswood Redevelopment Area. Figure 3-3 shows the Plan Area boundary. The Plan Area boundary includes the connection to Cooley Landing but does not include the other lands that will become the park.

C. Purpose of the Specific Plan

The Specific Plan is intended to serve as the primary document and reference guide for future development and redevelopment of Ravenswood and 4 Corners. The Specific Plan provides the community and decision-makers with clear documentation of the vision for the Plan Area. Furthermore, it provides a clear policy and regulatory framework for the review of future development projects and public improvements. The Specific Plan also provides guidance on design, potential public investments, and implementation.

D. Specific Plan Objectives

The City of East Palo Alto conducted a community-driven planning process to develop a vision for future land uses in the Plan Area. This process involved members of the community, business owners, advocacy groups, and other stakeholders. Based on feedback received during this process, a Specific Plan was developed to accomplish the following objectives:



Source: City of East Palo Alto, 2009.

Plan Area
Park
Baylands
Railroad

FIGURE 3-3
PLAN AREA

1. Enhance 4 Corners and Bay Road with new development and streetscape improvements that will enliven the street, create a "downtown" feeling for pedestrians, and improve safety by providing "eyes on the street."
2. Transform Ravenswood into a thriving employment center that provides a variety of new jobs.
3. Encourage new development in Ravenswood by promoting new research and development (R&D) uses as part of a broader mix of uses.
4. Capitalize on the commercial potential of offices with Bay views by encouraging the development of tall office buildings close to the Bay.
5. Provide strong regional connectivity to the Ravenswood employment centers through an improved road system.
6. Create better public spaces in Ravenswood through streetscape improvements and by providing new plazas and parks.
7. Facilitate non-auto linkages through a network of off-street pedestrian and bicycle facilities, an improved sidewalk network, and connections to existing and planned public transportation.
8. Strengthen and enhance the University Village neighborhood by providing public improvements, promoting homeowner investment, and establishing the SFPUC right-of-way as a public park.
9. Seek to provide new community facilities, including a community center where people can gather for special events; a new school; an expanded health clinic and public library; and a recreation center that would provide a safe and welcoming place for the city's youth.
10. Facilitate the cleanup of contaminated sites by providing new development opportunities in those locations.

E. Ravenswood/4 Corners TOD Specific Plan

This section summarizes the key components and recommendations of the Specific Plan.

The Specific Plan would permit a mix of office, retail, industrial, R&D, single-family and multi-family residential, civic/community, and open space uses within the Plan Area. Table 3-1 shows development estimates for future buildout of the Plan Area. Figure 3-4 shows the proposed land use map for the Specific Plan Area, which would be used to amend the General Plan. Figure 3-4 also shows annotations identifying potential civic/community uses, as well as potential parks and plazas that are envisioned in the Specific Plan and analyzed in this EIR.

It is assumed that this development would occur through 2035, which is considered the Plan Horizon. The timeframe and the rate of development within the Plan Area is subject to variation based on market demands, the regional economy, and other socioeconomic factors.

1. Key Community-Generated Design Goals

The community engagement process undertaken for this Specific Plan yielded three major design goals.

- *Preservation and enhancement of public views.* This is addressed by the Specific Plan's custom development standards and guide for which public views are most critical to preserve.
- *Improving circulation north of Bay Road in the Ravenswood area.* Specifically, a new east-west street that would link Demeter Street, Pulgas Avenue, and Tara Road was requested.
- *Bay Road as the activity spine and "heart" of East Palo Alto.* The Specific Plan is focused on achieving a walkable environment on Bay Road through use regulations and development standards.

2. Proposed Land Uses

This section describes the land uses proposed in the Specific Plan, shown on Figure 3-4 and described in Table 3-1.

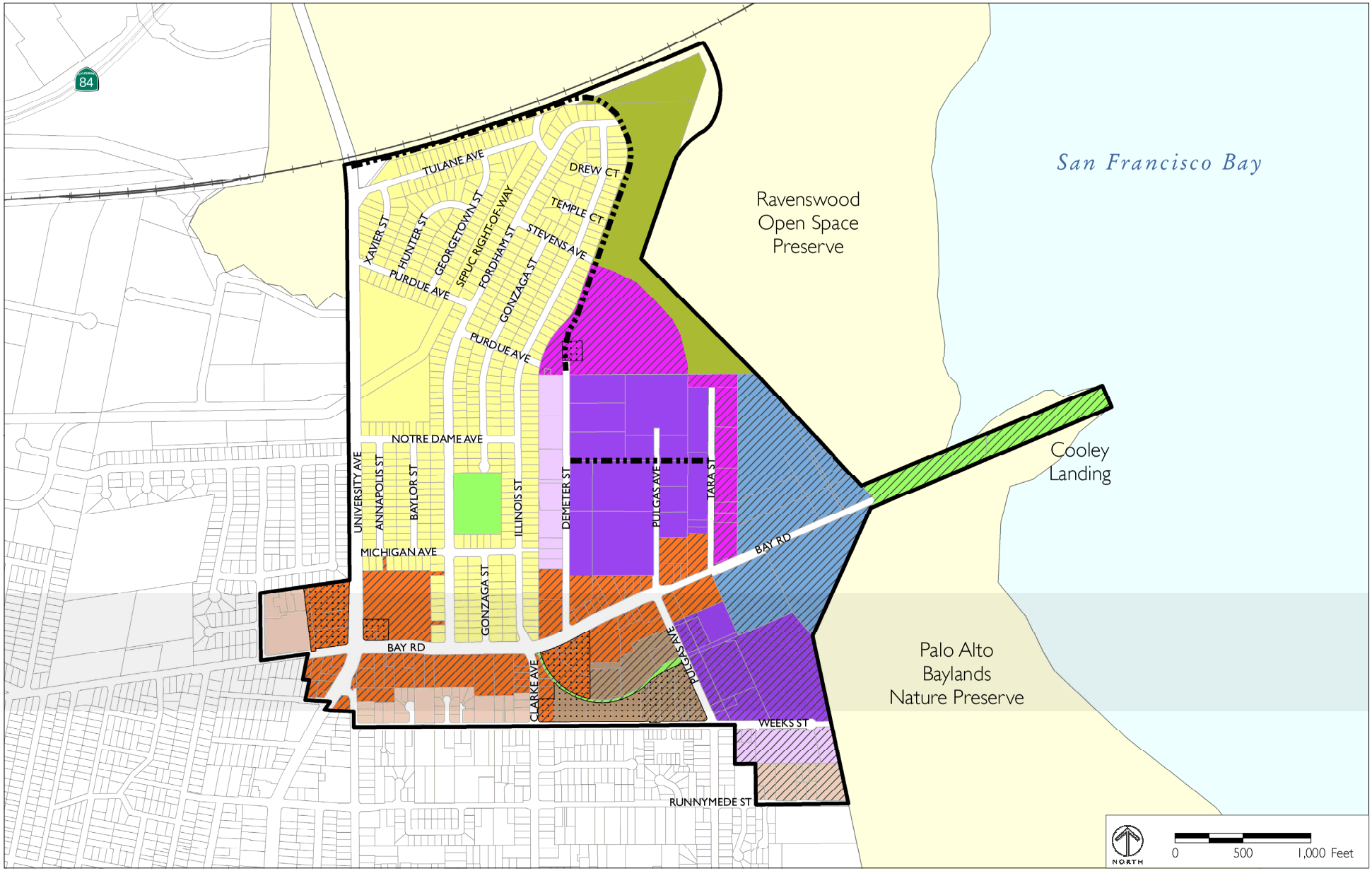
a. Mixed Use (Bay Road/4 Corners)

Bay Road is envisioned as an active and vibrant spine that serves as a focal point for Ravenswood and 4 Corners, as well as for East Palo Alto as a whole.

TABLE 3-1 ***NET DEVELOPMENT POTENTIAL***

Land Use Type	Dwelling Units (du) or Square Feet (sf)		Density (du/Acre) or FAR	Population or Employees[e]
Residential (du)				
Residential[a]	19		25	73
Mixed-Use Residential[b]	572	816	40-60	2,693
Swenson Property Mixed-Use Residential	244			
Total Residents				**2,766**
Office (sf)				
Office	1,046,910		1.5	3,490
Mixed-Use Upper-Floor Office[b]	202,990	221,590	1.0	633
Mixed-Use Ground-Floor Office[d]	18,600		–	
Retail (sf)				
Mixed-Use Ground-Floor Retail[b]	92,400	112,400	–	314
Swenson Property Ground-Floor Retail[b]	20,000			
Industrial/Flex (sf)				
R&D/Industrial	267,967		0.5	414
Light Industrial	83,853		0.5	
Civic/Community[e]	61,000			
Total Employees				**4,851**

[a] The 19 residential units are small-lot single-family or attached townhomes.
[b] Upper floor space in the mixed-use category is assigned as Residential (75 percent) and Office (25 percent).
[c] Ground floor space in the mixed-use category is assigned as Retail (88 percent) and Office (12 percent).
[d] These forecasts assume 3.9 people per household for Residential; 3.3 people per household for both types of Mixed-Use Residential; 300 square feet per employee for Office; 350 square feet per employee for both types of Mixed-Use Office; 350 square feet per employee for Mixed-Use Ground-Floor Retail; 400 square feet per employee for Swenson Property Ground-Floor Retail; and 850 square feet per employee for both types of Industrial.
[e] Employment figures are not included in this table, but were taken into account in the traffic analysis detailed in Chapter 4-14 of this EIR.



Source: City of East Palo Alto, 2009.

- Project Area
- Civic Use Envisioned
- Change in Designation
- Proposed Vehicle Connection
- Mixed-Use
- Office
- R&D/Industrial
- Light Industrial
- Industrial/Office Flex
- High Density Residential
- Medium/High Density Residential
- Low/Medium Density Residential
- Community Open Space Conservation
- Resource Management

FIGURE 3-4

SPECIFIC PLAN LAND USE DESIGNATIONS

It will become a mixed-use area to ensure an active pedestrian environment along Bay Road. Mixed uses will generally consist of upper-floor residential dwellings or offices with ground-floor active uses that will be mostly retail storefronts, although some ground-floor office uses will be allowed. Housing in this area will help provide activity into the nighttime hours and create increased safety by ensuring "eyes on the street" along Bay Road, and increased support for local retail uses. Allowable housing density will be 40 to 60 dwelling units per acre, and office uses will have a maximum floor area ratio (FAR) of 1.0.

b. Office

Office uses are planned for the easternmost areas of the Plan Area along the Bay, as well as at the northern edge of Ravenswood. The offices would take advantage of views of the San Francisco Bay and recreational opportunities provided by the Bay Trail. It is anticipated that this office development will offer a large number of jobs to both local residents and people from around the region, helping to bring new tax dollars and spending to East Palo Alto. Allowable density for these office uses will be 1.5 FAR.

c. R&D/Industrial

R&D and industrial uses are planned for the central portions of Ravenswood both north and south of Bay Road. The Specific Plan assumes that many of the existing industrial uses in this area will remain, but also that R&D and other new industrial uses would likely develop in these areas. (The term "R&D" refers to facilities for scientific or technical research, often including space for small-scale manufacturing of prototypes or finished products.) This would result in a mix of uses ranging from the heavier manufacturing, storage, and trucking uses that exist today, to new development of R&D uses including biotechnical research facilities, light manufacturing and supporting professional offices. Standards in the Specific Plan regulate noise and air quality to prevent impacts on nearby residential uses. Allowable density for these R&D/Industrial uses will be 0.5 FAR.

d. Light Industrial

Buffers of light industrial uses would be located along Demeter Street between the University Village residential neighborhood and more intensive general industrial uses in Ravenswood; and along Weeks Street to separate residential uses from general industrial uses to the north. While the Specific Plan's development standards address potential conflicts with residential uses for all industrial areas, the light industrial designation provides even tighter restrictions in these buffer areas. For example, heavy manufacturing uses are never allowed in this designation. Allowable density for these Light Industrial uses will be 0.5 FAR.

e. Industrial/Office Flex

Properties on the east side of Tara Street, and north of the terminus of Demeter Street would be allowed to develop with either office use or general industrial use. This designation allows for flexibility as these two areas are redeveloped in the future. In particular, the overlay along Tara Street allows these parcels to be incorporated within new office development to the east if desired.[2]

f. Residential

Figure 3-4 shows multi-family residential in several locations south of Bay Road. These locations relate to and extend the existing residential neighborhoods south of the Plan Area. The allowable density for multi-family residential will be 25 units per acre.

g. Civic/Community Uses

The Specific Plan envisions a variety of civic and community uses within the Plan Area. Civic/Community uses include both community space for special events or recreation, but may uses also include non-profits, health clinics, and social services, and other uses of this nature. Civic/Community uses could potentially be located at several different locations within the Plan Area in

[2] A 50/50 split between office and industrial as assumed for the sake of the traffic analysis.

areas that are currently specified as mixed use. Civic/Community uses will be developed through developer dedications, impact fees, and leveraging outside sources of funding. For the sake of analysis in this EIR, the following are assumed:

- An enhanced Civic Center with an expanded library would be located at the northwest corner of the 4 Corners area, either as an addition to or as a replacement of the existing County building on that site.
- The large parcel at the northeast corner of the Bay Road/University Avenue intersection would also include one important civic use such as a community center.
- East of Clarke Avenue and south of Bay Road, an existing health clinic expanded.
- Near the termini of Purdue Avenue and Demeter Street, a recreation center would be located within a new park.

However, it should also be noted that civic/community uses will not have an unique land use and zoning designation in the Specific Plan or in the General Plan, but would be allowed in mixed-use designations and zoning districts.

h. Existing Uses to be Retained

Several parts of the Plan Area would remain relatively unchanged in the future, accommodating only minor additions or maintenance replacements. These include:

- The University Village single-family residential neighborhood, located east of University Avenue and north of Bay Road and designated Low/Medium Density Residential.
- The Medium/High Density Residential properties in two locations: west of City Hall and north of Bay Road; and along Weeks Street between University Avenue and Clarke Avenue.
- The northeast corner of the Plan Area, shown in the Land Use Concept as Resource Management, is designated by East Palo Alto's General Plan as such, and the Specific Plan retains this designation.

For all properties in the Plan Area, Section 6829 of the City's Zoning Ordinance will govern the continued existence of non-conforming uses that do not match the underlying General Plan designation.

3. Parks and Open Spaces

The Specific Plan denotes four types of public open spaces: public plazas, neighborhood parks, community parks and open space. As with civic uses discussed above, the exact location and details of parks and open spaces remain flexible in the Specific Plan, but the EIR assumes amenities below.

Upon buildout, including existing development as well as proposed development under the Specific Plan, there would be approximately 33.5 acres of parks and trails within the Plan Area by 2035 (including 4.5 miles of new sidewalks and trails contributing to an overall proposed open space network) at a ratio of greater than 3.0 acres of park space per 1,000 people. It should be noted that it is assumed that approximately 7 acres of the anticipated parks and open space would be provided in conjunction with new private development.

a. Plazas

It is assumed that a number of plazas will be built in the Plan Area, both as publicly accessible open space in private development and as public improvements. Figure 3-4 shows a public plaza as part as new development at the northeast corner of University and Bay Road, and a public plaza is also shown at the intersection of Pulgas Avenue and Bay Road.

b. Parks

Upon buildout of the Plan Area, this EIR assumes that there would be three neighborhood parks primarily serving the community itself, and two community parks drawing users from the broader area. The neighborhood parks are:

- The existing Jack Farrell Park.
- A new 2.33-acre park on San Francisco Public Utilities Commission land in the University Village neighborhood.

- A new 0.85-acre park off of Weeks Street next to the Palo Alto Baylands Nature Preserve.

These neighborhood parks could include a variety of open fields, exercise areas, educational opportunities, playgrounds, and other similar features.

The community parks are:

- A new 3.5-acre park as part of new development at the termini of Demeter Street and Purdue Avenue.
- A set of two parks, totaling 2.79 acres, across from each other on Bay Road, marking the entry to Cooley Landing, a significant community park being planned by the City as a separate project. At the time of project approval, the General Plan and zoning designation of this land would be amended and rezoned from Resource Management to Community Open Space.[3]

c. Open Spaces next to Tidal Marsh

This EIR assumes that open spaces and trails will circle the Specific Plan Area's eastern edge. This type of public amenity will need to be developed with the participation of both City and regional agencies as well as private developers.

4. Building Form and Development Standards

The Specific Plan includes development standards that are used to regulate form of new buildings and development in the Plan Area, and to ensure that all new development supports the vision contained in the Specific Plan.

a. Mixed Use (Bay Road/4 Corners)

Where mixed-use development is designated by the Specific Plan, buildings will contain ground-floor active uses with residential or office uses above.

[3] City of East Palo Alto, 2010. *Cooley Landing Park Initial Study.* Available online at: http://www.ci.east-palo-alto.ca.us/cooley/pdf/Cooley_Landing_Initial_Study.pdf.

Ground-floor active uses are defined as retail or office space with a minimum transparency, or percentage of the building's frontage devoted to windows, to create pedestrian interest. Depending on the size and configuration of parcels, horizontal mixed use may also be appropriate. Horizontal mixed-use is defined by multiple uses being developed next to each other, but not above one another, on a single parcel.

The maximum height for this building type is 5 stories (60 feet)[4] for residential uses or 4 stories (50 feet) for office uses, except at the intersection of Bay Road and University Avenue, where the maximum height increases to 6 stories (70 feet) for residential uses or 5 stories (60 feet) for office uses. All buildings along Bay Road will step back a minimum of 10 feet above the fourth floor. The minimum height for mixed-use designations is 2 stories (30 feet).

b. Office

In areas designated for office uses, the maximum height will be 8 stories (85 feet). View corridors described by the Specific Plan require special upper floor setbacks for office development in order to preserve views. These view corridors will ensure that views eastward to ridges across the Bay are preserved from key locations. In addition to preserving existing views from Bay Road and Purdue, the Specific Plan proposes to add an additional public viewshed along a new east-west road that would connect Demeter Street, Pulgas Avenue, and Tara Road.

c. R&D/Industrial)

R&D and industrial buildings are anticipated to develop in the inner portions of Ravenswood. These buildings will be allowed up to a maximum height of 4 stories (50 feet). Where industrial buffer uses are designated, the maximum height will be 3 stories (40 feet). Because of rapid change in needs, it is difficult to predict the exact nature of development in these areas. Therefore, the Specific Plan is intended to be flexible regarding the precise type of develop-

[4] The number of feet stated for each maximum height is an estimate, based on likely floor-to-floor heights of buildings. While the Specific Plan regulates floor-to-floor heights in feet, it regulates the overall height of buildings in stories.

ment that will occur, while still addressing issues such as compatibility with adjacent uses.

d. Light Industrial

In several locations adjacent to existing residential neighborhoods, and industrial are anticipated, creating a transition between Ravenswood's R&D/industrial uses and existing single-family homes. These buildings have a maximum height of 3 stories (40 feet), with heights limited to 2 stories (30 feet) adjacent to residential parcels.

e. Industrial/Office Flex

Some parts of the Plan Area can develop either with R&D/industrial uses or with office uses, depending on the future preferences of property owners. Development in these locations can follow either the Office or General Industrial standards, but it must be set back from adjacent residential areas.

f. High Density Residential

In portions of the Plan Area, residential dwellings are allowed up to a height of 5 stories (50 feet), accommodating more intensive apartment and condominium development.

g. Medium/High Density Residential

Closer to existing residential neighborhoods, residential dwellings are allowed up to a height of 3 stories (30 feet), creating a height transition from intensively developed parts of the Plan Area to nearby homes.

h. Civic/Community Facilities

New public facilities, such as performing arts centers, recreation centers, administration buildings, libraries, and other facilities, may potentially be built during implementation of the Specific Plan and are analyzed in this EIR. Some of these could be incorporated into larger mixed-use buildings, while others may be free standing. The Specific Plan contains guidelines to ensure that civic/community facilities are architecturally distinctive. However, standards such as height, location and parking are set by the development standards for the underlying land use designation.

i. Parking Standards

The Specific Plan sets minimum parking standards that are intended to be "right-sized," providing an adequate but not excessive amount of parking. Shared parking is encouraged by the Specific Plan to reduce parking requirements for individual projects. Parking standards provide incentives for multiple uses and multiple developments to share parking. Public parking on streets immediately fronting projects is allowed to count towards office, retail and residential visitor parking requirements in the Plan Area.

j. Bird-Safe Building Standards

The tidal marshes provide resting sites for several species of migratory birds. As the Plan could involve the construction of tall office buildings on the Bay edge, it contains policies to reduce the risk of bird strikes. These require that large glass surfaces are broken up by techniques such as netting, or stenciling, so that they are more visible to birds.

5. Circulation Network

Circulation improvements are needed to accommodate new development in the Plan Area. These improvements are shown on Figure 3-4. More information is also provided in Section 5e below along with other infrastructure changes.

a. Vehicular Street Circulation Improvements

The Specific Plan identifies needed improvements to the vehicle circulation network, including new streets in the Plan Area.

- **Loop Road.** A new loop road to the north and east of University Village will connect University Avenue to Ravenswood to help alleviate traffic congestion on Bay Road and at the Bay Road/University Avenue intersection. A new loop road will improve access to the parcels in the eastern portions of Ravenswood for new offices and R&D/industrial uses. It is also anticipated that if a new transit station is to be located at the northwest corner of the Plan Area (as described below), this new loop road would provide direct access to employment locations from the transit station. For the sake of this analysis, it is assumed that the loop

road would have a buffer of roughly 20 feet from adjacent residential uses, and that it would be at grade or only minimally elevated above grade.

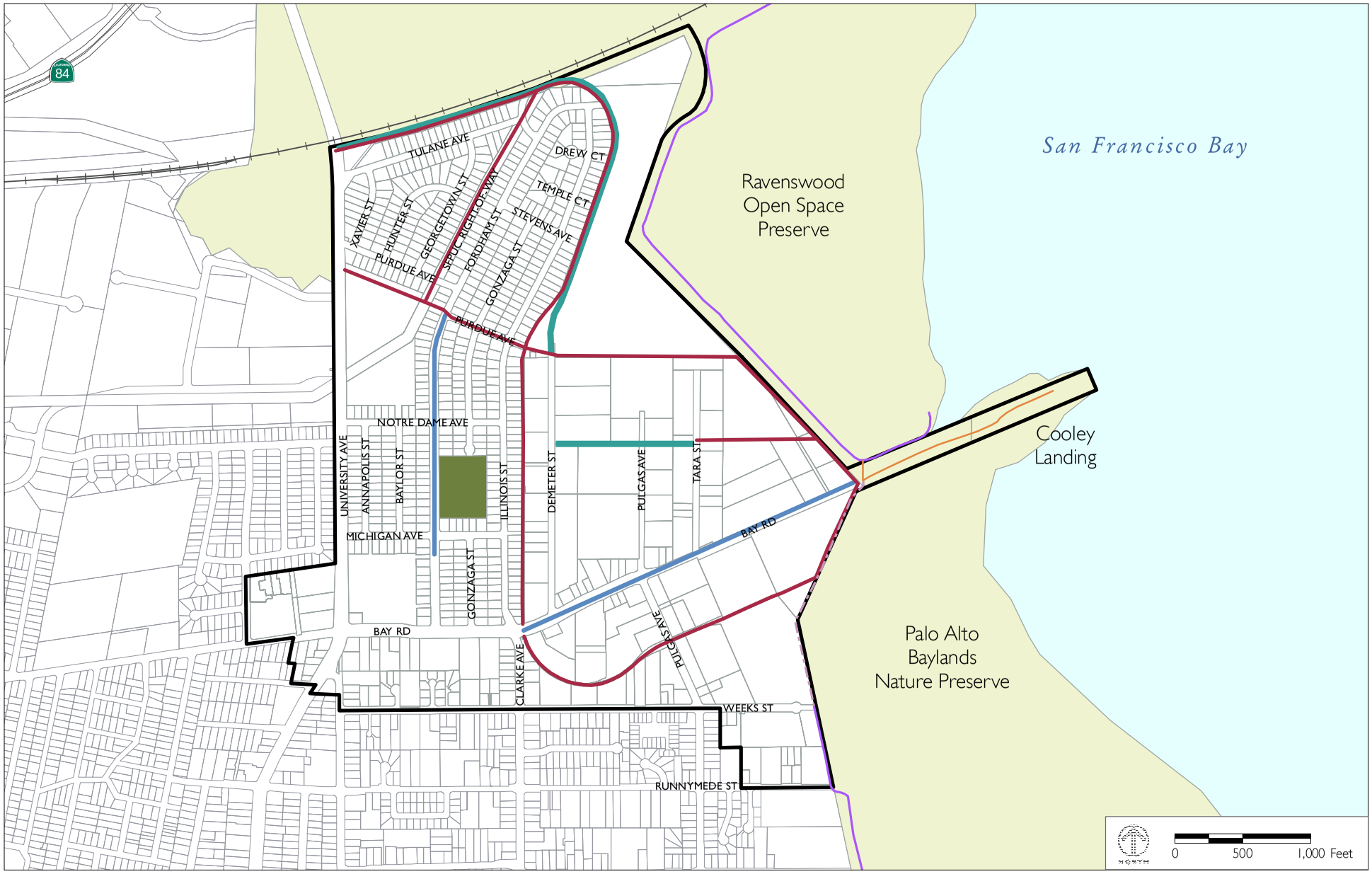
- **Ravenswood Connector.** Currently circulation into the industrial area of Ravenswood north of Bay Road is limited to north-south streets: Demeter Street, Pulgas Avenue and Tara Street. The Specific Plan identifies one new east-west street in this area running directly east-west and connecting Pulgas Avenue to Tara Street, in order to create a grid circulation pattern and reduce vehicle trips on Bay Road.
- **Intersection Improvements.** The circulation chapter of the Specific Plan, and Section 4.14, Transportation/Traffic of the Draft EIR, identify needed intersection improvements, such as new traffic signals and additional left turn lanes, at key locations. However, as noted in the Plan and Draft EIR, there is no funding mechanism in place to provide these improvements. In addition, some of them are outside the jurisdiction of the City of East Palo Alto and could not necessarily be implemented.
- **Other Roadway Improvements.** The following streets would be rebuilt or built under the Specific Plan:
  - Demeter Street from Purdue Avenue to Bay Road.
  - Pulgas Avenue north of Bay Road from the new east-west connector road, and south of Bay Road to Weeks Street.
  - Tara Road from 100 feet south of the wetlands to Bay Road.
  - Weeks Street from Clarke Avenue to its current termination, approximately 100 feet from the wetlands.
  - Bay Road from its intersection with Clarke Avenue to its termination next to the wetlands. The street would also be widened within a broadened 100-foot right-of-way.
  - A new east-west connector road would run from Demeter Street to Tara Street.

- **Bay Road Phase II and Phase III Improvements.** The Bay Road Phase I improvements have already been constructed from University Avenue to Illinois Avenue. Phase II and Phase III improvements will be installed from Illinois Avenue to the Bay Trail as well. These improvements are shown in blue along Bay Road on Figure 3-5.
- **Transportation Demand Management (TDM) Program.** A TDM program can reduce the number of single-occupant vehicle trips associated with a new development by encouraging employees to use alternative methods of transportation. The Specific Plan has a policy to require large employers in the Plan Area to participate in a TDM program, which will focus on vehicle trip reductions through encouraging use of transit, carpooling and shuttles as well as bicycling and walking.

b. Pedestrian Improvements

Figure 3-5 shows a cohesive system of pedestrian/bicycle connections and trails linking activity nodes, employment, housing, parks, and open spaces together. Both new connections and improvements to existing connections are shown.

- **Rail Spur Pedestrian/Bicycle Connection.** A multi-use pedestrian trail connection on unused railroad right-of-way would connect Clarke Avenue and Pulgas Avenue, and then on to the Bay Trail to the east. This pedestrian connection would mesh with new and existing development that surrounds it. Currently, the section between Pulgas Avenue and the Bay Trail is under construction.
- **Loop Road/Bay Trail Connection.** The northern portion of the proposed loop road, located north of and parallel to Tulane Avenue, will also include a multi-use pedestrian/bicycle trail to connect eastward to the Bay Trail. This will support regional goals for open space access.
- **Purdue Avenue Pedestrian Connection.** Figure 3-5 depicts a pedestrian/bicycle trail created alongside Purdue Avenue under the high-voltage electrical lines. It would extend west to University Avenue next to the Costaño Elementary School property and east to the Bay Trail on a new right-of-way along the north edge of Ravenswood.



Source: City of East Palo Alto, 2009 and The Planning Center | DC&E, 2011.

Plan Area
Park
Baylands
Railroad
Proposed Vehicle Connection
Proposed Pedestrian/Bicycle Connection
Proposed Streetscape Improvement
Existing Bay Trail
Unimproved Bay Trail
Other Existing Trail

FIGURE 3-5
PROPOSED CIRCULATION IMPROVEMENTS

c. Bicycle Improvements

The Specific Plan recognizes the opportunity for bicycle transportation to encourage bicycle use and improve transportation in the Plan Area. In particular, it shows new pedestrian routes as described above that would also provide multi-use paths for bicyclists. Where intersection improvements are proposes, the Specific Plan recommends that installed improvements include bicycle safety mechanisms, such as American with Disabilities Act (ADA) curbs, bicycle detection loops, or other similar features. The Specific Plan also proposes new standards for bicycle parking associated with new development, and also encourages new bicycle parking within public rights-of-way.

d. Transit Improvements

- **Rail Station.** Dumbarton Rail commuter rail service is currently being planned for the rail line that passes north of the Plan Area in a separate project. Although the Specific Plan calls for the City to pursue an "East Palo Alto" Dumbarton Rail station, which would be located adjacent to the Plan Area in the City of Menlo Park, at this point it would be highly speculative to assume that East Palo Alto will be successful at attracting a station. It is also unclear whether funding will be available to complete the Dumbarton Rail system by 2035. For these reasons, although this EIR includes the concept of future passenger service on this rail line as a project considered in the cumulative impact analysis, it does not include analysis of a station at any particular location.

- **Shuttle Service.** If a Dumbarton Rail station is developed, the Specific Plan envisions shuttle service to transport employees from the station to their places of employment within Ravenswood. Because the exact nature of the shuttle service is not known and would depend on future agreements between private businesses, this EIR does not analyze the potential shuttle service.

- **Other Transit Improvements.** It is envisioned that new bus routes, such as a bus-rapid transit route on University Avenue, or changes to existing routes may be implemented as development in the Plan Area occurs. Due to the speculative nature of these improvements and changes,

they are considered part of the Specific Plan and not analyzed in this EIR.

6. Infrastructure Improvements

Considerable utility infrastructure upgrades are needed for most of the Plan Area to accommodate new development. This was documented in an October 2008 Draft Engineering Plan (DEPLAN) for the Ravenswood Business District by Wilsey Ham Engineers.[5] Although the DEPLAN predates the Specific Plan, Wilsey Ham has reviewed the Specific Plan's development projections and verified that the DEPLAN's engineering calculations are still valid.[6]

The southern part of the Specific Plan Area generally slopes south, and the gravity-driven drainage for water, wastewater, and storm water pipes flows south for most of the area that would be developed under the Plan. There is a divide in the drainage system along a line running approximately east-west at the southern margin of the 391 Demeter Street property.[7] North of this divide, gravity-driven flows are northwards.

The following sections summarize the new infrastructure needed. A fuller description is provided in Section 4.15, Utilities and Service Systems.

a. Water Supply System

New components of the system would be as follows:

- An additional connection to the SFPUC Hetch Hetchy water delivery system through a pipe in the SFPUC right-of-way at Purdue Avenue.

[5] Wilsey Ham, 2008. *Draft Engineering Plan (DEPLAN) for the Ravenswood Business District (RBD).* October 31. See also Appendix H of that document. *Basis of Design.*

[6] Email from Sean Charpentier to DC&E, January 27, 2011.

[7] The 391 Demeter Street property has a triangular-shaped portion, which would be designated as Industrial/Office Flex under the Plan and an area with wetlands that would be designated as Resource Management. The triangular shaped portion has also been referred to as the "Stanford Fill" area.

The 12-inch pipe would then run east-southeast along Purdue Avenue and south along Demeter Street.

- New 12-inch pipes along Demeter Street, Pulgas Avenue, Tara Street, Bay Road, Weeks Street, and the new east-west connector road. The pipe system would extend east-west for a short distance south of 391 Demeter Street. The water would be pressurized throughout this system.
- A 1.8-million-gallon storage tank at the end of Tara Street for fire suppression and emergency supply.

b. Sanitary Sewer System

New components of the system would be as follows:

- New sanitary sewer pipes east of Illinois Street and north of Bay Road will connect in a gravity system to the main trunk line on Bay Road, which will have its lowest point at the intersection of Pulgas Avenue. The main line will run south on Pulgas Avenue to the intersection of Weeks Street, where it will turn east to connect with the existing sewer line that runs south along the levee, down to O'Connor Street and east at the Friendship Bridge, towards the Palo Alto Sanitary Sewer Plant.[8]
- Replacement of the existing 18-inch pipe in the levee at Weeks Street with a 21-inch pipe. This may not be necessary for several decades until sufficient development has occurred to warrant it. The timing of this replacement would be up to the East Palo Alto Sanitary District.

Note that 391 Demeter Street and the northernmost part of the industrial area are served by the West Bay Sanitation District (WBSD). There is an existing WBSD pumping station on the property. No upgrades are included in the DEPLAN, and therefore in the Specific Plan, for 391 Demeter Street. A system would be needed if the property were to be developed

[8] The existing sewer pipe system also connects on Bay Road, but it has its lowest point at the intersection of Tara and Bay Roads, from where it runs south, parallel to the PG&E western property line to connect to the sewer line running along the levee.

c. Storm Water System

The southern portion of the Specific Plan Area is currently served by the Runnymede storm drain system. An additional new Ravenswood system would be built and would join the Runnymede system at the point of discharge into the existing surface channel at the end of Runnymede Street.

The Ravenswood storm water system would be designed to provide flood protection as a consequence of storm drain back-up in most of the Specific Plan area for which redevelopment is proposed. The system would be designed to cope with largest storm that could realistically be expected once every 25 years (the 25-year storm).

The following storm water upgrades would be included as part of the Specific Plan:

- A new storm drain pipe along Bay Road (up to approximately 600 feet west of the edge of the Specific Plan boundary), and along the southernmost parts of Demeter Street, Pulgas Avenue north of Bay Road, and portions of Weeks Street. The force main would run along Pulgas Avenue south of Bay Road and connect to two box culverts along Runnymede Street.
- A new storm drain force main along Demeter Street (up to approximately 300 feet south of Purdue Avenue); Pulgas Avenue (south of the east-west connector road); Tara Street (mostly south of the connector road); and the easternmost portions of Bay Road.
- Dredging, grading, and culverting of the stormwater channel from the end of Runnymede Street to the detention basin on O'Connor Street next to the levee to take 100-year flows. A berm would be built along the west side of the length of the detention channel to restrict the main channel overflows and allow water to back up from the pumping station and be held in the channel. The pond would also be dredged.[9,10]

[9] Enlarging the retention basin is considered a viable substitute to costly upgrades of the pump station and lift station.

Note that no upgrades are planned for the northern portion of the Specific Plan Area north of the terminations of the storm drain force mains on Pulgas Avenue and Tara Street south of the east-west connector road.

d. Other Utilities

Some of the buried conduits would be placed in joint trenches carrying electrical power, cable TV, phone, fiber optic, and gas lines.[11]

e. Circulation Improvements

Improvements to the circulation network are described above in Section E.4.a.

f. Phasing

Phase I would include buildout of Bay Road from University Avenue to Tara Street. In order to build out the complete utilities and roadway improvements of Bay Road, the utility lines must first be constructed in Bay Road and south of Bay Road on Pulgas Avenue, Weeks Street, and Runnymede Street, and the dredging of the new 2,100-foot channel to the detention pond at the O'Conner Pump Station must also be completed. Additionally, all of the utilities downstream of Bay Road need to be installed for the Bay Road drainage and wastewater system to maintain positive flow to the existing downstream connections. Since trenching will be taking place for the gravity utilities, the remaining utilities will be installed during this phase so that the roadway can be reconstructed after all of the utilities are in place. The timing and order of the remaining phases has not yet been determined, as it will depend upon the timing of future development in the Plan Area.

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[10] Memo from Wilsey Ham to Sean Charpentier, City of East Palo Alto, dated October 30, 2008. Re: RBD Storm Drain Study: Re-routed to the channel and the O'Connor Pump Station.

[11] Original DEPLAN maps showed several overhead high voltage lines that would be undergrounded. These have since been removed from the DEPLAN and,

7. Grading and Trenching

As much of the current area lies within the 100-year flood plain, grading would be required to bring structures above the level of the flood plain, or engineered so that they are not significantly affected by hydrostatic forces. This grading would occur on a project level as part of private development.[12] However, streets will not generally be graded to above the flood plain level, and storm drains and sanitary sewers may be installed below this level.

Trenches dug in the area are likely to reveal soil and groundwater contamination that requires remediation and offsite treatment and disposal.

8. School and Health Clinic Expansions

Development under the Plan could generate an expanded student-age population that could result in the need for a new school. The Specific Plan does not identify a location for a school nor the type of school and responsible district.

An expansion of the Ravenswood Health Center at 1798 Bay Road is also anticipated. It would be part of the private development anticipated in the Plan.

F. General Plan Amendments

The Specific Plan will require a number of General Plan Amendments to ensure consistency between the Specific Plan and the City's General Plan. The analysis in this EIR reflects these amendments, which the City will adopt as

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therefore, the Specific Plan. If these are undergrounded it would be the responsibility of the private developer who would need CEQA clearance for this activity.

[12] The DEPLAN maps show areas that would need to be filled to raise them above the current FEMA-designated 100-year flood area by adding fill for each private development. As indicated by Wilsey Ham, some of these areas are within the 100-foot setback from the probable line of San Francisco Bay Area Conservation and Development Commission (BCDC) jurisdiction, based on potential wetlands.

required by State law. Changes to General Plan land use designations are shown in Figure 3-4. As shown, the Specific Plan re-designates properties using existing designations already identified in the General Plan, with the exception of four new designations, R&D/Industrial, Light Industrial, Mixed Use and Industrial/Office Flex. These four designations are described as follows:

- **R&D/Industrial.** As shown on Figure 3-4, the R&D/Industrial designation is proposed to be applied to several properties north and south of Bay Road within the Ravenswood area. The R&D/Industrial designation provides for a variety of light industrial, R&D, and manufacturing uses that are non-polluting and which can co-exist with surrounding land uses, and which do not in their maintenance, assembly, manufacturing or operations create smoke, gas, dust, sound, vibrations, soot, or glare to any degree which might be obnoxious or offensive to persons residing or conducting business in the City. Allowable uses include wholesale businesses, light manufacturing and processing, R&D uses, offices, warehousing and storage, distribution and sales, high technology production, retail sales, and related uses. Other uses that are determined to be compatible with the primary uses may also be allowed. The expected intensity of development is a FAR of 0.5:1 and the maximum intensity of development is a FAR of 2.0:1.

- **Light Industrial.** As shown on Figure 3-4, the Light Industrial designation is proposed along Demeter Street and Weeks Street, to serve as a transition between R&D/Industrial land and residential areas. This designation will allow R&D uses, professional and business offices, industrial sales and service offices and other uses providing a transition between residential and general/heavy industrial uses.

- **Mixed Use.** As shown in Figure 3-4, the Mixed Use land use designation is proposed to be applied to properties at the intersection of University Avenue and Bay Road, as well as other properties that front onto Bay Road. This designation provides for multi-story vertical mixed-use development, although horizontal mixed use may also be appropriate at certain locations. In this designation, active uses such as retail are re-

quired on the ground floor, with residential units on upper floors. To a more limited extent, upper-floor office uses are permitted above retail. Ground-floor offices and community facilities may also be appropriate in certain circumstances. In all cases, this designation is intended to provide for new development that will contribute to an active and pedestrian-oriented Bay Road.

- **Industrial/Office Flex.** The Industrial/Office Flex land use designation is proposed to be applied along the east side of Tara Street and on the large parcel at the current northern terminus of Demeter Street. This designation provides for a flexible zone that encourages either professional offices or high-quality R&D or light industrial uses. Some limited commercial service activities may also be appropriate within this designation, provided that they offer support for office or R&D/industrial uses.

Additional General Plan amendments include the following:

- Update to bike map
- Revisions to the General Plan Roadway Map
- Revisions to the Rail Transit Concepts Map

G. Zoning Amendments

This section describes amendments to the City's Zoning Ordinance that are necessary to implement the vision outlined in the Specific Plan.

The Specific Plan contains a chapter identifying development standards for new projects within the Plan Area. The development standards in the Specific Plan will modify the allowable uses and development standards in the existing Zoning Ordinance. To implement these modified standards, the City will adopt a Zoning Ordinance Amendment incorporating the land use and development regulations and guidelines included in the Specific Plan. For those provisions not covered in the Specific Plan, the requirements in the City's existing Zoning Ordinance will apply. Where conflicts exist, the provisions in the Specific Plan will apply.

H. Consultation Requirements

California Senate Bill 18 (2004) mandates that Cities contact and consult with California Native American tribes in preparation of Specific Plans. Tribal consultation has been undertaken for the Specific Plan.

As development occurs, consultation with the San Francisco Bay Area Conservation and Development Commission (BCDC) will be required. BCDC's jurisdiction on San Francisco Bay includes all sloughs, marshlands between mean high tide and five feet above mean sea level, tidelands, submerged lands, and land within 100 feet of the Bay shoreline. The precise boundary is determined by BCDC on request. Projects approved by BCDC must be consistent with their master planning document, the Bay Plan.

Consultation would be required with the U.S. Army Corps of Engineers and U.S. Fish & Wildlife Service for excavation in wetland areas.

I. Required Permits and Approvals

The following permits and approvals are required for Specific Plan adoption. Additional permits and approvals would be necessary at a later date for specific projects under the Specific Plan.

- Approval of the Water Supply Assessment (WSA) by the City Council.
- Certification of the EIR by the East Palo Alto City Council.
- Adoption of the Specific Plan by the East Palo Alto City Council.
- Adoption of a series of General Plan amendments to ensure required consistency between the East Palo Alto General Plan and the Specific Plan.
- Adoption of a Zoning Ordinance Amendment incorporating the land use and development regulations and guidelines included in the Specific Plan.

4 ENVIRONMENTAL EVALUATION

This chapter evaluates the direct, indirect, and cumulative environmental impacts of the Plan by examining the following environmental issue areas:

- Aesthetics
- Agriculture and Forestry Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Geology, Soils, and Mineral Resources
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Noise
- Population and Housing
- Public Services and Recreation
- Transportation/Traffic
- Utilities and Service Systems

A. Chapter Organization

This chapter consists of 14 sections that evaluate the environmental impacts of the proposed Park. Each issue area uses the same format and consists of the following subsections:

- The *Regulatory Setting* section describes which local, State and/or federal regulations are applicable to the Plan.
- The *Existing Conditions* section describes current conditions with regard to the environmental factor reviewed.
- The *Standards of Significance* section describes how an impact is judged to be significant in this EIR. These standards are derived from CEQA Appendix G Guidelines unless stated otherwise.
- The *Impact Analysis* assesses potential impacts (direct and indirect), and tells why impacts were found to be significant or less than significant.

The impact determination is summarized at the end of the checklist heading, and impact statement, as ***SU (Significant and Unavoidable), LTS with Mitigation (Less than Significant with Mitigation), LTS (Less than Significant),*** and ***NI (No Impact)***.

- The *Cumulative Impacts* section analyzes impacts that the Plan may have when considered in addition to other past, present, and reasonably foreseeable projects. (See further discussion below.)
- The *Impacts and Mitigation Measures* section numbers and lists identified impacts, and presents measures that would mitigate each impact. In each case, the significance following mitigation is also explained.

B. Cumulative Impact Analysis

A cumulative impact consists of an impact created as a result of the combination of the project evaluated in the EIR, together with other reasonably foreseeable projects causing related impacts. Section 15130 of the CEQA Guidelines requires an EIR to discuss cumulative impacts of a project when the project's incremental effect is "cumulatively considerable."

Where the incremental effect of a project is not "cumulatively considerable," a Lead Agency need not consider that effect significant, but must briefly describe its basis for concluding that the incremental effect is not cumulatively considerable. Where the cumulative impact caused by the project's incremental effect and the effects of other projects is not significant, the EIR must briefly indicate why the cumulative impact is not significant.

The cumulative discussions in Chapters 4.1 through 4.14 explain the geographic scope of the area affected by each cumulative effect (e.g. immediate Plan Area vicinity, City of East Palo Alto, Palo Alto — East Palo Alto — Menlo Park area, or air basin). The geographic area considered for each cumulative impact depends upon the impact that is being analyzed. For example, in assessing aesthetic impacts, only development within the vicinity of the Plan Area would contribute to a cumulative visual effect because that is

the only area in which the Plan Area is visible. In assessing macro-scale air quality impacts, on the other hand, all development within the air basin contributes to regional emissions of criteria pollutants, and basin-wide projections of emissions is the best tool for determining the cumulative effect.

The CEQA Guidelines provide two approaches to analyzing cumulative impacts. The first is the "list approach," which requires a listing of past, present, and reasonably anticipated future projects producing related or cumulative impacts. The second is the projections-based approach, which summarizes the relevant growth projections contained in an adopted General Plan or related planning document that is designed to evaluate regional or area-wide conditions. A reasonable combination of the two approaches may also be used.

The cumulative impact analysis in this Draft EIR uses both a projections-based approach and list approach, depending on the topic under consideration. For some environmental topics (such as traffic, air quality, greenhouse gas emissions, and noise), a greater geographic extent is used for the cumulative analysis and foreseeable development projects outside of the City of East Palo Alto are taken into consideration. The list below includes all development projects for the Specific Plan area and those within a mile in East Palo Alto and Menlo Park. Only large projects farther than a mile were included, and these were in all in Menlo Park.[1] The SFPUC water system improvement is included here as it involves considerable construction.

[1] The traffic analysis included these projects as well as those farther from the Specific Plan area. For the more extensive list, see Appendix F from the Traffic/Transportation Survey Report, which is included in Appendix 3 to this Draft EIR.

C. *Development Proposals*

1. Within the Specific Plan Area

New development within the Plan Area has been limited over the past decade. However, a variety of development proposals have been submitted to the City for review and approval, including all of the following.

- **2896 University Avenue.** This is at the northwestern corner of the Specific Plan Area. It is included in the Housing Element as containing six dwelling units, of which one is low income, three are moderate income, and two are above-moderate income.
- **Clarum 4 Corners (2398 University Avenue).** This project, located at the southeast of 4 Corners, would provide 115 residential units, including 23 affordable units. It would also include 16,000 square feet of retail uses. The developer has entered into a Disposition and Development Agreement (DDA) with the Redevelopment Agency and has received entitlements for the project.
- **DKB Homes/Pulgas Mixed Use (2485 Pulgas Avenue).** This horizontal mixed-use project consists of 51 residential units (49,060 square feet) and seven live-work condominiums west of Pulgas Avenue. This project has been entitled for development and a final map for the residential portion of the project has been issued. Across Pulgas Avenue, the mixed-use project consists of approximately 50,000 square feet of office/flex space. The entire project has been entitled for development.
- **151 Tara Street.** This project, which has been approved by the City, would provide a total of 44,080 square feet of office/flex space. Grading for this project has begun.
- **Olson Townhomes (965 Weeks Street).** This project would include 55 residential townhomes, including 12 affordable units, and has been approved by the City. The City acquired the land and entitlements associated with this project in spring 2009.
- **Cooley Landing Park.** A 9-acre City park is planned for Cooley Landing at the end of Bay Road. An initial study has been completed.

2. Outside the Specific Plan Area But Within East Palo Alto

- **University Plaza (Donohue Street and University Avenue).** This is a large mixed-use project 0.6 miles south of the Plan Area's southwest corner close to Highway 101, northwest of the IKEA building. The existing structures have already been demolished. The total development is 190,000 square feet of class A office and 2,000 square feet of ground-floor retail.
- **Fire Station Rebuild (2290 University Avenue).** The fire station at 2290 University Avenue will be rebuilt replacing the existing station and two single-family homes. This project is one quarter mile south west of the Plan Area.
- **992 Runnymede Street**. This is slightly southwest of the Plan Area boundary. It is included in the Housing Element as containing five dwelling units, of which one is low income and four are moderate income.
- **725 Runnymede Street**. This is south of the southwestern corner of the Plan Area. It is included in the Housing Element as containing six dwelling units, of which one is low-income and five are above-moderate income.
- **805 Runnymede Street**. This is south of the southwestern corner of the Plan Area. It is included in the Housing Element as containing six dwelling units, of which one is low-income and five are above-moderate income.
- **1010 Runnymede Street**. This is south of the southeastern corner of the Plan Area. It is included in the Housing Element as containing eight dwelling units, of which one is low-income and seven are above-moderate income.
- **791 Weeks Street**. This is just south of the southern boundary of the Plan Area. It is included in the Housing Element as containing seven dwelling units, of which one is low-income and six are above-moderate income.

- **952 Beech Street**. This is south of the southern boundary of the Plan Area. It is included in the Housing Element as containing one dwelling unit, which is above-moderate income.
- **1125 Westminster Street**. This is in the southwest corner of East Palo Alto, and 0.7 miles west from the southwest corner of the Plan Area. It is included in the Housing Element as containing one dwelling unit, which is above-moderate income.

3. Menlo Park Within a Mile of the Specific Plan Area

- **BD1 Pipeline Replacement.** The San Francisco Public Utilities Commission (SFPUC) is installing a new pipeline, BDPL 5 to run alongside the existing pipelines of BDPL 1 and 2 from Redwood City to the Ravenswood Valve Lot in Menlo Park within the SFPUC right-of-way. Construction began in March 2010 and is expected to be finished in April 2012 and would not therefore greatly affect the Specific Plan Implementation.[2]
- **Bay Tunnel.** SFPUC is also excavating a tunnel under the Bay from the Ravenswood shaft site in Menlo Park just north the Dumbarton Rail Bridge, 500 feet north of the Plan Area. The tunnel goes under the tidal wetlands of Ravenswood Open Space, and under the southern spur of the Dumbarton Rail Line to the Bay. Construction on the shaft began August, 2010 and is ongoing, expected to be finished in 2015.[3] The project also involves a temporary electrical substation that interconnects with

[2] SFPUC. Online at http://sfwater.org/bids/projectDetail.aspx?prj_id=266. Accessed July 29, 2011.

[3] SFPUC. Online at http://sfwater.org/bids/projectDetail.aspx?prj_id=259. Accessed August 29, 2011.

PG&E's 115 KV transmission line.[4] A maintenance yard might be established at the Ravenswood tunnel entry. [5]

- **Facebook Campus.** Facebook has moved its operations to a project site in the City of Menlo Park and plans to substantially increase in size. In December 2011, Facebook began occupying the East Campus as part of the first phase of the project and intends to expand to the West Campus in the second phase of the project. An EIR has been released and is under review.[6]
  - **East Campus (1601 Willow Road).** The former Sun Microsystems site would be redeveloped as the Facebook East campus. Although the buildings would largely be re-used, a rise of employees from 3,600 to 6,600 is expected. Facebook is applying for an amendment to existing land use approvals for the East Campus to eliminate the maximum employee cap and substitute a vehicular trip cap of 15,000 daily and 2,600 two-hour peak period trips.[7]
  - **West Campus (312-314 Constitution Dr).** The West campus would be developed on a 22-acre site formerly owned by General Motors (GM). The existing buildings at the site would be demolished and the 433,700 square feet of new office space would accommodate approximately 2,800 employees.[8]

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[4] SFPUC, 2010. *Bay Division Pipeline Reliability Upgrade Project. Bay Tunnel. Factsheet.* September.

[5] SFPUC, 2005. *SFPUC Water System Improvement Program Final Program Environmental Impact Report.* Available online at http://www.sf-planning.org/Modules/ShowDocument.aspx?documentid=6812.

[6] City of Menlo Park, 2011. *Menlo Park Facebook Campus Project. Draft EIR.* State Clearinghouse Number 2011042073. December 7.

[7] City of Menlo Park, 2011. *Notice of Preparation of an Environmental Impact Report for the Menlo Park Facebook Campus Project.* State Clearinghouse Number 2011042073. April 21.

[8] City of Menlo Park, April 19, 2011. *Notice of Preparation of an Environmental Impact Report for the Menlo Park Facebook Campus Project.* Online at

- **Police/City Service Center (1283 Willow Road)**. A mixed-use development is under construction east of Highway 101. There will be 3,800 square feet of office and 5,096 square feet of retail.
- **Dumbarton Rail Corridor and Station.** Plans have been developed to re-start passenger service on a train line over the Dumbarton Bridge, to connect to the Caltrain service on the Peninsula. The Plan is under environmental review and a Draft EIS/EIR is being prepared.[9] As noted in Chapter 4.14, Transportation/Traffic, of this Draft EIR, traffic to and from stations has been included in general terms within traffic forecasts. However, the station proposed for Menlo Park, east of University Avenue just north of the plan area is not included as the location has not yet been chosen.

4. Menlo Park More Than a Mile from the Specific Plan Area

- A new Specific Plan for the El Camino Real/Downtown Menlo Park area is in progress. This would result in 91,800 square feet of retail, 240,820 square feet of office, 380 square feet of hotel, and 680 square feet of residential development.
- As a separate project the civic center would be developed for a 24,100 square-foot gymnasium, 800-square-foot recreational center, and the demolition of a 17,400 square-foot gymnasium and construction of a new 19,400-square-foot gymnasium.

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http://service.govdelivery.com/docs/CAMENLO/CAMENLO_176/CAMENLO_176_20110419_en.pdf.

[9] Minutes of the San Mateo County Transportation Agency (SMCTA) Dumbarton Rail Policy Advisory Committee, April 2011. Online at http://www.smcta.com/dumbarton_rail/agenda/PAC_Agenda_Packet_04-22-2011.pdf.

4.1 AESTHETICS

This chapter describes the existing aesthetic character of the Ravenswood/4 Corners Transit-Oriented Development Specific Plan Area and evaluates the potential impacts of the Plan on aesthetic character. A summary of the relevant regulatory setting and existing conditions is followed by a discussion of Plan-specific and cumulative impacts.

A. Regulatory Framework

This section summarizes local policies and regulations that are relevant to the CEQA review process for aesthetics. Two documents—the Zoning Ordinance and Subdivision Ordinance—contain regulations to maintain the aesthetic quality of the City's built environment. Each of these is described below.

1. Zoning Ordinance

East Palo Alto's Zoning Ordinance implements the General Plan by providing detailed requirements for the allowable land uses and development standards on each parcel. Development standards include requirements such as the maximum building height and the minimum setbacks from lot lines. Similar to the General Plan's land use designations, the Zoning Ordinance includes zoning districts, which each have their own unique set of allowed uses and development standards. This would be updated following adoption of the Specific Plan. Among the primary objectives of the zoning standards are the regulation of building form, placement and density and the provision of sufficient parking and open spaces with development.

2. Subdivision Ordinance

The regulations in the Subdivision Ordinance are established to ensure the orderly development of lands partially or wholly within the incorporated City. The Ordinance also provides standards for surveying, design and construction, and installation of relevant infrastructure.

3. General Plan

Aesthetics is addressed in the Land Use and Economic Development Elements. Table 4.1-1 summarizes the relevant goals and policies to aesthetics.

4. Residential Design Guidelines

An administrative draft of the City of East Palo Alto Residential Design Guidelines was released in January of 2010. The Guidelines have not been officially adopted at the time this Draft EIR was written. These guidelines establish community expectations for residential development that is respectful of neighborhood context. These guidelines are intended to facilitate high-level project review and ensure that new development is compatible with its surroundings and reinforces unique elements of the City's visual quality. They are applicable to all residential development within the City that requires a discretionary approval or building permit.

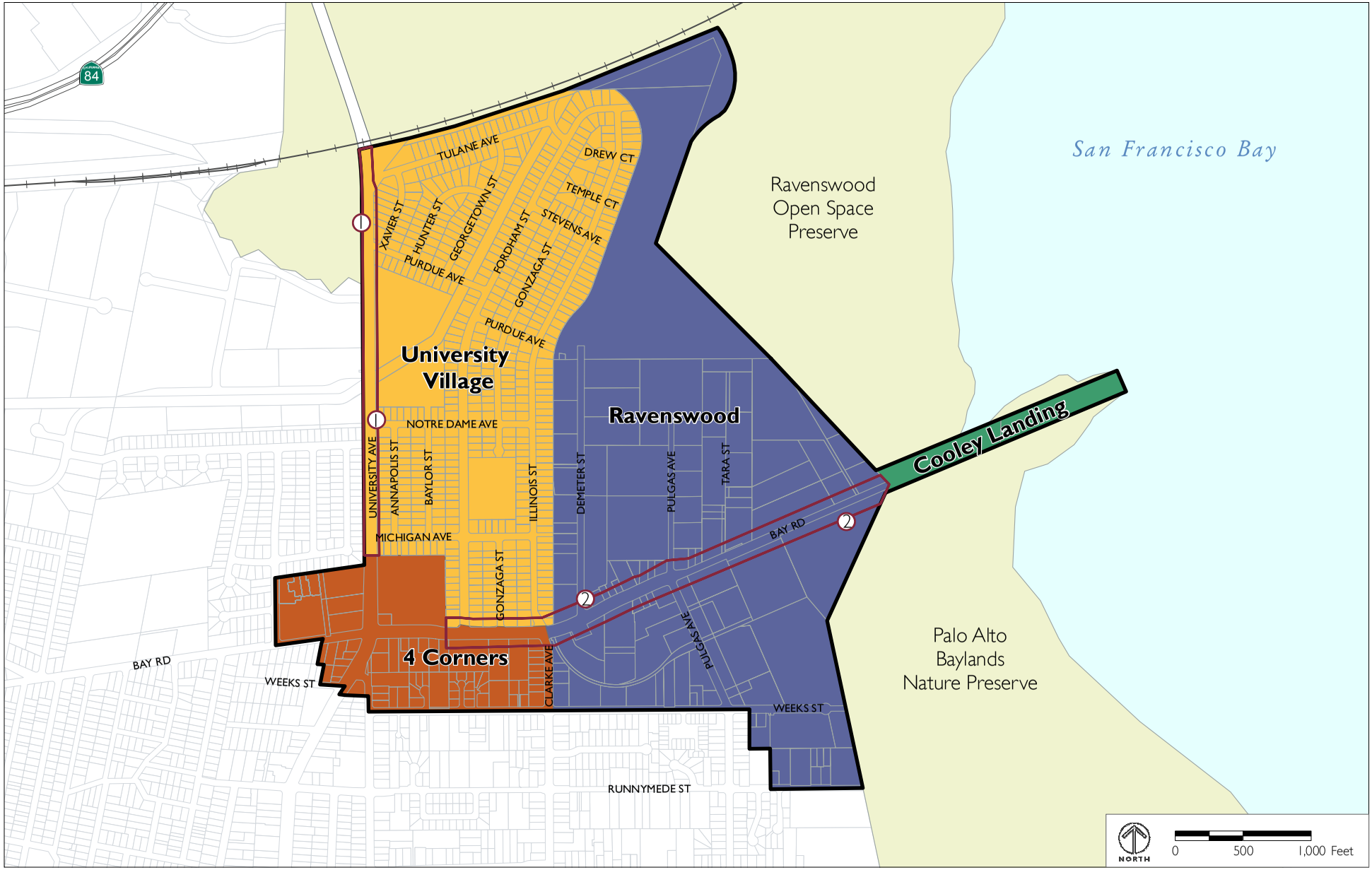
5. Scenic Highways

The California Scenic Highway Program, maintained by the California Department of Transportation (Caltrans), protects scenic State highway corridors from changes that would diminish the aesthetic value of lands adjacent to the highways. According to the California Scenic Highway Program, there are no State-designated scenic highways within the City of East Palo Alto or within the Plan Area. State Route 84 is designated as a scenic highway within Alameda County, but not in San Mateo County.[1]

B. Existing Conditions

This section provides a general description of the existing urban character and visual quality of the Specific Plan Area. As shown in Figure 4.1-1, the Plan Area can be divided into four distinct subareas with different aesthetic qualities: the Ravenswood Subarea, the 4 Corners Subarea, the University Village

[1] California Department of Transportation website, Officially Designated State Scenic Highways, http://www.dot.ca.gov/hq/LandArch/scenic/schwy.htm, accessed October 24, 2010.



Source: City of East Palo Alto, 2009; DC&E, 2009.

- Plan Area
- University Avenue Corridor
- Bay Road Corridor
- Baylands
- Railroad

FIGURE 4.1-1

URBAN DESIGN SUBAREAS

TABLE 4.1-1 ***GENERAL PLAN POLICIES RELEVANT TO AESTHETICS***

Goal/Policy Number	Goal/Policy Content
Land Use Element	
Goal 2.0	Create an enhanced image and identity for East Palo Alto.
Policy 2.1	Enhance the image of the community by improving the appearance of public areas and entrances to the City along University Avenue, Bay Road, Willow Road, and Newbridge Street.
Policy 2.2	Promote high quality in the design of all public and private development projects.
Goal 3.1	Enhance the character of community neighborhoods.
Policy 3.1	Preserve and enhance the quality of East Palo Alto neighborhoods by avoiding or abating the intrusion of disruptive, non-conforming buildings and uses.
Policy 3.2	Ensure that new development is compatible with the physical characteristics of its site, surrounding land uses and available public infrastructure.
Policy 3.3	Utilize programs for rehabilitation of physical development within the City to improve community neighborhoods.
Economic Development Element	
Goal 8.0	Improve the City's image through promotion of its desirable characteristics, including natural, human and historical resources, and its locational characteristics (transportation, real estate, bridge, climate, bay views) and environmental features.
Policy 8.2	Maintain adequate environmental controls to preserve and provide an attractive and healthy environment, and maintain strong controls to enhance the viability of neighborhoods.
Conservation and Open Space Element	
Goal 1.0	Identify and conserve important historic, archaeologic, and palentologic resources.
Policy 1.2	Protect and conserve buildings or sites of historic significance.
Goal 2.0	Preserve and enhance important natural resources and features.

Goal/Policy Number	Goal/Policy Content
Policy 2.1	Conserve, protect, and maintain important natural plant and animal communities, such as the baylands, Cooley Landing, San Francisquito Creek, the shoreline, and significant tree stands.
Policy 2.2	Conserve and protect important watershed areas and soils through appropriate site planning and grading techniques, revegetation and soil management practices, and other resource management techniques.
Policy 2.3	Preserve existing and increase the number of trees within the community.
Policy 2.4	Maximize enjoyment and promotion of natural resource areas, such as the baylands, Cooley Landing, San Francisquito Creek, and the shoreline.

Source: East Palo Alto General Plan, 1999.

Subarea, and the Cooley Landing Subarea. These subareas generally contain similar land uses, retain similar urban design character, or share a similar geography. In addition to these subareas, the two major corridors in the Plan Area, University Avenue and Bay Road, are described below. Key viewsheds are shown in Figure 4.1-2.

1. Visual Character

The Plan Area occupies a unique location within East Palo Alto and the region. Physical development historically has been influenced by proximity to the Bay and transportation corridors. Cooley Landing was originally the only port between San Francisco and San Jose. This proximity to transportation influenced the nature of economic development, with industries such as brick manufacturing taking advantage of easy connections to the bay and other points on the peninsula. Bay Road's alignment with Cooley Landing demonstrates the early importance of this bay connection. Later economic development was agricultural, with a utopian goal of a community of small-scale, independently owned farms. Some of the long and narrow parcels that

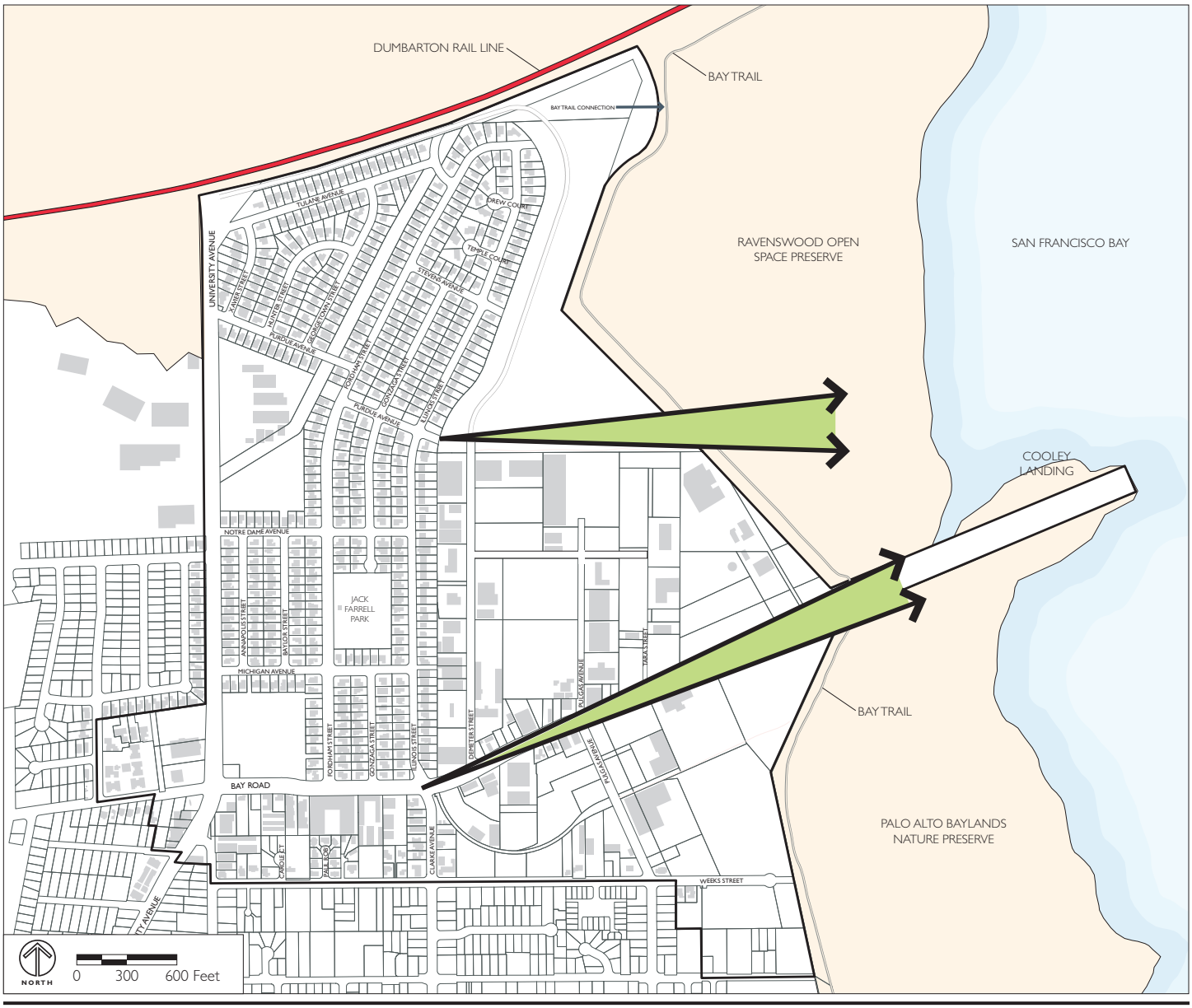


FIGURE 4.1-2

KEY EXISTING SPECIFIC PLAN AREA VIEWSHEDS

remain today in the southern portion of the Ravenswood Subarea are evidence of this history.

Another impact on the physical layout of the Plan Area is the Dumbarton Rail line and other rail spurs, which determined the layout of lots in the northern portion of the Ravenswood Subarea. The rail boundary also created a strong eastern edge to University Village, which was laid out in the 1950s. This boundary still divides this part of East Palo Alto into a mostly residential western side and a mostly industrial eastern side. The 4 Corners and University Village Subareas lie to the west, and the Ravenswood and Cooley Landing Subareas are to the east.

a. Ravenswood Subarea

The Ravenswood Subarea comprises the eastern portion of the Plan Area, which includes the Ravenswood Business District (RBD), a small residential area south of Weeks Street, and a swath of vacant land west of the Ravenswood Open Space Preserve. Photos of this subarea are shown in Figure 4.1-3.

Streetscapes in the Ravenswood Subarea are of generally low visual quality. Most are auto-oriented and contain few pedestrian-oriented elements, such as benches, street lamps, crosswalks, sidewalk bulbouts, or pedestrian-scaled landscaping. This Subarea contains a variety of structures, the majority of which are utilitarian in character and were designed for their industrial use. Each building has been built with space around it, and most have the entrance on the far side, away from the street. This creates an inconsistent built edge to the streetscape. The structures are generally single-story, large floorplate buildings greater than 15 feet in height so as to accommodate trucking, loading, and shipping activities. For many of these properties, the prominent feature from the street is the fencing, which is often 6 feet high or more.

Vacant land and storage areas make the visual character of the area seem discontinuous, and property lines are often indistinguishable.

East Palo Alto Corporation Yard on Tara Street.

Office building on Demeter Street.

Vacant land on Demeter Street.

Industrial development on Pulgas Avenue, south of Bay Road.

Pulgas Avenue looking south.

Police facility on Demeter Street.

FIGURE 4.1-3

RAVENSWOOD SUBAREA

The visual character of the southeast corner of this subarea is somewhat different. It is defined by vacant lots and some limited residential uses. Single-family homes are generally single-story and set back significantly from the street, as on other portions of Weeks Street. A group of single-family homes is located on the north side of Runnymede Street, just east of Veronica Court. The orientation of these homes varies, but most of the homes do not engage Runnymede Street directly. Roofs of these homes are tiled and pitched, and generally two stories tall.

b. 4 Corners Subarea

The 4 Corners Subarea is shown in Figure 4.1-4 and includes the areas surrounding the Bay Road/University Avenue intersection, as well as the residential areas south of Bay Road along Weeks Street.

The primary physical feature of 4 Corners is the intersection at the corner of the two most significant roads in the Plan Area, University Avenue and Bay Road. The visual quality of this intersection does not reflect the importance of its constituent boulevards. On three of the four corners are modest 1-story structures with flanking parking lots. On the fourth corner is a large vacant lot with a fence.

Away from this primary intersection, visual quality changes in four different ways. Up University Avenue to the north is the San Mateo County East Palo Alto Government Center building, a 3-story building from the 1970s with precast concrete and horizontal windows. It is the home of East Palo Alto's City Hall, as well as the East Palo Alto Branch Library. Down University Avenue to the south are single-story commercial buildings that line both sides of University Avenue. The buildings on the west side are brightly painted; they engage the street and have no side or front setbacks. On the east side, south of the concrete block post office, there is a commercial strip that is set back behind parking.

To the west of the intersection, there are a number of commercial buildings on the south side of Bay Road, some of them offices in converted houses, and

Bay Road/University Avenue intersection with large vacant lot.

East Palo Alto City Hall.

Restaurant and stores at southwest corner of Bay Road/ University Avenue intersection.

Post office at southeast corner of Bay Road/University Avenue intersection.

Shopping center on University Avenue south of Bay Road.

Apartments on Bay Road, east of University Avenue.

FIGURE 4.1-4

4 CORNERS SUBAREA

many of which are set back considerably from the street with surface parking areas in front. Across Bay Road from these offices are recently built and well-maintained two-story apartments with landscaped setbacks and prominent trellis features, marking entries to a shared open space. To the east of University Avenue on Bay Road are more apartments, old and new, some well maintained and others not. The apartment buildings have pitched roofs, and their facades are composed of brick and concrete materials. These buildings are set back moderately from Bay Road and help to frame the street.

c. University Village Subarea

The University Village Subarea, shown in Figure 4.1-5, is an established single-family residential neighborhood within the Plan Area. It is constrained geographically by University Avenue to the west, Bay Road to the south and rail transportation rights-of-way to the north and east.

The street pattern of University Village consists of long, narrow blocks arranged in a north-south oriented grid. The grid bends slightly towards the northeast at roughly the midpoint. At the northern end, the streets have a more curving nature.

Homes in the University Village Subarea are generally single-story, with very few two-story homes. These houses generally have low-pitched roofs and simple façades. They were probably built in a very consistent style, but over time have taken on distinct characteristics due to the taste and inclination of their owners. The colors of homes in this neighborhood vary widely, and many are painted with vibrant, bright colors. They have consistent setbacks from the street, generally 15 to 20 feet. Garages face the street and are prominent.

Most homes in this subarea are fenced on all sides, with ornamental fencing at the front. Fencing materials are varied, but often contain some combination of brick and iron or steel. Creative fencing ornamentation is enthusiastically embraced by many owners.

Single-story single-family home.

Vacant lot and overhead electrical lines.

Two-story single-family home.

Jack Farrell Park.

San Francisco Public Utilities Commission right-of-way, looking north.

Fordham Street looking south.

FIGURE 4.1-5

UNIVERSITY VILLAGE SUBAREA

Streetscapes in the University Village Subarea are defined by the width of the streets, fencing and automobile parking. The streets are quite narrow—approximately 30 feet from curb to curb (except for Fordham Street, which is around 40 feet wide)—and they have parking along both sides that is heavily utilized. The continuous line of parked automobiles provides a physical separation between the sidewalk and street. It also calms traffic by narrowing the street width and forcing drivers to slow to pass each other.

Although the homes are set back significantly from the streets, the presence of front fences creates a sense of enclosure on streets and a strong physical separation between the public right-of-way and the private properties.

Street trees are generally not located within the right-of-way, but they exist in yards and in some streetscapes to a limited extent.

d. Cooley Landing Subarea

The Cooley Landing Subarea, shown in Figure 4.1-6, is located at the east end of Bay Road, between the Ravenswood Open Space Preserve and Palo Alto Baylands Nature Preserve.

Cooley Landing was originally a deep-water wharf used for shipping activities, and later functioned as a dump for San Mateo County. It is now a largely undeveloped open space. The larger part of the Landing is closed to vehicular traffic. As of November 2009, it primarily consisted of grasslands. However, a former boat repair facility, known as the Boatworks Building, is also located there. The building is built from wood and has pitched roofs. Windows are now boarded, and the building lies completely vacant. A deteriorated boat lift apparatus is also present at the site. A wide variety of vegetation is present in this subarea, including mature trees, shrubs, grasslands, and coastal scrub. Plans are underway to develop Cooley Landing as a City park.[2]

[2] City of East Palo Alto, 2010. *Cooley Landing Vision Plan.* Sept., 2010. Available at www.cooleylanding.org

Boatworks building.

Site of former dredge.

Vegetation on Cooley Landing.

Jetty projecting into the bay.

Former boat lift.

View of San Francisco Bay from Cooley Landing.

FIGURE 4.1-6

COOLEY LANDING SUBAREA

e. Key Corridors

Bay Road and University Avenue are the primary transportation corridors in East Palo Alto, as well as in the Plan Area. Most residents and visitors to the Plan Area travel on one or both of these roadways, and the perceptions formed by the visual quality of these corridors have a strong influence on the overall impression of the Plan Area.

i. Bay Road Corridor Built Form

Figure 4.1-7 shows the Bay Road Corridor. In the western, residential portion of Bay Road from Fordham Street to Illinois Street, multi-family apartment buildings are the predominant use on the south side of the street. On the northern side of this portion of the Bay Road Corridor, the street is lined by side yard fences of single-family homes.

Development along Bay Road east of Illinois Street exhibits an industrial character. Buildings are usually single-story and contain few windows, which is a result of their industrial function. Buildings are often composed of brick and metal materials.

From Tara Street to Cooley Landing, the Bay Road Corridor retains strong industrial character, with large warehouses, outdoor storage, and high fencing around many properties. The area feels open and almost neglected in character due to the presence of undeveloped land, storage areas and discontinuity in built structures.

ii. University Avenue Corridor Built Form

Figure 4.1-8 shows the University Avenue Corridor. In the stretch of University Avenue north of 4 Corners, a sense of enclosure from buildings is generally non-existent. Due to its function as a vehicular corridor, most properties along the corridor face away from University Avenue. Therefore, rear yards of properties adjacent to the corridor help define the character of built form. In most cases, 6-foot-high wooden or landscaped fencing runs on either side of the street. The Costaño Elementary School property north of Notre Dame Avenue and east of University Avenue contains several large

Recently built streetscape improvements and apartments near Fordham Street.

Former Rhône-Poulenc site at the east end of Bay Road.

Single-family home on south side of Bay Road.

Streetscape improvements and transit stop by Bay Road and Illinois Street.

Quonset hut east of Bay Road/Clarke Avenue intersection.

Streetscape near Bay Road/Pulgas Avenue intersection.

FIGURE 4.1-7

BAY ROAD CORRIDOR

Improved median and street trees with University Village neighborhood in background.

Costaño Elementary, adjacent to University Avenue.

University Avenue facing south.

Pedestrian walking on the side of the road on east side of University Avenue.

University Avenue streetscape with bike lane and narrow sidewalk.

Gateway signage in median south of Kavanaugh Drive.

FIGURE 4.1-8

UNIVERSITY AVENUE CORRIDOR

institutional buildings, which are visible from the Corridor. These buildings are two to three stories tall and are composed of brick. These buildings are separated from the Corridor by chain link fencing. A large office complex, located within Menlo Park, is located on the west side of the street to the north of Notre Dame Avenue. The majority of the structures in this office complex are screened from the University Avenue Corridor by landscaping. Utility infrastructure, including power lines and large utility towers, also contributes strongly to the visual character in the Corridor.

2. Scenic Corridors and Vistas

a. Ravenswood Scenic Views

Views to hillsides in the south are sometimes prominent in this subarea. Specifically, hillsides are clearly visible when looking south from Demeter Street and Tara Street. Views to hillsides in the north are also prevalent along Tara Street, where no development or topography is blocking the viewshed.

b. 4 Corners Scenic Views

Hillside views are prominent from this area, particularly to the east and west of the Bay Road/University Avenue intersection. Though partially blocked by development or obscured by turns in Bay Road, the hillsides add significantly to the visual character in the 4 Corners Subarea.

c. University Village Views

The University Village Subarea has limited views of the Baylands due to the narrow side yards between homes. Scenic views of the Baylands can be found in some places, such as public rights-of-way. Views to hillsides in the south and north are visible from the Tulane Avenue/Rutgers Street intersection.

d. Cooley Landing Scenic Views

Cooley Landing extends far into the San Francisco Bay and provides extensive, sweeping views of the Bay. Particularly notable are the views to Dumbarton Bridge to the north and Mission Peak to the east.

e. University Avenue Corridor Views

Several hillside views are present from the Corridor. Looking south from University Avenue, hillsides are clearly visible. To the north, hillside views become more prevalent north of Purdue Avenue, since large areas of undeveloped land create opportunities for long-distance views.

3. Light and Glare

Light pollution refers to all forms of unwanted light in the night sky, including glare, light trespass, sky glow and over-lighting. Views of the night sky are an important part of the natural environment. Excessive light and glare can be visually disruptive to humans and nocturnal animal species. Due to its largely residential and industrial character and bayside location, light pollution in the Plan Area is minimal, restricted primarily to night-time illumination of commercial buildings and key corridors, as well as street lighting. In addition, the Plan Area is subject to sky glow from regional urbanization in nearby cities and throughout the peninsula.

C. Standards of Significance

Visual changes associated with the Plan would be considered significant if the Plan would:

a. Have a substantial adverse effect on a scenic vista.

b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway.

c. Substantially degrade the existing visual character or quality of the site and its surroundings.

d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

CEQA significance thresholds address the physical impacts associated with visual changes; however, CEQA does not provide guidance on or require the consideration of design-related implications. That is, CEQA does not put

forth metrics or thresholds for determining whether a project would result in "good" urban design. Issues of design quality are outside of the scope of CEQA.

D. Impact Discussion

1. Project Impacts

a. Have a substantial adverse effect on a scenic vista. ***(LTS)***

Implementation of the Specific Plan would result in a significant environmental impact if it would substantially, demonstrably, and negatively affect scenic vistas in the area. The Specific Plan would encourage new office development adjacent to the San Francisco Bay. Specifically, buildings would be allowed at heights up to eight stories under the Specific Plan. East Palo Alto General Plan Goal 8.0 states that the City should improve its image through promotion of its desirable characteristics, including natural, human, and historical resources, and its locational characteristics (transportation, real estate, bridge, climate, bay views) and environmental features. Although this goal focuses on economic development as an end result, it stresses the importance of leveraging the City's existing assets, such as views. Furthermore, the San Francisco Bay Plan states that shoreline developments should be built in clusters, leaving open area around them to permit more frequent views of the Bay. The Specific Plan helps to achieve these goals by putting in place policies that seek to preserve key public views, provide opportunities for new views, and provide enhanced access to environmental features.

Viewsheds in the Plan Area visible from public intersections and street corridors are discussed in detail under Section B, Existing Conditions, of this chapter. The Specific Plan contains guidelines, standards, and policies that are focused on ensuring that views are maintained, particularly views to the San Francisco Bay from Bay Road and the Ravenswood industrial areas. For example, Chapter 6 of the Specific Plan requires greater setbacks at the eastern end of Bay Road to ensure that buildings' edges would "open up" along Bay Road as the street nears Cooley Landing and the Bay's edge. In addition to traditional setbacks, the Specific Plan would also require an additional 20-foot

setback on floors above the 4 floor of taller buildings to preserve views to a greater degree. These design standards are meant to maintain views and ensure that large monolithic structures are not built in the Specific Plan area. The Specific Plan also identifies another potential viewshed to be developed with along a new east-west road connecting Demeter Street, Pulgas Avenue, and Tara Road. The design standards would apply to taller structures along this proposed road to provide a new public viewshed in addition to preserving those that exist currently. The proposed viewshed is diagrammed in Chapter Six of the Specific Plan.

The Specific Plan would also prioritize public access to areas along the Bay's edge, which are currently inaccessible. More specifically, it is recommended that private development near the Bay's edge allow for public access and new connections to the existing San Francisco Bay Trail. If implemented, these recommendations would allow for new public spaces that would include views of the San Francisco Bay, East Bay hills, and the Dumbarton bridge. The Specific Plan would also recommend creating a new park on the current SFPUC right-of-way in the University Village neighborhood. In addition to providing a new park amenity for the City, this amenity would provide for enhanced Bay views from the Specific Plan Area by creating additional views to the mountains in the East Bay, as well as the Dumbarton Bridge.

In addition to providing more opportunities for long-range views, the Specific Plan's recommendations for new open space would also provide closer access to the Baylands immediately east of the Specific Plan Area and views from those low-lying places.

Additionally, the San Francisco Bay Plan states that developments along the shores of tributary waterways should be Bay-related and should be designed to preserve and enhance views along the waterway, so as to provide maximum visual contact with the Bay. The Specific Plan would both conform to this policy and implement it. In addition to existing and planned Bay Trail facilities, the Specific Plan includes policies recommending that new development at the eastern edge of the Specific Plan Area provide publicly accessi-

ble open space and trails between the development and the baylands. As such, the Specific Plan encourages development that would both respond to its bayside location and provide for public access. Additionally, special setbacks from parcel lines closest to the San Francisco Bay are provided in the Specific Plan.

Implementation of the Specific Plan policies, along with the existing General Plan and San Francisco Bay Plan policies, would result in a ***less-than-significant*** impact on existing scenic vistas.

b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway. ***(LTS)***

There are no designated State scenic highways within or near the Specific Plan Area. Therefore, the Specific Plan would have no impact regarding views from State scenic highways.

In addition, the Specific Plan includes several policies calling for adding additional street trees that would enhance the visual character along major corridors. Trees are significant scenic resources, and the Specific Plan recommends that this asset be enhanced significantly.

Historic buildings and other scenic resources would also be addressed by policies in the Specific Plan. Specifically, **Specific Plan Policy LU-1.6** states that project proponents should design all new development so that it responds to the scale, grain, and character of existing nearby development, particularly historic buildings within the Plan Area.

Additionally, since the Specific Plan Area is already largely developed, only a small proportion of the new development would be on vacant lots. As such, it is unlikely that scenic resources would be substantially damaged under the Specific Plan, particularly with the aforementioned policies in place. For all of these reasons, implementation of the Specific Plan would have a ***less-than-***

significant impact on existing scenic resources, and ***no impact*** to scenic resources within a State scenic highway.

c. Substantially degrade the existing visual character or quality of the site and its surroundings. ***(LTS)***

The Plan would have a significant environmental impact if it would substantially degrade the visual character or quality of the Specific Plan Area or its surroundings.

Policy 2.1 in the City's General Plan Land Use Element states that the City should enhance the image of the community by improving the appearance of public areas and entrances to the City along University Avenue and Bay Road. Policy 2.2 of the General Plan Land Use Element states that high quality should be promoted in the design of all public and private development projects. The Specific Plan would reinforce these goals and strengthen them considerably. The Specific Plan identifies the 4 Corners Area (the University Avenue/Bay Road intersection) as a priority area for new development and underscores the importance of this intersection. The Specific Plan would contain special design guidelines for buildings at this location to ensure that they create a strong sense of entry to the Plan Area, and also function as a true "center" for East Palo Alto. More specifically, **Specific Plan Policy UTIL-4.2** would require new development within the Plan Area to provide new public open spaces. Furthermore, the Development Standards in the Specific Plan provide special front setback standards for development along Bay Road to ensure that significant public sidewalks are provided with new development, which would contribute to an improved streetscape at this location. The Specific Plan also recommends that such buildings should be designed as iconic structures that would contribute to the character and unique nature of the built environment in East Palo Alto. At the key 4 Corners location, these Specific Plan policies would help to ensure that new community facilities, in addition to private development, would contribute significantly to the visual quality and character of the Plan Area, as well as to this key gateway to the city.

Policy 2.3 of the City's General Plan Conservation and Open Space Element states that the City should preserve existing trees and increase the number of trees within the community. The Specific Plan responds to this goal by identifying specific opportunities to achieve it, both in private development and through public improvements. The Specific Plan contains a detailed set of Streetscape Standards for each type of street in the Plan Area. The Streetscape Standards generally identify appropriate street trees for different types of roads, but also provide detailed recommendations about how street trees can contribute to an overall desirable streetscape character. Through this feature, the Specific Plan would put specific policies in place prioritizing street trees and would also provide recommendations for streetscapes as a whole in order to ensure the maximum quality of visual character on public streets.

In addition to responding to these specific goals in the City's General Plan, the Specific Plan contains policies, standards, and guidelines that focus specifically on improving the character and visual quality in the area. Since much of the area is envisioned to transform from heavier industrial uses to more contemporary research and development (R&D), light manufacturing, and office uses, the Specific Plan would create an opportunity to improve on aesthetic conditions in the Plan Area as they are today. Much of the development in the Plan Area today contains vacant lots, outdoor storage areas, and parking areas lining public streets. The Specific Plan contains policies that would encourage new industrial, R&D, and office development that could include new public open spaces and other amenities. Furthermore, the Specific Plan contains guidelines for private development that are focused primarily on ensuring an attractive public realm. Special development standards are also included in the Specific Plan to ensure that new R&D and industrial development has a minimal effect on nearby residential development. For example, the Development Standards in the Specific Plan contain special setback requirements for R&D and industrial uses that are located adjacent to residential properties. This would help to ensure that there are not adverse effects regarding visual character on existing residential uses.

With the current policies of the General Plan in place and the new policies, standards, and guidelines in the Specific Plan, implementation of the Specific Plan would result in a ***less-than-significant*** impact regarding visual character and quality.

d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area. ***(LTS)***

Development and improvements recommended in the Plan could have an adverse effect on day or nighttime views by contributing to substantial light or glare.

New development could introduce additional nighttime lighting, particularly for commercial uses. As such, the Specific Plan contains special guidelines for lighting for private development, including in parking areas, signage, and lighting provided for pedestrian areas.

Specifically, the Specific Plan Development Standards chapter provides standards and guidelines that address lighting provided as part of private development. In particular, the Specific Plan requires that new development shield and orient lighting so as to protect adjacent uses from excessive glare or lighting. The Specific Plan provides standards to this effect in the Development Standards chapter. To bolster this requirement, the Design Guidelines in the Specific Plan address more specific options for how lighting can be shielded, as well as guidelines for the orientation and types of lighting fixtures that should be provided as part of new development. As existing development already contains significant lighting, it is unlikely that new development would create a significant addition to lighting or glare in terms of its impact to the Plan Area.

New development permitted under the Specific Plan could include buildings that are taller than existing development and may contain glass materials. In some cases, glass in buildings could create glare from the reflection of sunlight of their facades. To address this, the Specific Plan provides detailed guidelines addressing building materials. The Specific Plan discourages the use of reflec-

tive glass that would create a nuisance or a negative impact on nearby residential uses during daytime hours.

With these policies, standards, and guidelines in place, implementation of the Specific Plan would result in a ***less-than-significant*** impact regarding lighting and glare.

2. Cumulative Impacts

This cumulative analysis considers the Plan in the context of the City's General Plan, which takes into account the entire incorporated area of East Palo Alto, including the Specific Plan Area. It is unlikely that Specific Plan buildout would combine to create a cumulative impact in terms of aesthetics, for two key reasons. First, the Plan Area is bordered on the east by preserve areas that will remain undeveloped and unchanged. Secondly, the Plan Area is bordered to the west and south by areas that are already developed with single-family residential neighborhoods and are very unlikely to change. Unless significant new development were to occur in the immediate vicinity of the Plan Area, it would not have a cumulative effect regarding aesthetics. As such, the undevelopable nature of the areas surrounding the Plan Area would not result in a cumulative effect regarding aesthetics. As a result, Specific Plan buildout would result in ***no cumulative impact*** to aesthetics.

4.2 AGRICULTURE AND FORESTRY RESOURCES

This chapter describes the existing agriculture and forestry resource conditions in the Ravenswood/4 Corners Transit-Oriented Development Specific Plan area and evaluates the potential impacts of the Plan on those resources. A summary of the relevant regulatory setting and existing conditions is followed by a discussion of Plan-specific and cumulative impacts.

A. Regulatory Framework

This section describes the regulatory setting as it relates to Agriculture and Forestry Resources in the Ravenswood/4 Corners Transit-Oriented Development Specific Plan Area.

1. Federal and State Regulations

a. Farmland Protection Policy Act

The Farmland Protection Policy Act (FPPA) ensures that federal programs minimally contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses and that they are compatible with State, local and private programs that protect farmland. The State Department of Conservation (DOC) defines three types of significant farmland: Prime Farmland, Unique Farmland, and Additional Farmland of Statement or Local Importance.

b. California Land Conservation (Williamson) Act

The California Land Conservation Act of 1965, also known as the Williamson Act, provides tax relief for landowners who preserve their agricultural and open space property under Williamson Act contracts. Under contract, the tax on a Williamson Act property is assessed at a rate consistent with its actual use, rather than the potential value. These contracts run for 10 years, are automatically renewable on an annual basis, and may be terminated by the initiative of either the property owner or the legislative body. California's Farmland Mapping and Monitoring Program (FMMP) identifies farmland that may be under Williamson Act Contract.

c. U.S. Forest Service

Timber production on federal land is governed by federal regulations administered by the U.S. Forest Service (Forest Service) and through resource management plans established for each forest.

B. Existing Conditions

The Specific Plan area contains the following land uses: residential, commercial, office, industrial, industrial buffer, community open space conservation, and resource management.

1. Agricultural Land

According to the California Department of Conservation Farmland Mapping and Monitoring Program's *San Mateo County Important Farmland 2008*, the Specific Plan Area contains no Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. The entire Plan Area is designated as either Urban and Built-Up Land or Other Land.[1]

2. Timber and Forestry Land

The Plan Area does not contain any forest land, land suitable for timber production, or any parcels of real property zoned for timberland production pursuant to the California Timberland Productivity Act of 1982 (Chapter 6.7 (commencing with Government Code Section 51100) of Part 1 of Division 1 of Title 5).

C. Standards of Significance

The Specific Plan would have a significant impact on agriculture and forestry resources if it would:

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[1] California Department of Conservation, FMMP website. ftp://ftp.consrv.ca.gov/pub/dlrp/FMMP/pdf/2008/smt08.pdf. Accessed October 24, 2010.

a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use.

b. Conflict with existing zoning for agricultural use, or a Williamson Act contract.

c. Conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production.

d. Result in the loss of forest land or conversion of forest land to non-forest use.

e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use.

D. Impact Discussion

1. Project Impacts

This section discusses the impacts of the Specific Plan on agriculture and timber and forestry land.

a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use. ***(NI)***

Implementation of the Specific Plan would not result in the conversion of agricultural areas into urban uses. There is no farmland in the Plan Area that is classified as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance by the CDC. Therefore, the Specific Plan would have ***no impact*** related to the conversion of farmland of concern under CEQA.

b. Conflict with existing zoning for agricultural use, or a Williamson Act contract. *(NI)*

Implementation of the Specific Plan would not result in conflicts with Williamson Act lands, because there are no Williamson Act contracts in the Plan Area. Therefore, implementation of the Specific Plan would have ***no impact*** on Williamson Act lands.

c. Conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production. *(NI)*

The Plan Area does not contain any forest land, timberland, or land zoned for timberland production, and therefore the Specific Plan would have ***no impact*** on zoning or rezoning of forest land or timberland.

d. Result in the loss of forest land or conversion of forest land to non-forest use. *(NI)*

There is no forest land in the Plan Area, and the Specific Plan would not result in the loss of forest land or conversion of forest land to non-forest use. Therefore, the Specific Plan would have ***no impact*** on forest land.

e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use. *(NI)*

There is no farmland or forest land in the Plan Area. There would be no changes in the existing environment that would result in the conversion of farmland to non-agricultural use or forest land to non-forest use. Therefore, the Specific Plan would have ***no impact*** on agricultural and forest lands.

2. Cumulative Impacts

This cumulative analysis considers the Plan in the context of the East Palo Alto General Plan, which takes into account the entire incorporated area of East Palo Alto, including the Plan Area. As there are no project-specific impacts, because there is not forest or farmland, there would be no contribution to any cumulative impacts. There would therefore be ***no cumulative impacts***.

4.3 AIR QUALITY

This section contains information about air quality in the Specific Plan Area. It provides an overview of the current regulatory framework, describes existing conditions, and analyzes the potential impacts of the proposed Specific Plan. Greenhouse gas emissions are discussed separately in Section 4.7 of the EIR.

A. Regulatory Framework

This section describes the regulatory setting as it relates to air quality in the Ravenswood/4 Corners Transit-Oriented Development Specific Plan area. Regulatory oversight for air quality in the San Francisco Bay Air Basin is provided by the Environmental Protection Agency Region IX office at the federal level, the California Air Resources Board (CARB) at the State level, and the Bay Area Air Quality Management District (BAAQMD) at the regional level.

1. Federal Agencies, Laws and Regulations

a. U.S. Environmental Protection Agency and the Federal Clean Air Act

The U.S. Environmental Protection Agency (EPA) is responsible for implementing the Federal Clean Air Act (FCAA), which was first enacted in 1955 and amended numerous times thereafter. The FCAA established federal air quality standards known as the National Ambient Air Quality Standards (NAAQS). These standards identify levels of air quality for "criteria pollutants" that are considered the maximum levels of ambient (background) air pollutants considered safe, with an adequate margin of safety, to protect the public health and welfare. The "criteria pollutants" regulated by the NAAQS are: ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter (PM_{10}), fine particulate matter ($PM_{2.5}$), and lead (Pb). Key air pollutants are discussed below in section B.

The U.S. EPA regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships, and certain types of locomotives. The U.S. EPA has jurisdiction over emission sources outside State waters, beyond the outer continental shelf. It also establishes various emis-

sion standards, including those for vehicles sold in states other than California. Automobiles sold in California must meet the stricter emission standards established by CARB, as described below. State and federal ambient air quality standards are listed in Table 4.3-1.

2. State Agencies, Laws and Regulations

In addition to federal requirements, air quality in California is also governed by more stringent regulations under the California Clean Air Act.

a. California Clean Air Act

Approved in 1988, the California Clean Air Act (CCAA) requires that each local air district prepare and maintain an Air Quality Management Plan to achieve compliance with the California Ambient Air Quality Standards (CAAQS). The amendments to the CCAA establish the CAAQS and a legal mandate to achieve these standards by the earliest practical date. These standards apply to the same criteria pollutants as those regulated under the Federal Clean Air Act and also include sulfate, visibility-reducing particles, hydrogen sulfide, and vinyl chloride. These standards are generally more stringent and apply to more pollutants than the NAAQS.

In addition to the criteria pollutants, CAAQS have been established for visibility-reducing particulates, hydrogen sulfide, and sulfates. The CCAA requires that each local air district prepare and maintain an Air Quality Management Plan (AQMP) to achieve compliance with CAAQS. These AQMPs also serve as the basis for preparation of the State Implementation Plan (SIP) for the State of California. See Table 4.3-1 for State and federal ambient air quality standards.

b. California Air Resources Board

The California Air Resources Board (CARB) administers the air quality standards in California. CARB regulates mobile air pollution sources, such as motor vehicles. The agency is responsible for setting emission standards for vehicles sold in California and for other emission sources, such as consumer products and certain off-road equipment. CARB has also established passen-

ger vehicle fuel specifications. Similar to the U.S. EPA, the CARB designates areas within California as either attainment or nonattainment for each criteria pollutant based on whether the CAAQS have been achieved. Under the CCAA, areas are designated as nonattainment for a pollutant if air quality data shows that a State standard for the pollutant was violated at least once during the previous three calendar years.

CARB oversees the functions of local air pollution control districts and air quality management districts, which in turn administer air quality activities at the regional and county level.

3. Regional and City Agencies and Regulations

a. Bay Area Air Quality Management District

In 1955, the California Legislature created the Bay Area Air Quality Management District (BAAQMD). The agency is primarily responsible for assuring that the national and State ambient air quality standards are attained and maintained in the Bay Area. The BAAQMD regulates air quality within East Palo Alto. The BAAQMD is responsible for many other activities, including:

- Adopting and enforcing rules and regulations concerning air pollutant sources.
- Issuing permits for stationary sources of air pollutants.
- Inspecting stationary sources of air pollutants.
- Responding to citizen complaints.
- Monitoring ambient air quality and meteorological conditions.
- Awarding grants to reduce motor vehicle emissions.
- Conducting public education campaigns.

i. Air Pollutants and Ambient Air Quality Standards[1]

Federal and State air quality standards resulting from the federal and California Clean Air Acts are shown in Table 4.3-1. Both the federal and California ambient air quality standards have been adopted by the BAAQMD.

[1] California Air Resources Board (CARB), http://www.arb.ca.gov/desig/desig.htm, accessed on July 10, 2009.

a) Carbon Monoxide

CO, a colorless and odorless gas, interferes with the transfer of oxygen to the brain. It can cause dizziness and fatigue and can impair central nervous system functions. CO is emitted almost exclusively from the incomplete combustion of fossil fuels. Automobile exhaust and residential wood burning in fireplaces and woodstoves emit most of the CO in the Bay Area. CO is a non-reactive air pollutant that dissipates relatively quickly, so ambient CO concentrations generally follow the spatial and temporal distributions of vehicular traffic. The highest CO concentrations are typically recorded during the winter.

b) Ozone

Ground-level O_3 is the principal component of smog. Ozone is not directly emitted into the atmosphere, but instead forms through a photochemical reaction of reactive organic gases (ROG) and NO_X, which are known as O_3 precursors. Ozone levels are highest from late spring through autumn, when precursor emissions are high and meteorological conditions are warm and stagnant. Motor vehicles create the majority of ROG and NO_X emissions in the Bay Area. Exposure to levels of O_3 above current ambient air quality standards can lead to human health effects such as lung inflammation and tissue damage, as well as impaired lung functioning. Ozone exposure is also associated with symptoms such as coughing, chest tightness, shortness of breath, and the worsening of asthma symptoms. The greatest risk for harmful health effects is borne by outdoor workers, athletes, and children, as well as others who spend time outdoors during smoggy periods. Elevated O_3 levels can reduce crop and timber yields, as well as damage native plants. Ozone can also damage materials such as rubber, fabrics, and plastics.

In April 2005, CARB approved a new 8-hour standard of 0.070 parts per million (ppm) and retained the 1-hour O_3 standard of 0.09 ppm after an extensive review of the scientific literature. Evidence from the reviewed studies indicates that significant harmful health effects could occur among both adults and children if exposed to levels above these standards. In 2008, the U.S. EPA revised the 8-hour standard to 0.075 ppm for 8-hour exposures.

TABLE 4.3-1 ***STATE AND FEDERAL AMBIENT AIR QUALITY STANDARDS***

Pollutant	Averaging Time	State Standards	Federal Standards	
			Primary[a]	Secondary[b]
Ozone	8-Hour	0.070 ppm[c] (137 $\mu g/m^3$)[d]	0.075 ppm (147 $\mu g/m^3$)	—
	1-Hour	0.09 ppm (180 $\mu g/m^3$)	—[e]	Same as primary
Carbon monoxide	8-Hour	9.0 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)	—
	1-Hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	—
Nitrogen dioxide	Annual	—	0.053 ppm (100 $\mu g/m^3$)	Same as primary
	1-Hour	0.18 ppm (339 $\mu g/m^3$)	—	—
Sulfur dioxide	Annual	—	0.03 ppm (80 $\mu g/m^3$)	—
	24-Hour	0.04 ppm (105 $\mu g/m^3$)	0.14 ppm (365 $\mu g/m^3$)	—
	3-Hour	—	—	0.5 ppm (1,300 $\mu g/m^3$)
	1-Hour	0.25 ppm (655 $\mu g/m^3$)	—	—
PM_{10}	Annual	20 $\mu g/m^3$ (geometric mean)	—[f]	Same as primary
	24-Hour	50 $\mu g/m^3$	150 $\mu g/m^3$	Same as primary
$PM_{2.5}$	Annual	12 $\mu g/m^3$	15 $\mu g/m^3$	—
	24-Hour	—	35 $\mu g/m^3$	—
Lead	Calendar Quarter	—	1.5 $\mu g/m^3$	Same as primary
	30-Day Average	1.5 $\mu g/m^3$	—	—

Notes: Concentrations are expressed first in units in which the standards were promulgated. Equivalent units given in parentheses. (a) Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health. Each state must attain the primary standards no later than three years after that State's implementation plan is approved by the U.S. EPA. (b) Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant. (c) ppm: parts per million. (d) ug/m3: Micrograms per cubic meter. (e) The national 1-hour O3 standard was revoked by the U.S. EPA on June 15, 2005. (f) The annual PM10 standard was revoked by the U.S. EPA on September 21, 2006, and a new PM2.5 24-hour standard was established.
Source: CARB, 2005.

c) Nitrogen Dioxide

NO_2 is visible as a reddish-brown gas. It is both reactive and oxidizing. It can damage the cells lining the respiratory tract and cause breathing difficulties as a result, especially in asthmatics. This pollutant is also an essential ingredient in the formation of ground-level ozone pollution. NO_2 is one of the nitrogen oxides emitted from high-temperature combustion processes, such as those occurring in trucks and cars. In the presence of sunlight, complex reactions of nitrogen oxides with ozone and other air pollutants produce the majority of NO_2 in the atmosphere. Indoors, home heaters and gas stoves also produce substantial amounts of NO_2. Nitrogen oxide (NO) and NO_2 are collectively referred to as nitrogen oxides (NO_x) and are major contributors to O_3 formation. NO_2 also contributes to the formation of PM_{10}, which is discussed below.

d) Sulfur Dioxide

Sulfur dioxide is a colorless gas with a strong odor. It can damage materials through acid deposition. It is produced by the combustion of sulfur-containing fuels, such as oil and coal. Refineries, chemical plants, and pulp mills are the primary industrial sources of sulfur dioxide emissions. Sulfur dioxide concentrations in the Bay Area are well below the ambient standards, and therefore are not a concern to regulators with jurisdiction over East Palo Alto. Adverse health effects associated with exposure to high levels of sulfur dioxide include aggravation of chronic obstructive lung disease, as well as increased risk of acute and chronic respiratory illness.

e) Lead

Lead occurs in the atmosphere as particulate matter. It was primarily emitted by gasoline-powered motor vehicles, although the use of lead in fuel has been virtually eliminated. As a result, levels in the Bay Area have dropped dramatically. Lead concentrations in the Bay Area are well below the ambient standards.

f) Suspended Particulate Matter

PM is a complex mixture of tiny particles that include dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles

vary greatly in shape, size, and chemical composition, and can be made up of many different materials such as metals, soot, soil, and dust. Particles 10 microns or less in diameter are considered to be respirable, or breathable, particulate matter, and are referred to as PM_{10}. Fine particles are 2.5 microns or less in diameter ($PM_{2.5}$) and can contribute significantly to regional haze and reduction of visibility. The buildup of these pollutants is greatest during the evenings and early morning periods. Over an entire year, the Bay Area experiences the highest PM_{10} and $PM_{2.5}$ in winter, when wood smoke and ammonium nitrate contributions to particulate matter are highest.

Although particulates are found naturally in the air, most particulate matter occurring in the Bay Area is emitted either directly or indirectly by motor vehicles, industry, construction, agricultural activities, and wind erosion of disturbed areas. Most $PM_{2.5}$ is composed of combustion products, such as smoke and traffic exhaust. Extensive research reviewed by CARB indicates that exposure to outdoor PM_{10} and $PM_{2.5}$ levels exceeding current ambient air quality standards is associated with increased risk of hospitalization for lung and heart-related respiratory illness, including emergency room visits for asthma. PM exposure is also associated with increased risk of premature deaths, especially in the elderly and people with pre-existing cardiopulmonary disease. In children, studies have shown associations between PM exposure and reduced lung function and increased respiratory symptoms and illnesses. Besides reducing visibility, the acidic portion of PM, including nitrates and sulfates, can harm crops and forests, as well as aquatic and other ecosystems.

In June 2002, CARB adopted new ambient air quality standards for PM_{10} and $PM_{2.5}$, resulting from an extensive review of health-based scientific literature. In 2006, the U.S. EPA updated the 24-hour standard for $PM_{2.5}$ and eliminated the annual PM_{10} standard.

g) Toxic Air Contaminants

Toxic air contaminants (TACs) are a broad class of compounds known to cause morbidity or mortality, usually because they cause cancer. They include, but are not limited to, the criteria air pollutants listed above. TACs are

found in ambient air, especially in urban areas, and can be caused by industry, agriculture, fuel combustion, and commercial operations. TACs are typically found in low concentrations, even near their source; for example, while diesel particulate matter and benzene may be present near a freeway, the concentration of these materials in the air is typically low. However, chronic exposure to these low levels can result in adverse health effects. As a result, TACs are regulated at the regional, State, and federal level.

CARB has identified the diesel particulate matter (DPM) portion of diesel exhaust as a significant TAC. DPM is the predominant TAC in urban air and is estimated to represent about two-thirds of the age-adjusted cancer risk from TACs, based on the statewide average. Diesel exhaust is a complex mixture of gases, vapors, and fine particles. Because of this complexity, the evaluation of diesel exhaust's precise health effects is a complicated scientific issue. One issue that is clear is that some of the chemicals in diesel exhaust, such as benzene and formaldehyde, have been previously identified as TACs by CARB, and are listed as carcinogens either under the State's Proposition 65, also known as the Safe Drinking Water and Toxic Enforcement Act of 1986, or under the federal Hazardous Air Pollutants program. It is also the case that federal and State regulations are in place to mitigate the health risks created by DPM emissions. California has adopted a comprehensive diesel risk reduction program, and the U.S. EPA adopted low-sulfur diesel fuel standards that went into effect in June 2006, reducing diesel particulate matter substantially. Furthermore, CARB recently adopted regulations that require fleet owners of off-road construction equipment or on-road trucks to retrofit or replace their fleets to reduce overall DPM emissions.

In cooler weather, smoke from residential wood combustion can be a source of TACs. Localized high TAC concentrations can result when cold, stagnant air traps smoke near the ground. When there is no wind, this pollution can persist for many hours. This condition typically occurs in sheltered valleys during the winter. Wood smoke, which contains a significant amount of PM_{10} and $PM_{2.5}$, is an irritant and is known to worsen asthma and other chronic lung problems.

ii. Air Quality Planning

This section describes programs in California and the Bay Area that are intended to aid compliance with federal and State air quality standards.

b. Clean Air Plans

To protect public health, BAAQMD has adopted plans to achieve ambient air quality standards. BAAQMD must continuously monitor its progress in implementing attainment plans and must periodically report to CARB and the U.S. EPA. It must also periodically revise its attainment plans to reflect new conditions and requirements.

In 1991, the BAAQMD, MTC, and ABAG prepared the Bay Area 1991 Clean Air Plan. This air quality plan addresses the California Clean Air Act. Updates are developed approximately every three years. The plans are meant to demonstrate progress toward meeting the more stringent 1-hour ozone CAAQS. In 2010, BAAQMD adopted the Bay Area 2010 Clean Air Plan. This Clean Air Plan updates the most recent ozone plan, the 2005 Ozone Strategy. Unlike previous Bay Area Clean Air Plans, the 2010 Clean Air Plan is a multi-pollutant air quality plan addressing four categories of air pollutants:

- Ground-level ozone and key ozone precursor pollutants (reactive organic gases and NOx), as required by State law;
- Particulate matter, primarily PM2.5, as well as the precursors to secondary PM2.5;
- Toxic air contaminants; and
- Greenhouse gases.

While the Clean Air Plan addresses State requirements, it will also provide the basis for developing future control plans to meet federal requirements (NAAQS) for ozone and PM2.5. The region is required to prepare (by December 2012) a federally enforceable plan to meet the NAAQS for PM2.5. In addition, U.S. EPA is likely to adopt a more stringent NAAQS for O_3.

These new standards will likely trigger new planning requirements for the Bay Area and more stringent federally enforceable control measures.

While previous Clean Air Plans have relied upon a combination of stationary and transportation control measures, the 2010 Clean Air Plan adds two new types of control measures: (1) Land Use and Local Impact Measures, and (2) Energy and Climate Measures. These types of measures would indirectly reduce air pollutant and greenhouse gas emissions through reductions in vehicle and energy usage. In addition, the plan includes Further Study Measures, which will be evaluated as potential control measures.

The Bay Area 2010 Clean Air Plan proposes expanded implementation of transportation control measures (TCMs), and includes public outreach programs designed to educate the public about air pollution in the Bay Area and promote individual behavior changes that improve air quality. New measures in the Clean Air Plan are aimed at helping guide land use policies that would indirectly reduce air pollutant emissions. Some of these measures or programs rely on local governments for implementation. The clean air planning efforts for O_3 also will reduce PM_{10} and $PM_{2.5}$, as a substantial amount of particulate matter comes from combustion emissions such as vehicle exhaust. Conversely, strategies to reduce O_3 precursor emissions will reduce secondary formation of $PM_{2.5}$ and PM_{10}.

The Bay Area 2001 Ozone Attainment Plan was prepared to achieve the 1-hour NAAQS for ozone. Since that plan was submitted, the region was designated as a marginal nonattainment area for the 8-hour ozone NAAQS, and the 1-hour ozone NAAQS was revoked. This plan was a proposed revision to the Bay Area part of California's plan (State Implementation Plan, or SIP) to achieve the 1-hour ozone NAAQS. The plan was prepared in response to the U.S. EPA's partial approval and partial disapproval of the Bay Area's 1999 Ozone Attainment Plan. The U.S. EPA plans to designate the Bay Area as nonattainment with respect to the new 2008 8-hour ozone NAAQS. This would require the region to develop a new Ozone Attainment Plan to meet this standard. A new plan would likely contain many of

the components listed in the 2010 Clean Air Plan described above, since that plan addresses the more stringent State ozone standards.

There is no formal clean air plan addressing PM_{10} or $PM_{2.5}$. However, the clean air planning efforts for ozone will also reduce PM_{10} and $PM_{2.5}$, since a substantial amount of this air pollutant comes from combustion emissions such as vehicle exhaust. In addition, BAAQMD adopts and enforces rules to reduce particulate matter emissions and develops public outreach programs to educate the public to reduce PM_{10} and $PM_{2.5}$ emissions. One such program is the Winter Spare the Air Program, which is similar to the standard Spare the Air program but focuses on $PM_{2.5}$ emissions that result from the use of fireplaces and wood stoves.

In addition, California's Senate Bill 656 (SB 656, Sher, 2003) that amended Section 39614 of the Health and Safety Code, required further action by CARB and air districts to reduce public exposure to PM_{10} and $PM_{2.5}$. Efforts identified by BAAQMD in response to SB 656 are primarily targeting reductions in wood smoke emissions; adoption of new rules to further reduce NOx and particulate matter from internal combustion engines; and reductions in particulate matter from commercial charbroiling activities.

c. CARB Land Use Guidance

In April 2005, CARB released the final version of its *Air Quality and Land Use Handbook: A Community Health Perspective*. This handbook is intended to encourage local land use agencies to consider the risks from air pollution before they approve the siting of sensitive land uses, including residences, near sources of air pollution. CARB makes recommendations regarding the siting of sensitive land uses near freeways, truck distribution centers, rail yards, marine ports, dry cleaners, gasoline dispensing stations, and other air pollution sources. These "advisory" recommendations include general setbacks or buffers from air pollution sources. Unlike industrial or stationary sources of air pollution, the siting of new sensitive land uses does not require air quality

permits or approval by air districts. CARB recommends setbacks of 500 feet between freeways and new sensitive receptors, such as residences.[2]

d. BAAQMD Rules and Regulations

BAAQMD regulates the demolition of buildings and structures that may contain asbestos. Asbestos is a fibrous mineral that occurs naturally in ultramafic rock—a rock type commonly found in California—and was used in the past as a processed component of building materials. Because asbestos has been proven to cause serious adverse health effects, such as asbestosis and lung cancer, it is strictly regulated. The relevant local regulations are found in BAAQMD Regulation 11, Rule 2: Hazardous Materials; Asbestos Demolition, Renovation and Manufacturing.

In addition, BAAQMD adopted Regulation 6, Rule 3, to control particulate matter emissions from wood-burning devices. The rule restricts operation of any indoor or outdoor fireplace, fire pit, wood or pellet stove, masonry heater, or fireplace insert on days during the winter when air quality conditions are forecasted to exceed the NAAQS for $PM_{2.5}$. The rule also limits excess visible emissions from wood-burning devices and requires clean burning technology for wood-burning devices that are sold, resold, or installed in the Bay Area.

BAAQMD's Regulation 7 limits odors from many different sources, excluding restaurants and agricultural practices. The requirements of this Regulation become applicable when BAAQMD receives odor complaints from 10 or more complainants within a 90-day period, alleging that a source has caused odors perceived at or beyond the property line of the source and deemed to be objectionable.

[2] California Air Resources Board, 2005, *Air Quality and Land Use Handbook: A Community Health Perspective*, page 4.

e. BAAQMD Air Quality Guidelines

In May 2011, BAAQMD updated its guidelines to evaluate air quality impacts from projects.[3] These new guidelines include evaluation criteria for siting new sensitive receptors near sources of toxic air contaminants and air pollutants, as well as criteria for evaluating potential odor impacts.

The new guidelines recommend that special overlay zones be developed around existing and proposed sources of toxic air contaminants, and that these overlay zones should be included in General Plans as well as other land use plans. The purpose of the overlay zones is to reduce exposures of sensitive land uses to unhealthy levels of toxic air contaminants, including $PM_{2.5}$, from substantial nearby sources. BAAQMD's new guidelines rely on the guidance from CARB's *Air Quality and Land Use Handbook*, described above. In East Palo Alto, the primary overlay zone would likely be along Highway 101. BAAQMD has also recommended that lead agencies include the effects of major roadways and permitted stationary sources of air pollutants, which could affect the Plan Area.

BAAQMD's new guidelines also provide methods for analyzing the impacts of toxic air contaminant sources to develop more refined overlay zones. These methods rely on modeling specific emissions from the roadways or sources, using emission factor models, dispersion modeling, and health risk criteria to determine where such sources result in significant exposures. These guidelines provide criteria for judging source-specific and cumulative impacts.

The new guidelines also recommend screening distances for various types of odor sources. East Palo Alto does not contain many of these sources, which include wastewater treatment plants, landfills or transfer stations, composting facilities, confined animal facilities, food manufacturing, and chemical plants. However, various industrial businesses in the Ravenswood Business District may produce localized odors.

[3] Bay Area Air Quality Management District (BAAQMD), May 2011, *California Environmental Quality Act Air Quality Guidelines.*

f. BAAQMD CARE Program

BAAQMD initiated its Community Air Risk Evaluation (CARE) program in 2004 to evaluate and reduce health risks associated with exposures to outdoor TACs in the Bay Area. The program examines TAC emissions from point sources; area sources; on-road mobile sources, such as cars and trucks; and off-road mobile sources, such as construction equipment, trains, and aircraft. The CARE program focuses on DPM emissions, which is the major contributor to airborne health risk in California. Its goal is to identify areas with high emissions of TACs that have sensitive populations nearby, then reduce exposure to TACs through new regulations, incentive funding, and other programs.

In Phase I of the program, a 2-kilometer by 2-kilometer gridded inventory of TAC emissions was developed for the year 2000. The data were then updated to include 2005 emission data. This emissions inventory was risk-weighted to reflect the differences in potency of the various TACs. For example, benzene has far higher cancer potency than many other compounds, such as methyl tertiary buytl ether (MTBE). In contrast, while DPM is not as potent as benzene, DPM emissions are much more prevalent. The Phase I study identifies diesel emissions from heavy-duty trucks as a major source of TAC emissions and identifies programs available to reduce these emissions.

In Phase II of the CARE program, BAAQMD is performing regional and local-scale modeling to determine the significant sources of DPM and other TAC emissions locally in priority communities, as well as for the entire Bay Area. The BAAQMD has partnered with CARB, the Port of Oakland, the Pacific Institute, the West Oakland Environmental Indicators Project, and major railroads to prepare specific health risk assessments.

One highlight of the CARE program is the development of a Mitigation Action Plan, in which risk reduction activities are focused on the most at-risk communities. This plan identified six different at-risk communities that would benefit from targeted mitigation, based on TAC emissions and presence of sensitive land uses. One of the six communities is what BAAQMD

refers to as Redwood City/East Palo Alto. This impacted community encompasses all of East Palo Alto, including the Plan Area. The Mitigation Action Plan calls for the following:

- Allocating grant and incentives to the priority communities.
- Conducting outreach efforts to obtain community input about how best to address and reduce TAC emissions.
- Working with local city and county health departments to reduce TAC emissions in priority communities.
- Developing local land use guidance to assist local planners, community members, and developers in assessing risks from land use projects and exposure to mobile and stationary sources of TAC emissions.
- Developing rules and regulations that would require reduction of TAC emissions from significant sources.

In Phase III, BAAQMD plans to conduct an extensive exposure assessment to identify and rank the communities as to their potential TAC exposures and determine the types of activities that place the communities at highest risk. BAAQMD will also pursue additional mitigations and attempt to develop a metric to measure the effectiveness of these efforts. The new BAAQMD CEQA Guidelines included new significance thresholds for community risk and hazards that originated from this process. These new thresholds address both project (single-source) and cumulative exposures.

g. City of East Palo Alto Climate Act Plan

The City of East Palo Alto adopted a Climate Action Plan and Negative Declaration on September 20, 2011.[4] The Climate Action Plan provides a foundation for future efforts by the community to reduce GHGs. Several of these measures would also lower emissions of Criteria Pollutants and TACs.

[4] City of East Palo Alto, September 20, 2011. Staff Report Item No. 29, Climate Action Plan and Initial Study and Negative Declaration.

The Climate Action Plan includes 23 actions to address Climate Change that mostly identify emission reductions and energy and water conservation goals. Those GHG reduction measures and actions were structured around the four general categories of GHG emissions, as identified by the GHG inventory. Numerical targets were set for reducing GHGs in each category.

B. Existing Conditions

1. Climate and Meteorology

The climate of East Palo Alto is characterized by warm, dry summers and cool, moist winters. The proximity of the San Francisco Bay and Pacific Ocean has a moderating influence on the local climate. East Palo Alto is located in the Peninsula climate subregion of the Bay Area.

The major large-scale weather feature controlling the area's climate is a large high pressure system located in the eastern Pacific Ocean, known as the Pacific High. The strength and position of the Pacific High varies seasonally. It is strongest during summer and located off the west coast of the United States. Large-scale atmospheric subsidence associated with the Pacific High produces an elevated temperature inversion along the West Coast. The base of this inversion is usually located from 1,000 to 3,000 feet above mean sea level, depending on the intensity of subsidence and the prevailing weather condition. Vertical mixing is often limited to the base of the inversion, trapping air pollutants in the lower atmosphere. Marine air trapped below the base of the inversion is often condensed into fog or stratus clouds by the cool Pacific Ocean. This condition is typical of the warmer months of the year from roughly May through October. Stratus-type clouds usually form offshore and move into the Bay Area during the evening hours. Stratus clouds also form over the San Francisco Bay during the evening hours. Stratus cover over the Peninsula, including East Palo Alto, is common during late night and early morning hours. As the land warms the following morning, the clouds often dissipate. The stratus cover then redevelops and moves inland late in the day along with an increase in winds. Otherwise, clear skies and dry conditions prevail during summer.

As winter approaches, the Pacific High becomes weaker and shifts south, allowing weather systems associated with the polar jet stream to affect the region. Low pressure systems produce periods of cloudiness, strong shifting winds, and precipitation. The number of days with precipitation can vary greatly from year to year, resulting in a wide range of annual precipitation totals. Precipitation is generally lowest along the Bay, with much higher amounts occurring along south- and west-facing mountain slopes that are west of East Palo Alto. East Palo Alto, which lies on the lee side of the coastal mountains in southern San Mateo County, receives about 15 to 20 inches of precipitation. Mountains to the west receive 30 to 40 inches. Most rainfall occurs from November through April. High-pressure systems are also common in winter with low-level inversions that trap produce cool stagnant conditions. Radiation fog and haze trapped near the surface are common during extended winter periods where high-pressure systems influence the weather.

The proximity of the eastern Pacific High and relatively lower pressure inland produces a prevailing westerly sea breeze along the central and northern California coast for most of the year. As this wind is channeled through the Golden Gate and other topographical gaps to the west, it branches off to the northeast and southeast, following the general orientation of the San Francisco Bay system. Marine air penetrates the eastern Peninsula mainly from the northwest and through gaps in the lower mountains. The prevailing wind in most of East Palo Alto is primarily from a northwest direction, especially during spring and summer. In winter, winds become variable with more of a southeasterly orientation. Nighttime winds and land breezes during the colder months of the year prevail with variable drainage out of the mountainous areas. Wind speeds are highest during the spring and early summer and lightest in fall. Winter storms bring relatively short episodes of strong southerly winds.

Temperatures in East Palo Alto tend to be less extreme compared to inland locations due to the moderating effect of the Pacific Ocean and the Bay. In summer, high temperatures are generally in the high 70s and in the 50s during

winter. Low temperatures range from the 50s in summer to the 30s in winter.

2. Air Pollution Potential

East Palo Alto can experience episodes of high particulate levels in late fall and winter, when the Pacific High can combine with high pressure over the interior regions of the western United States (known as the Great Basin High) to produce extended periods of light winds and low-level temperature inversions. Although less common, this pattern in summer can produce fair weather and very warm temperatures throughout the Bay Area. This condition frequently produces poor atmospheric mixing that results in degraded regional air quality. Ozone standards traditionally are exceeded in downwind portions of the Bay Area when this condition occurs during the warmer months of the year. Emissions from most of the Bay Area, including East Palo Alto, contribute to O_3 ambient air quality violations that occur on up to about 20 days per year.

3. Air Quality Conditions

Air quality is affected by the rate of pollutant emissions and by meteorological conditions such as wind speed, atmospheric stability, and mixing height, all of which affect the atmosphere's ability to mix and disperse pollutants. Long-term variations in air quality typically result from changes in air pollutant emissions, while short-term variations result from changes in atmospheric conditions.

a. Existing Air Pollutant Levels

East Palo Alto is in the western portion of the San Francisco Bay Area Air Basin. The Air Basin includes the counties of San Francisco, Santa Clara, San Mateo, Marin, Napa, Contra Costa, and Alameda, along with the southeast portion of Sonoma County and the southwest portion of Solano County. BAAQMD monitors air pollutant levels continuously throughout the basin. The closest official monitoring station to East Palo Alto is located in Redwood City at 897 Barron Avenue, near Highway 101.

Table 4.3-2 summarizes air quality monitoring data from the Redwood City monitoring station, and from the air basin as a whole. The values in the table reflect the highest air pollutant levels measured from 2005 to 2009. In addition, Table 4-3 provides the number of days in which measured concentrations exceeded the NAAQS or CAAQS. These findings are discussed in greater detail below.

i. Criteria Air Pollutants in the Bay Area

The San Francisco Bay Area Air Basin annually exceeds the NAAQS for ozone and $PM_{2.5}$. The basin also exceeds the more stringent CAAQS requirements for O_3, PM_{10}, and $PM_{2.5}$.

Throughout the basin, the 8-hour ozone NAAQS was exceeded on two to 12 days each year during the last three years, while the more stringent 8-hour CAAQS was exceeded on 9 to 20 days each year. The 1-hour ozone CAAQS was exceeded on 4 to 11 days each year over the past three years. In most cases, the standards were exceeded in downwind portions of the basin, such as Livermore, Concord, and Gilroy. The attainment status of air basins with respect to air pollutants level is based on the most recent three-year data set.

The NAAQS for PM_{10} is not exceeded anywhere in the Bay Area, but the more stringent State standard is routinely exceeded in the Bay Area and most other parts of California. The new NAAQS for $PM_{2.5}$ is exceeded at about half of the monitoring stations in the Bay Area, most often in Vallejo and San Jose. Some monitors in the Bay Area exceed the State annual $PM_{2.5}$ standard. No other air quality standards are exceeded in the Bay Area.

ii. Criteria Air Pollutants in East Palo Alto

While the air quality conditions measured at BAAQMD's Redwood City monitoring station are not identical to conditions in East Palo Alto, no other official monitoring station is closer to the Plan Area. Therefore, this section primarily discusses the air quality findings from the Redwood City monitoring station.

TABLE 4.3-2 ***HIGHEST MEASURED AIR POLLUTANT CONCENTRATIONS***

Pollutant	Average Time	Measured Air Pollutant Levels 2005	2006	2007	2008	2009
Redwood City						
O_3	1-Hour	0.084 ppm	0.085 ppm	0.077 ppm	0.082 ppm	0.087 ppm
	8-Hour	0.061 ppm	0.063 ppm	0.069 ppm	0.069 ppm	0.063 ppm
CO	8-Hour	2.3 ppm	2.4 ppm	2.3 ppm	1.9 ppm	1.8 ppm
NO_2	1-Hour	0.06 ppm	0.07 ppm	0.06 ppm	0.07 ppm	0.06 ppm
	Annual	0.015ppm	0.014ppm	0.013ppm	0.014ppm	0.012ppm
Fine Particulate Matter ($PM_{2.5}$)	24-Hour	31 ug/m^3	*75 ug/m^3*	*45 ug/m^3*	*28 ug/m^3*	*32 ug/m^3*
	Annual	9 ug/m^3	10 ug/m^3	10 ug/m^3	9 ug/m^3	9 ug/m^3
Respirable Particulate Matter (PM_{10})	24-Hour	***81 ug/m^3***	*70 ug/m^3*	*56 ug/m^3*	—	—
	Annual	***21 ug/m^3***	20 ug/m^3	20 ug/m^3	—	—
Bay Area (Basin Summary)						
O_3	1-Hour	***0.12 ppm***	***0.12 ppm***	***0.12 ppm***	***0.12 ppm***	***0.11 ppm***
	8-Hour	***0.09 ppm***	***0.11 ppm***	***0.09 ppm***	***0.09 ppm***	***0.09 ppm***
CO	8-Hour	3.1 ppm	2.9 ppm	2.7 ppm	2.7 ppm	2.9 ppm
NO_2	1-Hour	0.07 ppm	0.11 ppm	0.07 ppm	0.07 ppm	0.07 ppm
	Annual	0.019ppm	0.018ppm	0.017ppm	0.017ppm	0.016ppm
Fine Particulate Matter ($PM_{2.5}$)	24-Hour	**55 ug/m^3**	***75 ug/m^3***	***58 ug/m^3***	***58 ug/m^3***	***46 ug/m^3***
	Annual	12 ug/m^3	11 ug/m^3	11 ug/m^3	11 ug/m^3	10 ug/m^3
Respirable Particulate Matter (PM_{10})	24-Hour	*81 ug/m^3*	*73 ug/m^3*	*78 ug/m^3*	*78 ug/m^3*	*55 ug/m^3*
	Annual	*24 ug/m^3*	*23 ug/m^3*	*26 ug/m^3*	*26 ug/m^3*	*20 ug/m^3*

Notes: ppm = parts per million ug/m^3 = micrograms per cubic meter NA = data not available.
Values reported in ***bold italic*** exceed ambient air quality standard.
PM_{10} monitoring in Redwood City was discontinued in 2008.
Source: BAAQMD, 2004, 2005, 2006, 2007, and 2008.

TABLE 4.3-3 ***SUMMARY OF MEASURED AIR QUALITY EXCEEDANCES***

Pollutant	Standard	Monitoring Station	Days Exceeding Standard 2005	2006	2007	2008	2009
O_3	NAAQS 1-hr	Redwood City	X	X	X	X	X
		Bay Area	X	X	X	X	X
	NAAQS 8-hr	Redwood City	0	0	0	0	0
		Bay Area	5	17	2	12	8
	CAAQS 1-hr	Redwood City	0	0	0	0	0
		Bay Area	9	18	4	9	11
	CAAQS 8-hr	Redwood City	0	0	0	0	0
		Bay Area	9	22	9	20	13
PM_{10}	NAAQS 24-hr	Redwood City	0	0	0	0	0
		Bay Area	0	0	0	0	0
	CAAQS 24-hr	Redwood City	2	2	1	--	--
		Bay Area	6	15	4	--	--
$PM_{2.5}$	NAAQS 24-hr	Redwood City	0	1	1	1	0
		Bay Area	0	10	14	12	11
All Other (CO, NO_2, Lead, SO_2)	All Other	Redwood City	0	0	0	0	0
		Bay Area	0	0	0	0	0

Source: Illingworth & Rodkin, 2009.

The NAAQS and CAAQS for 1- and 8-hour ozone was not exceeded in Redwood City over the last five years. Measured exceedances of the State PM_{10} standards occurred on zero to two sampling days per year over the last five years in Redwood City. PM_{10} sampling was discontinued in Redwood City after 2007.

The older $PM_{2.5}$ NAAQS of 65 $\mu g/m^3$, established in 1997, was not exceeded in Redwood City. However, the new 35 $\mu g/m^3$ standard set in 2006 was exceeded once each year in 2006, 2007, and 2008. $PM_{2.5}$ are measured only once every sixth day, according to a national schedule.

From 2006 to 2007, the Community Development Institute (CDI) operated its own unofficial monitoring station to measure ozone, PM_{10}, and $PM_{2.5}$ levels in East Palo Alto. While technical difficulties prevented this effort from collecting a full year of data, the partial testing results suggest that PM_{10} and $PM_{2.5}$ levels may be higher in East Palo Alto than at BAAQMD's Redwood City monitoring station. Ozone levels, in contrast, are likely to be consistent with the overall levels in the region. Further testing would be needed to learn more about how air quality in East Palo Alto differs from the region as a whole.[5]

The highest carbon monoxide concentrations measured in Redwood City have been well below the national and State ambient standards. However, since automobile emissions are the primary source of carbon monoxide, the highest concentrations would typically be found away from monitoring stations, near congested roadways that carry large volumes of traffic. These are referred to as "hot spots." Other criteria pollutants, such as nitrogen dioxide, sulfur dioxide, and lead, are typically found at low levels at the Redwood City monitoring station and in the rest of the Bay Area. These pollutants should not pose a major air pollution concern in East Palo Alto.

b. Attainment Status

Violations of ambient air quality standards are based on air pollutant monitoring data and are judged for each air pollutant. Areas that do not violate ambient air quality standards are considered to have attained the standard. The Bay Area as a whole does not meet State or federal ambient air quality standards for ground level ozone and $PM_{2.5}$, nor does the Bay Area meet State standards for PM_{10}. These nonattainment issues are discussed further below.

i. NAAQS

Under the Federal Clean Air Act, the U.S. EPA has classified the region as a marginal nonattainment area for the 8-hour O_3 standard. U.S. EPA required the region to attain the standard by 2007. While U.S. EPA has since deter-

[5] SBF Consulting, 2007, *Final Report: East Palo Alto Air Monitoring Project,* pages 13 and 14.

mined that the Bay Area has met this standard, it also required BAAQMD to submit a formal redesignation request and maintenance plan before removing the marginal nonattainment designation. However, BAAQMD did not request a redesignation under the older standard, because in May 2008, U.S. EPA lowered the 8-hour O_3 standard from 0.08 to 0.075 ppm. Final designations based upon the new 0.075 ppm standard were to be made by March 2010. However, U.S. EPA announced that it intends to establish a new O_3 standard in 2011. States will then have to determine attainment status with those new standards and submit plans to attain the new standards for areas designated nonattainment.

The U.S. EPA recently identified the region as a nonattainment area for the 2006 24-hour $PM_{2.5}$ standard of 35 $\mu g/m^3$, because recent monitoring data have found levels above the standard in San Jose and Vallejo. The U.S. EPA's action identified the entire Bay Area Air Basin as a nonattainment area for the standard. However, the formal nonattainment designation has not yet occurred. Once the designation takes effect, the region would likely have until 2012 to develop a plan to attain the standard, and until 2014 to attain the standard.

The Bay Area has met the CO standards for over a decade and is classified as an attainment maintenance area by the U.S. EPA. The U.S. EPA grades the region as unclassified for all other air pollutants, which include PM_{10}.

ii. CAAQS

California's ambient air quality standards are more stringent than the national ambient air quality standards. At the State level, the region is considered a serious nonattainment area for ground level O_3 and a nonattainment area for PM_{10} and $PM_{2.5}$. The region is required to adopt plans on a triennial basis that show progress towards meeting the State ozone standard. The area is considered an attainment area or unclassified for all other pollutants.

c. Toxic Air Contaminants

Concentrations of toxic air contaminants throughout the Bay Area are measured by BAAQMD and CARB. BAAQMD's Redwood City monitoring station is the closest official station that measures these contaminants near East Palo Alto. Typical contaminants measured by BAAQMD include benzene, 1,3-butadiene, carbon tetrachloride, chloroform, ethylene dibromide, ethylene dichloride, MTBE, methylene chloride, acetaldehyde, perchloroethylene, toluene, and 1,3-butadiene.

To evaluate health risks associated with TACs, BAAQMD conducts air quality modeling. This includes an assessment of emissions for the predominant TACs, which include:

- *Diesel Particulate Matter (DPM).* Primary sources include heavy-duty trucks, buses, construction equipment, and electrical generation. BAAQMD estimates that DPM makes up about 80 percent of the emissions that contribute to inhalation cancer risks in the Bay Area.
- *1,3 Butadiene.* Primary sources include on-road motor vehicles. As with carbon monoxide, older model vehicles without adequate catalytic converters have much higher emission rates.
- *Benzene.* Primary sources include on-road motor vehicles and gasoline evaporation.
- *Formaldehyde.* Sources include fuel combustion from a variety of mobile and stationary sources, particularly motor vehicles. Formaldehyde is emitted both directly and indirectly into the atmosphere. It is formed primarily through photochemical oxidation in the atmosphere with elevated levels of ozone and nitrogen oxides.

TACs can pose cancer risks, which are evaluated based on the number of additional cancer cases per million people based on a 70-year lifetime exposure to the annual average concentration of each TAC. As part of BAAQMD's Community Air Risk Evaluation (CARE) program, BAAQMD evaluated inhalation health risks associated with exposure to these TACs. The modeled inhalation cancer risk in East Palo Alto generally ranged from 300 to 400

cases per million. Areas along Highway 101 and Highway 84 have higher risks. More densely urbanized portions of the Bay Area, such as eastern San Francisco and western Oakland, had higher risks of 1,000 in a million. Once it has implemented all of its adopted measures to reduce risk from DPM, CARB predicts that the overall inhalation health risk in the Bay Area will decrease substantially in the near future.

d. Existing Sources of Air Pollution

CARB maintains emissions inventories for each county in California, including San Mateo County, in which East Palo Alto is located. San Mateo County as a whole accounts for about 10 to 14 percent of the daily Bay Area emissions. Traffic accounts for the greatest portion—about 40 to 50 percent—of the County's emissions of ozone precursor pollutants. Area-wide sources, which include construction activities, residential wood smoke, off-road travel, and agriculture, account for the greatest portion of PM_{10} emissions, about 80 percent. These sources also account for over 50 percent of the $PM_{2.5}$ emissions. However, additional $PM_{2.5}$ is formed through reactions of NOx and other gaseous air pollutants in the atmosphere.

C. Standards of Significance

1. CEQA Appendix G Standards

The Plan would have a significant effect on the environment with respect to air quality if it would:

a. Conflict with or obstruct implementation of the applicable air quality plan.

b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation.

c. Result in a cumulatively considerable net increase of any nonattainment pollutant.

d. Expose sensitive receptors to substantial pollutant concentrations.

e. Create objectionable odors affecting a substantial number of people.

2. BAAQMD Standards

BAAQMD has adopted standards of significance to analyze potential air quality impacts in conformance with CEQA. These standards are described in the BAAQMD CEQA Air Quality Guidelines, updated in May 2011.[6] The new guidelines also include thresholds for GHG emissions, which are addressed in Chapter 4.7.

a. Consistency with Clean Air Planning Efforts

According to the BAAQMD Air Quality Guidelines, proposed plans must show over the planning period of the plan that:

- The plan incorporates current air quality plan control measures as appropriate to the plan area; and
- The rate of increase in vehicle miles travelled or vehicle trips (either measure may be used) within the plan area is equal to or lower than the rate of increase in population projected for the proposed Plan.

b. Operation Emissions

The BAAQMD Air Quality Guidelines do not have thresholds related to direct and indirect emissions resulting from plan implementation. Traffic resulting from the implementation of the plan would cause a significant local air quality impact if emissions of CO cause a projected exceedance of the ambient CO State standard of 9.0 ppm for 8-hour averaging period. This would be considered to cause or contribute substantially to an existing or projected air quality violation.

c. Exposure of New Residences to Toxic Air Contaminants

Unlike industrial or stationary sources of air pollution, residential development and other development where sensitive receptors would be located do not require air quality permits. Nonetheless, this type of development can expose people to unhealthy conditions. The BAAQMD Air Quality Guidelines Thresholds of Significance for plans with regard to community risk and hazard impacts are:

[6] BAAQMD. May 2011. *BAAQMD CEQA Air Quality Guidelines*.

- The land use diagram must identify:
  - Special overlay zones around existing and planned sources of TACs and PM (including adopted risk reduction plan areas); and
  - Special overlay zones of at least 500 feet (or Air District-approved modeled distance) on each side of all freeways and high-volume roadways.
- The plan must also identify goals, policies, and objectives to minimize potential impacts and create overlay zones around sources of TACs, PM, and hazards.

d. Odors

Odors are assessed based on the potential of the Plan to result in odor complaints. The BAAQMD Air Quality Guidelines Thresholds of Significance for plans with regard to odor impacts are:

- The land use diagram must identify special overlay zones around existing and planned sources of odors; and
- The plan must identify goals, policies, and objectives to minimize potential impacts and create buffer distances between sources of odors and receptors.

D. Impact Discussion

This section describes the impacts of the Specific Plan.

a. Conflict with or obstruct implementation of the applicable air quality plan. ***(SU)***

i. Applicable Clean Air Plan Projections

The BAAQMD is the regional agency responsible for overseeing compliance with State and Federal laws, regulations, and programs within the San Francisco Bay Area Air Basin. The BAAQMD, with assistance from the Association of Bay Area Governments and the Metropolitan Transportation Commission, has prepared and implements specific plans to meet the applicable

laws, regulations, and programs. Among them are the 2001 *Ozone Attainment Plan* and the *Bay Area 2010 Clean Air Plan*.[7,8] The BAAQMD has also developed CEQA guidelines to assist lead agencies in evaluating the significance of air quality impacts. In formulating compliance strategies, BAAQMD relies on planned land uses established by local general plans. Land use planning affects vehicle travel, which in turn affects regionwide emissions of air pollutants and GHG.

The Specific Plan would result in approximately an additional 2,766 residents and approximately 4,850 additional employees by the 2035 Plan Horizon. However, this degree of growth was anticipated by the Association of Bay Area Governments (ABAG) and is within 1 percent of the growth used in their planning projections. This is described in detail in Table 4.12-2 in Section 4.12 Population and Housing, and the impacts have been addressed in the individual chapters in this EIR.

Estimates of daily vehicle miles traveled (VMT), and the number of residents and jobs (which added together comprise the service population) in the Plan Area in 2005 were provided by Hexagon Transportation Consultants and are presented in Table 4.3-4. Using 2005 as a baseline year, VMT attributable to the Specific Plan is anticipated to increase 300 percent. The increase in service population would be 192 percent. As a result, VMT would increase at a higher rate than population or service population growth.

In addition, Section 4.14, Traffic and Transportation, provides trip generation estimates for the Specific Plan. However, these projections do not include existing trip generation estimates; therefore, the rate of increase in vehicle trips cannot be compared with existing conditions. Given that only 19 percent of the new trips generated by the Plan would result from residential uses, vehicle trips or VMT are likely to increase at a greater rate than Specific Plan residential population growth.

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[7] BAAQMD, 2001. *Revised San Francisco Bay Area Ozone Attainment Plan for the 1-Hour National Ozone Standard.* Adopted October 24, 2001.

[8] BAAQMD, 2010. *Bay Area 2010 Clean Air Plan.* September.

TABLE 4.3-4 ***VEHICLE MILES TRAVELLED (VMT) AND SERVICE POPULATION IN THE SPECIFIC PLAN AREA***

Metric/ Variable	2005 Conditions	2035 Conditions without Specific Plan	2035 Conditions with Specific Plan Implementation	Incremental Change Due to Specific Plan Implementation
VMT	99,089	153,069	449,922	296,853 (300%)
Population (service)	4,549	--	--	8,739 (192%)

Note: VMT are for trips related to the Specific Plan only.

The Specific Plan includes numerous measures to reduce the rate of vehicle trips or VMT associated with implementation of the Plan land uses. These include:

- **Mixed Uses.** A Mixed Use land use designation is proposed to be applied to properties at the intersection of University Avenue and Bay Road, as well as other properties that front onto Bay Road. This designation provides for multi-story vertical mixed-use development, although horizontal mixed use may also be appropriate at certain locations. In this designation, active uses such as retail are required on the ground floor, with residential units on upper floors. To a more limited extent, upper-floor office uses are permitted above retail. Ground-floor offices and community facilities may also be appropriate in certain circumstances. In all cases, this designation is intended to provide for new development that will contribute to an active and pedestrian-oriented Bay Road.
- **Transportation Demand Management (TDM) Program. Specific Plan Policy TRA-3.1** requires large employers in the Plan Area to participate in a TDM program, which will focus on vehicle trip reductions through encouraging use of transit, carpooling, and shuttles as well as bicycling and walking.

- **Dumbarton Rail Station.** The Specific Plan Area is adjacent to the proposed Dumbarton Rail Line. Station locations are currently being planned as part of a separate project. Rapid Bus/BRT Service may be implemented along University Avenue. The planned transit services would encourage trips to and from the Ravenswood/4 Corners Area to utilize alternative modes of travel, thereby reducing the vehicle trips generated by the project.
- **Pedestrian Improvements.** The City includes a cohesive system of pedestrian/bicycle connections and trails linking activity nodes, employment, housing, parks, and open spaces together. Both new connections and improvements to existing connections are included in the Specific Plan, such as the Rail Spur Pedestrian/Bicycle Connection, the Loop Road/Bay Trail Connection and the Purdue Avenue Pedestrian Connection.

ii. Consistency with Applicable Clean Air Plan Control Measures

Consistency of the Specific Plan with Clean Air Plan control measures is demonstrated by assessing whether the proposed Plan implements all of the applicable Clean Air Plan control measures. The 2010 Clean Air Plan includes about 55 control measures that are intended to reduce air pollutant emissions in the Bay Area either directly or indirectly. The control measures are divided into five categories that include:

- Eighteen measures to reduce stationary and area sources
- Ten mobile source measures
- Seventeen transportation control measures
- Six land use and local impact measures
- Four energy and climate measures.

In developing the control strategy, BAAQMD identified the full range of tools and resources available, both regulatory and non-regulatory, to develop each measure. Implementation of each control measure will rely on some combination of the following:

- Adoption and enforcement of rules to reduce emissions from stationary sources, area sources, and indirect sources.

- Revisions to the BAAQMD's permitting requirements for stationary sources.
- Enforcement of CARB rules to reduce emissions from heavy-duty diesel engines.
- Allocation of grants and other funding by the Air District and/or partner agencies.
- Promotion of best policies and practices that can be implemented by local agencies through guidance documents, model ordinances, and other measures.
- Partnerships with local governments, other public agencies, the business community, non-profits, and other groups.
- Public outreach and education.
- Enhanced air quality monitoring.
- Development of land use guidance and CEQA guidelines, and Air District review and comment on Bay Area projects pursuant to CEQA.
- Leadership and advocacy.

This approach relies upon lead agencies to assist in implementing some of the control measures. A key tool for local agency implementation is the development of land use policies and implementing measures that address new development or redevelopment in local communities. The consistency of the Specific Plan is evaluated with respect to each set of control measures.

a) Stationary and Area Source Control Measures

The Clean Air Plan includes Stationary Source Control measures that BAAQMD adopts as rules or regulations through their authority to control emissions from stationary and area sources. The BAAQMD is the implementing agency, since these control measures are applicable to sources of air pollution that must obtain District permits. The City uses BAAQMD's

CEQA Air Quality Guidelines to evaluate air pollutant emissions from new sources.

b) Mobile Source Measures

The Clean Air Plan includes Mobile Source Measures that would reduce emissions by accelerating the replacement of older, dirtier vehicles and equipment through programs such as the BAAQMD's Vehicle Buy-Back and Smoking Vehicle Programs, and promoting advanced technology vehicles that reduce emissions. The implementation of these measures rely heavily upon incentive programs, such as the Carl Moyer Program and the Transportation Fund for Clean Air, to achieve voluntary emission reductions in advance of, or in addition to, CARB requirements. CARB has new regulations that require the replacement or retrofit of on-road trucks, construction equipment, and other specific equipment that is diesel powered.

c) Transportation Control Measures (TCMs)

The Clean Air Plan includes transportation control measures (TCMs) that are strategies meant to reduce vehicle trips, vehicle use, vehicle miles traveled, vehicle idling, or traffic congestion for the purpose of reducing motor vehicle emissions. While most of the TCMs are implemented at the regional level (that is, by MTC or Caltrans), there are measures that the Clean Air Plan relies upon local communities to assist with implementation. In addition, the Clean Air Plan includes land use measures and energy and climate measures whose implementation is aided by proper land use planning decisions.

The Specific Plan would be consistent with Clean Air Plan measures intended to reduce automobile use, as the Plan is intended to facilitate non-auto linkages through a network of off-street pedestrian and bicycle facilities, an improved sidewalk network, and connections to existing and planned public transportation. In addition to the Specific Plan features or policies that would assist in implementing Clean Air Plan measures, the City's Climate Action Plan, adopted on September 20, 2011, specified numerous actions to address

climate change.[9] These actions and policies would support many of the Clean Air Plan measures aimed at reducing air pollutant and GHG emissions associated with land use planning. The following Clean Air Plan policies are relevant to the Specific Plan:

- Clean Air Plan TCM B-4 – Goods Movement: This is primarily a regional measure; however, **Specific Plan Policy TRA-2.3** would establish truck routes on primary arterials, protecting residential neighborhoods from truck traffic.
- Clean Air Plan TCM C-1 – Support Voluntary Employer Based Trip Reduction Program: The Specific Plan includes measures that would mandate that employers implement a TDM program, which includes a variety of policies, such as subsidizing transit passes, that would encourage transit ridership. The extent of TDM measures that may be implemented is uncertain at this time. Thus, in order to be conservative, no trip reductions were assumed for increased transit usage or the effect of possible TDM measures.
- Clean Air Plan TCM C-2 – Safe Routes to School and Safe Routes to Transit: This measure is intended to implement safe pedestrian and bicycle access to schools and transit. This TCM is supported through Specific Plan features that would enhance sidewalks, expand bicycle routes and trails, and include land use and circulation patterns that make walking and bicycling safer and more efficient.
- Clean Air Plan TCM C-3 – Promote Rideshare Services and Incentives: As discussed under TCM C-1, the Specific Plan would include a TDM program. The program would support regional ride sharing through incentives.
- Clean Air Plan TCM C-4 – Conduct Public Outreach: While this is mostly a regionally implemented TCM, the Specific Plan TDM program would support this TCM.

[9] City of East Palo Alto, September 20, 2011. Staff Report Item No. 29, Climate Action Plan and Initial Study and Negative Declaration.

- Clean Air Plan TCM C-5 – Promote Smart Driving/Speed Moderation: While this measure is aimed at educating the public about the air quality benefits of high speed driving, the Specific Plan supports this measure through the design or redesign of streets and landscaping that would calm traffic. The design of streets with reduced speeds is intended to calm traffic speeds, reducing the high emissions caused by rapid accelerations.
- Clean Air Plan TCM D-1 – Improve Bicycle Access and Facilities: The Specific Plan TDM program would include measures to support this policy, such as encouraging larger businesses to include locker and shower facilities. The Specific Plan area includes a cohesive system of pedestrian/bicycle connections and trails linking activity nodes, employment, housing, parks, and open spaces together. Both new connections and improvements to existing connections are included in the Specific Plan. Specifically, these include the Rail Spur Pedestrian/Bicycle Connection (a multi-use pedestrian trail connection on unused railroad right-of-way), the Loop Road/Bay Trail Connection(a multi-use pedestrian trail connection along the northern portion of the proposed loop road that would connect eastward to the Bay Trail), and the Purdue Avenue Pedestrian Connection (a new pedestrian/bicycle trail alongside Purdue Avenue extending west to University Avenue next to the Costaño Elementary School property and east to the Bay Trail).
- Clean Air Plan TCM D-2 – Improve Pedestrian Access and Facilities: The Specific Plan would include features to improve pedestrian access between residential and commercial areas and between office and commercial areas. The land use plan is intended to increase the walkability of commercial and office land uses within the Plan Area. The Specific Plan TDM program would encourage pedestrian use. As described above (see TCM D-1), the Specific Plan area includes a cohesive system of pedestrian/bicycle connections and trails linking activity nodes, employment, housing, parks, and open spaces together. Both new connections and improvements to existing connections are included in the Specific Plan.
- Clean Air Plan TCM D-3 – Support Local Land Use Strategies: The Specific Plan would develop a community that includes a mix of established

lower-density neighborhoods and new higher-density mixed-use neighborhoods with access to transit. The Specific Plan would support the development of the transit along the Dumbarton Rail Corridor that would provide additional regional transit opportunities.

- Clean Air Plan TCM E-2 – Parking Pricing and Management Strategies: The Specific Plan includes allowances for reduced minimum vehicle parking requirements, based on implementation of measures such as shared parking. The Specific Plan TDM program would support parking strategies that encourage alternatives to single-occupant vehicle trips.
- Clean Air Plan LUM 1 – Goods Movement: The Specific Plan identifies a new loop road that may carry some truck traffic, which could increase the exposure of new sensitive receptors to emissions from goods movements (truck and train emissions). However, exposure of sensitive receptors to existing and future TAC emissions is addressed in this EIR.
- Clean Air Plan LUM 3 – Enhanced CEQA Program: While this TCM addresses BAAQMD actions, the City requires appropriate air quality evaluation of projects during CEQA review using the BAAQMD CEQA Air Quality Guidelines.
- Clean Air Plan LUM 5 – Reduce Risk in Impacted Communities: This issue is addressed in this EIR, in which the impact of existing or new TAC sources upon sensitive receptors is evaluated and mitigation measures to reduce any substantial TAC exposures are identified.
- Clean Air Plan ECM 1– Energy Efficiency: Consistency of this measure is addressed in the Climate Change section. The City would ensure that new projects or redevelopment projects meet the latest energy efficiency standards required by the State. In addition, the City adopted a Climate Action Plan that includes goals to reduce energy use in buildings.
- Clean Air Plan ECM 2 – Renewable Energy: The City's Climate Action Plan includes city-wide policies for increasing renewable energy.
- Clean Air Plan ECM 3 – Mitigation: The planting of vegetation would mitigate urban heat island effects. The Specific Plan would ensure that new projects or redevelopment projects provide an adequate amount of

open space and create public green space and parks in the Plan Area. The City's Climate Action Plan includes a goal to increase urban green space.

- Clean Air Plan ECM 4 – Tree-Planting: As discussed under ECM 3, the Specific Plan and the City's Climate Action Plan would support efforts to plant trees in the Plan Area.

One of the key principles of these regional planning goals is to increase the amount of housing in urbanized parts of the Bay Area, in order to accommodate the region's residential demand. The Specific Plan would provide moderate- to high-density housing in an urbanized part of the Bay Area. This Plan, along with the existing General Plan, would include features, policies, and implementing measures that are consistent with the Climate Action Plan and the Clean Air Plan control measures. However, the potential for increased vehicle use with respect to population growth under the Specific Plan buildout would be a ***significant*** impact.

Impact AQ-1: Conflict with Clean Air Plan Projections and Control Measures. The proposed Plan would increase the rate of vehicle use at a greater rate than population growth. This would lead to greater regional emissions of nonattainment air pollutants (or their precursors) than assumed in the latest Air Quality Plan. ***(SU)***

Mitigation Measure AQ-1: There are no measures available to mitigate this impact related to inconsistency with the Clean Air Plan.

Significance After Mitigation: As there are no available mitigation measures, the impact would remain ***significant and unavoidable.***

b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation. ***(LTS)***

Monitoring data from all ambient air quality monitoring stations in the Bay Area indicate that existing carbon monoxide levels are currently below national and California ambient air quality standards. Monitored CO levels have decreased substantially since 1990 as newer vehicles with greatly im-

proved exhaust emission control systems have replaced older vehicles. The Bay Area has been designated as an attainment area for the CO standards. The highest measured levels in Redwood City (the closest monitoring stations to the Plan Area) during the past three years are 5.5 ppm for 1-hour averaging periods and 2.3 ppm for 8-hour averaging periods.

Even though current CO levels in the Bay Area are well below ambient air quality standards, and there have been no exceedances of CO standards in the Bay Area since 1991, elevated levels of CO still warrant analysis. CO hot-spots (occurrences of localized high CO concentrations) could still occur near busy congested intersections. Recognizing the relatively low CO concentrations experienced in the Bay Area, the BAAQMD's CEQA Air Quality Guidelines state that a project would have a less-than-significant impact if it would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour. The busiest intersections affected by traffic increases from the Plan would be along University Avenue, which would have total peak hour traffic volumes of less than 20,000 vehicles. Since intersections affected by the project would have volumes less than the threshold of 44,000 vehicles per hour, the impact of the project related to localized CO concentrations would therefore be ***less than significant.***

c. Result in a cumulatively considerable net increase of any criteria pollutant. ***(NI)***

Potential changes to regional emissions of criteria air pollutants are evaluated based on the rate of vehicle travel (trips or vehicle miles traveled) compared to population growth (see Impact AQ-1) . The BAAQMD CEQA Air Quality Guidelines only require emissions computations for project-level analysis. There would therefore be ***no impact***.

d. Expose sensitive receptors to substantial pollutant concentrations. ***(LTS with Mitigation)***

According to the BAAQMD CEQA Air Quality Guidelines, for a plan to have a less-than-significant impact with respect to TACs, buffer zones must be established around existing and proposed land uses that would emit these

air pollutants. Buffer zones to avoid TAC impacts must be reflected in local plan policies, land use maps, or implementing ordinances.

The BAAQMD CEQA Air Quality Guidelines consider exposure of sensitive receptors to air pollutant levels that result in an unacceptable cancer risk or hazard, to be significant. For cancer risk, which is a concern with diesel particulate matter and other mobile-source TACs, the BAAQMD considers an increased risk of contracting cancer that is 10 in one million chances or greater, to be significant risk for a single source. The BAAQMD CEQA Guidelines also consider exposure to annual $PM_{2.5}$ concentrations that exceed 0.3 micrograms per cubic meter (μg/m3) to be significant. Non-cancer risk would be considered significant if the computed Hazard Index is greater than 1.0.[10]

The Specific Plan would permit and facilitate the development of new sensitive receptors, such as new homes, in locations near arterial roadways. Screening levels indicate that sensitive receptors within the Plan Area would be exposed to levels of TACs and or $PM_{2.5}$ that could cause an unacceptable cancer risk or hazard near University Avenue.

To assist the City of East Palo Alto, BAAQMD conducted a preliminary draft analysis based on the methodology outlined in the 2010 CEQA Guidelines, using the most recent screening and analysis tools for risk and hazards.[11]

BAAQMD first mapped the boundaries of the Plan Area in Google Earth, using a .kmz file provided by ABAG planners, and then mapped a 1,000 foot radius from the edge of the Plan Area boundaries. All TAC sources were identified within the Plan Area boundary, as well as within the 1,000 foot boundary. These sources include: stationary sources permitted by BAAQMD; roadways with more than 10,000 annual average daily traffic

[10] The Hazard Index is the ratio of the computed receptor exposure level to the level known to cause acute or chronic adverse health impacts, as identified by BAAQMD.

[11] This is included in the Draft EIR as Appendix 2.

(AADT); and highways or freeways. Then, using the screening analysis tools—the stationary source screening analysis tool, the highway screening analysis tool, and the roadway screening analysis tool – BAAQMD assessed the potential risk and hazard impacts of all the sources, both individually and cumulatively.

According to this preliminary screening analysis, the PM and cancer risk impacts are below the thresholds of significance for all the stationary sources and roadways (with less than 10,000 AADT) within the Plan Area boundaries as well as the 1,000-foot boundary. University Avenue is a State highway that was evaluated using the highway screening analysis tool. The $PM_{2.5}$ and cancer risk impacts are below the thresholds of significance at a 25 foot distance. In addition, the highway screening analysis tool provides estimated risk and hazard impacts at elevations of 6 feet and 20 feet above ground level, representing the placement of sensitive receptors on the first floor versus the second floor and higher. The highway screening analysis tool shows that the estimated PM and cancer risk impacts are below the thresholds of significance for University Avenue at a 10 foot distance if sensitive receptors are placed on the second floor or higher. Typical setbacks along University Avenue are 25 feet or greater, so significant exposures of TACs emitted from University Avenue traffic are not anticipated under existing conditions.

The preliminary screening analysis conducted by BAAQMD evaluated existing sources, using current traffic levels. The increase in traffic levels along local roadways is not expected to change the BAAQMD's preliminary findings of less than significant for TAC exposures. However, as described in Section 4.14, Traffic and Transportation, the Specific Plan could result in large increases in traffic along University Avenue. Under Existing Plus Project conditions, traffic levels are predicted to increase by about 20 percent. The TDM measures outlined in the Plan would reduce this to some extent. In addition, through the Plan Horizon, emissions rates are anticipated to decrease by about 73 percent due to changes in diesel PM_{10} exhaust emission

rates for -heavy-duty diesel trucks, so traffic increases under the proposed plan would not increase TAC exposure.[12]

Under cumulative conditions, that take into account all other planned and reasonably foreseeable projects that could have occurred by 2035, traffic increases may be on the order of 150 percent. Considering the increase in traffic along with the decrease in diesel particulate matter emission rates, significant TAC exposures along University Avenue could extend out to 60 feet from near traffic lanes at ground level and less at second stories and above. The significant TAC exposures identified are based on potential excess cancer risk of greater than 10 cases per million. $PM_{2.5}$ levels would be less than significant at 25 feet or closer to the roadway. The potential for increased excess cancer risk greater than 10 in one million would be a ***significant*** impact**.**

It should be noted that the screening tools include county-specific modeling data. Although this reflects the best available data at this time, the modeling is intentionally conservative, such that if a project passes the initial screen, no additional review related to the impacts is necessary. A more advanced screening analysis could be conducted for developments along University Avenue or close to other sources, and this could decrease the necessary setback distance.

There is also a potential for new emissions sources to enter the area. Typically, these sources would be evaluated through the BAAQMD permit process or the CEQA process to identify and mitigate any significant exposures. However, some sources that would not undergo such a review, such as truck loading docks or truck parking areas, may have the potential to cause significant increases in TAC exposure levels could be a ***significant*** impact.

[12] The rate of change in TAC emissions was computed based on the change in diesel PM_{10} exhaust emission rates for heavy-duty diesel trucks between 2010 and 2030, as computed using EMFAC2007. Much of the TAC exposure along roadways is from heavy-duty diesel trucks.

Impact AQ-2: The proposed Plan could locate sensitive receptors within 60 feet of University Avenue, which may expose sensitive receptors to unhealthy levels of TACs and $PM_{2.5}$ emitted by traffic. In addition, future development could generate new sources of TACs in the Plan Area, which could locate near existing or new sensitive receptors. ***(LTS with Mitigation)***

Mitigation Measure AQ-2: The following measures shall be utilized in site planning and building designs to reduce TAC and $PM_{2.5}$ exposure where new receptors are located within 60 feet of University Avenue:

- Future development under the Plan that includes sensitive receptors (such as schools, hospitals, daycare centers, or retirement homes) located within 60 feet of University Avenue shall require site-specific analysis to determine the level of TAC and $PM_{2.5}$ exposure. This analysis shall be conducted following procedures outlined by BAAQMD. If the site-specific analysis reveals significant exposures, such as cancer risk greater than 10 in one million, additional measures shall be employed to reduce the risk to below the threshold. If this is not possible, the sensitive receptors shall be relocated.
- For significant cancer risk exposure, as defined by BAAQMD, indoor air filtration systems shall be installed to effectively reduce particulate levels to a less-than-significant level. Project sponsors shall submit performance specifications and design details to demonstrate that lifetime residential exposures would result in less-than-significant cancer risks (less than 10 in one million chances).
- Tiered plantings of trees or shrubs along project boundaries closest to University Avenue shall be provided. Tiered plantings may include layering of trees or shrubs between the roadway and buildings within medians, setbacks, or within open spaces associated with buildings.

Significance After Mitigation: Implementation of the appropriate measures listed above would result in TAC exposures that would be below the BAAQMD thresholds, and the impact would be ***less than significant.***

e. Create objectionable odors. ***(LTS with Mitigation)***

Odors are assessed based on the potential of the Plan to result in odor complaints. This could result from the Plan creating development that produces objectionable odors or places people near sources of objectionable odors.

Significant odor sources are not currently located within the Plan Area; therefore, new uses are not likely to be affected by existing odor sources. The Plan Area would include a mix of uses that could place new residences near localized sources of odors. An example would be a mixed-use building that includes both residences and restaurants. While this mix of uses is common in urban areas, odor complaints can occur. Some people find odors from restaurants objectionable, while others find them pleasant. This is considered to be a ***significant*** impact.

Impact AQ-3: New restaurants in mixed-use projects in the Plan Area could be a source of odors that result in complaints from new or existing residences. ***(LTS with Mitigation)***

> Mitigation Measure AQ-3: New restaurants located in mixed-use developments, or adjacent to residential developments, shall install kitchen exhaust vents with filtration systems, re-route vents away from residential development, or use other accepted methods of odor control, in accordance with local building and fire codes.
>
> Significance After Mitigation: With adequate odor controls and operational features in place, objectionable odors should not be generated by new restaurant uses, and the impact would be reduced to a ***less-than-significant*** level.

E. Cumulative Impacts

With respect to regional air pollution, the development of the Plan Area would result in potentially greater vehicle trip growth than population growth, there would be a significant cumulative impact. Localized emissions

from cumulative traffic conditions were not found to cause or contribute to a violation of an ambient air quality standard. Traffic along University Avenue is the only source of TACs with emissions that could adversely affect new sensitive receptors such as residences. The analysis of this impact considered cumulative increases in traffic and found significant exposures could occur out to distances of 60 feet from the travel lanes. There are no other sources to consider in a cumulative analysis. As a result, the Plan would have a ***significant cumulative*** impact.

Impact AQ-CUM-1: Conflict with Clean Air Plan Projections and Control Measures. The proposed Plan would contribute to a regional impact by increasing the rate of vehicle use at a greater rate than population growth. This would lead to greater regional emissions of nonattainment air pollutants (or their precursors) than assumed in the latest Air Quality Plan. ***(SU)***

Mitigation Measure AQ-1: There are no measures available to mitigate this impact related to inconsistency with the Clean Air Plan.

Significance After Mitigation: As there are no available mitigation measures, the impact would remain ***significant and unavoidable.***

4.4 BIOLOGICAL RESOURCES

This chapter describes the existing biological resource conditions in the Ravenswood/4 Corners Transit-Oriented Development Specific Plan area and evaluates the potential impacts of the Plan on biological resources. A summary of the relevant regulatory setting and existing conditions is followed by a discussion of Plan-specific and cumulative impacts.

A. Regulatory Framework

This section describes the regulatory setting as it relates to biological resources in the Ravenswood/4 Corners Transit-Oriented Development Specific Plan area.

1. Federal Regulations

a. Federal Endangered Species Act

The United States Endangered Species Act (ESA) is administered by the USFWS for all species but fish, and the National Oceanic and Atmospheric Administration (NOAA) Fisheries for fish species. The federal ESA provides protection for species included on the endangered species list (known as "listed species"). In particular, the federal act prohibits "take." Take is defined as an action or attempt to hunt, harm, harass, pursue, shoot, wound, capture, kill, trap, or collect a species. Federal regulations also define take to include the incidental destruction of animals in the course of an otherwise lawful activity, such as habitat loss due to development. Under those rules the definition of take includes significant habitat modification or degradation that actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter.

Take may be allowed under a permit by either Section 7 or Section 10(a) of the ESA. The permit is issued under Section 7 if another federal agency such as USACE funds or issues a permit for the project. The permit is issued under Section 10(a) if there is no federal involvement in the project.

b. Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) implements various treaties and conventions between the US and Canada, Japan, Mexico, and the former Soviet Union for the protection of migratory birds. Unless permitted by regulations, the Act provides that it is unlawful to pursue, hunt, take, capture or kill; attempt to take, capture or kill; possess, offer to, or sell, barter, purchase, deliver or cause to be shipped, exported, imported, transported, carried or received any migratory bird, part, nest, egg or product, manufactured or not.

In short, under the MBTA it is illegal to remove vegetation containing nests that are in active use, since this could result in killing a bird or destroying an egg. This would also be a violation of CDFG code (see State Regulations below).

c. Clean Water Act

The federal CWA is the primary federal law regulating water quality. The implementation of the CWA is the responsibility of the US Environmental Protection Agency (EPA). That agency depends on other agencies, such as the individual states and the USACE, to assist in implementing the Act. The objective of the CWA is to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." Section 401 and 404 apply to project activities that would impact waters of the US (creeks, ponds, wetlands, etc). The California State Water Resources Control Board (SWRCB) enforces section 401 of the CWA (see below) and the USACOE enforces Section 404. Activities that require fill in waters of the US, including wetlands, would require a Nationwide Permit or and Individual Permit, depending on the extent of impact to waters/wetlands.

i. Clean Water Act, Section 404

As part of its mandate under the CWA, the US EPA regulates the discharge of dredged or fill material into "waters of the United States" under Section 404 of the Act. "Waters of the United States" include territorial seas, tidal waters, and non-tidal waters, in addition to wetlands and drainages that support wetland vegetation; exhibit ponding or scouring; show obvious signs of channel-

ing; or have discernible banks and high water marks. The US EPA also regulates excavation and changes in drainage. The discharge of dredged or fill material into waters of the US is prohibited under the CWA, except when it is in compliance with Section 404 of the Act. The USACE was given enforcement authority for Section 404, which it accomplishes under its regulatory branch.

The USACE acts under two statutory authorities: the Rivers and Harbors Act (Sections 9 and 10), which governs specified activities in "navigable waters," and the CWA (Section 404), which governs specified activities in "waters of the United States," including wetlands. Navigable waters of the United States are defined as those waters that are subject to the ebb and flow of the tide or are presently used, or have been used in the past, were so designated, or may be susceptible for use to transport interstate or foreign commerce. A determination of navigability, once made, applies laterally over the entire surface of the water body, and is not superseded by later actions or events that impede or destroy navigable capacity. It is expected that the area mapped as northern coastal salt marsh in the Plan Area meets the definition of navigable waters.

The USACE and the US EPA define wetlands as "those areas that are saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support a prevalence of vegetation typically adapted for the life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas." The northern coastal salt marsh in the Plan Area can be expected to meet this definition.

In 2003, the Corps and US EPA determined that field staff should not assert CWA jurisdiction over isolated waters or wetlands, in response to a 2001 US Supreme Court decision. Isolated waters are those which have no connection to navigable waters, and are not immediately adjacent to waters of the US. The Plan Area may appear to have isolated wetlands/waters. However, the high groundwater table may provide a nexus, and it is expected that fill in any waters/wetlands in the Plan Area would require federal and State authorizations.

ii. Clean Water Act, Section 401

Under Section 401, any applicant for a federal permit to impact waters of the US under Section 404 of the CWA, including Nationwide permits (NWP) where pre-construction notification is required, must also provide to the USACE a certification from the State of California. The "401 Certification" is provided by the SWRCB through the local Regional Water Resources Control Board (RWQCB).

The RWQCB recommends the application be made at the same time that any applications are provided to other agencies, such as the USACE, the USFWS, or NOAA Fisheries. An application is not final until completion of environmental review under the California Environmental Quality Act. The application to the RWQCB is similar to the pre-construction notification that is required by the USACE (see discussion of Section 404, above). It must include a description of the habitat that is being impacted; a description of how the impact is proposed to be minimized; and proposed mitigation measures with goals, schedules, and performance standards. Mitigation must include a replacement of functions and values, and replacement of wetland at a minimum ratio of 2:1, or twice as many acres of wetlands provided as are removed. The RWQCB looks for mitigation that is on-site and in-kind, with functions and values as good as or better than the water-based habitat that is being removed.

2. State Regulations

a. California Endangered Species Act

The California Endangered Species Act (CESA) establishes the policy of the State to conserve, protect, restore, and enhance threatened or endangered species and their habitats. CESA mandates that State agencies shall not approve projects that would jeopardize the continued existence of threatened or endangered species if reasonable and prudent alternatives are available that would avoid jeopardy.

The following animal species that could occur in the Plan Area are protected under CESA: California clapper rail, black rail, and salt marsh harvest

mouse. These species are also "Fully Protected" under the California Fish and Game Code, discussed below. Although the State can issue permits to take CESA species under Section 2081 of CDFG Code, the State cannot issue permits to take Fully Protected species.

b. California Fish and Game Code

Sections 3500-3516, 4700, 5050, and 5515 address Fully Protected species. Prior to the passage of CESA, the classification of Fully Protected was the State's initial effort to identify and provide additional protection to those animals that were rare or faced possible extinction. Subsequently, many Fully Protected species have been listed under the State and/or federal Endangered Species Acts. Fully Protected species may not be taken or possessed at any time, and no licenses or permits may be issued for their take, except to collect these species for necessary scientific research and relocate bird species for the protection of livestock. Thus, there is potential that if habitat within the Plan Area is determined to support any of these species, impact to this habitat would not be permitted. The Fully Protected species potentially present in the Plan Area include the California black rail, California clapper rail, California least tern and salt marsh harvest mouse. These species may occur in northern coastal salt marsh and adjacent upland habitat, as shown in Figure 4.4-1.

Nesting birds, including raptors, are protected by the CDFG Code Section 3503, which reads "It is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto." In addition, under CDFG Code Section 3503.5, "it is unlawful to take, possess, or destroy any birds in the orders 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." Passerines and non-passerine landbirds are further protected under the federal MBTA (see discussion above). The CDFG typically recommends surveys for nesting birds that could potentially be directly impacted (for example, through actual removal of trees/vegetation) or indirectly impacted (for example, through noise

Source: TRA, 2009.

FIGURE 4.4-1

HABITAT/COMMUNITY TYPES

disturbance) by project-related activities. Disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered "taking" by the CDFG.

c. State Water Resources Control Board

The SWRCB is a five-member board that sets statewide policy related to water quality, coordinates and supports RWQCBs, and reviews petitions that contest regional board actions. There are nine RWQCBs statewide; East Palo Alto is under the San Francisco Bay RWQCB.

Each regional board has nine board members and a staff. Each regional board sets water quality standards and waste discharge requirements for its region, determines compliance with those standards, and takes enforcement action. The regional board issues and enforces permits for discharge of treated water, landfills, stormwater runoff, filling of any surface waters or wetlands, dredging, agricultural activities and wastewater recycling. The San Francisco Bay RWQCB would be concerned with stormwater runoff and activities that directly impact creeks, ponds or wetlands. Also see the discussion of the federal CWA in section A.1.c, above; the RWQCB has jurisdiction under section 401 of the CWA.

The RWQCB has also been involved with the Baylands Ecosystem Habitat Goals Project, which is discussed under Local Plans and Policies, below.

3. Local Plans and Policies

a. San Francisco Bay Conservation and Development Commission

Please see Section 4.9-3.b for a detailed description of BCDC and its jurisdiction in the Plan Area.

b. Baylands Ecosystem Habitat Goals Project

In 1999, the San Francisco Bay Area Wetlands Ecosystem Goals Project, the US EPA and the San Francisco RWQCB prepared the Baylands Ecosystem Habitat Goals: A Report of Habitat Recommendations. The purpose of the

report is to provide goals and recommendations for the conservation and restoration of tidal wetlands and associated habitats.[1] Broad goals listed that are relevant to the Plan Area include:

- Assign high priority (or equal to that of intertidal marsh) to ecological restoration of upper marsh transition zones based on natural models and reference sites.
- Provide sufficient topographic relief adjacent to protected intertidal marsh areas to afford refuge during normal tidal and high flood water depths. This is particularly important in areas where rare and endangered salt marsh vertebrate species are known or likely inhabitants.
- Provide additional upland buffers for the marshes in the Palo Alto area, citing Cooley Landing as the northern limit.
- Increase alien predator management and better marsh corridors or connections between present marshes.

The buffer distance recommendation is specified in the general goals as "at least 300 feet wide between the upper edge of the marsh/upland transition and neighboring areas of developed use" and "[W]where existing land uses or other factors such as steep terrain preclude this, wetland buffers should be no narrower than 100 feet."

The report also includes goals specific to the Mountain View Segment, which includes the Plan Area. Mountain View Segment goals that are relevant to the Plan Area include:

- Restore large areas of tidal marsh and provide a continuous corridor of tidal marsh along the bayshore.
- Provide more and wider buffers to tidal marshes, and improve management to reduce human intrusion and predators.

[1] It should be noted that these are advisory, not statutory requirements.

In addition, the report makes the following recommendation for the bayshore environment in the Specific Plan Area.

> *"The marshes between Charleston Slough to Cooley Landing in the Palo Alto Sector, including the Palo Alto Education Center Marsh, need more upland buffers, better protection from illegal entry, more alien predator management and better marsh corridors or connections between present marshes. Again, the 100-yard minimum rule and appropriate vegetation rule applies to both buffers and upper edges. The Palo Alto Marsh continues to change in vegetation (for the worse) and the upland edge of the marsh is very abrupt and needs modification."*

c. City of East Palo Alto General Plan Conservation and Open Space Element

The City of East Palo Alto's General Plan includes goals and policies for the conservation of natural resources. The Conservation and Open Space Element of the General Plan includes Policy 2.1, which states "Conserve, protect, and maintain important natural plant and animal communities, such as the Baylands, Cooley Landing, the shoreline, and significant tree stands."

The General Plan's Conservation and Open Space Element emphasizes the desire to ensure that "important natural features such as the Baylands, San Francisquito Creek, and the shoreline" are not impacted by urban development. Figure COS-2 of the Conservation and Open Space Element maps the salt marsh habitat within and adjacent to the Plan Area as a Sensitive Habitat. The plan notes the need to control surface runoff from development with respect to sensitive habitats. The plan goes on to say "although access to these areas is necessary for passive recreational activities, limitation on the extent and location of access can promote sustainable habitats." Specifically addressing the Baylands and Ravenswood Preserves, the Plan states that "preservation of wetland habitat and wildlife populations have priority in the management strategy of (these areas)."

B. Existing Conditions

1. Methodology

TRA biologists Tay Peterson and Autumn Meisel conducted a site reconnaissance on October 21, 2009. They walked the Plan Area on foot, noting and documenting habitats and plant species. The weather was clear and warm, with an average temperature of 70 degrees Fahrenheit (°F) and a wind speed of 3 miles per hour.

In addition to the site visit, TRA reviewed available background documents and consulted the California Natural Diversity Database (CNDDB)[2] and the California Native Plant Society (CNPS) Rare Plant Inventory[3] to learn what special-status species observations have been recorded in and near the Plan Area. The CNDDB query was made of the Palo Alto and Mountain View USGS 7.5-minute quadrangles.

2. Regional Setting

The Plan Area includes areas of residential and industrial urban development, as well as undeveloped areas adjacent to the San Francisco Bay that support tidal marsh and upland habitat to the north and east. A portion of Cooley Landing is included in the Plan Area.

The Stanford Fill, an area that includes a mound of fill soil approximately 6 acres in size, is located in the center of the Plan Area. The mound of fill is approximately 16 to 27 feet in height with relatively steep sides. The area supports non-native grassland/ruderal upland vegetation. Vegetation extending to the east of this mound transitions from upland species to salt marsh habitat. Chapter 8 of this report includes more detail about the Stanford Fill.

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[2] California Department of Fish and Game (CDFG), Biogeographic Data Branch, 2009, California Natural Diversity Database (CNDDB).

[3] California Native Plant Society (CNPS), Online Inventory of Rare and Endangered Plants, http://cnps.site.aplus.net/cgi-bin/inv/inventory.cgi, accessed on October 19, 2009.

Located south of Cooley Landing and adjacent to the Plan Area is the Palo Alto Baylands Nature Preserve, a 1,940-acre preserve that extends south to Charleston Slough. The Palo Alto Baylands includes the mouth of San Francisquito Creek, located approximately 0.75 miles south of the Plan Area. North of Cooley Landing and also adjacent to the Plan Area is the Ravenswood Open Space Preserve, a 270-acre preserve that includes a restored former salt pond. These two preserves are owned and managed by the City of Palo Alto and the Midpeninsula Regional Open Space District, respectively. Both preserves support intact salt marsh habitat and a host of wildlife species dependent on this habitat type. Beyond the preserves to the east are the open waters of the San Francisco Bay, with extensive areas of mud flats during low tides.

The climate within the region is Mediterranean, with moist, mild winters and dry summers. Average precipitation in East Palo Alto is 16 inches per year and average temperatures range from 49 to 70 degrees °F. Locations along the bay are often windy.

3. Biological Setting

a. Plant Communities and Wildlife Habitat Types

The Plan Area supports four general habitat types: northern coastal salt marsh, open water/tidal slough, non-native grassland/ruderal, and urban. A map of habitat types within the Plan Area is provided in Figure 4.4-1. This map shows the approximate boundaries of upland (non-native grassland/ruderal) and wetland (open water and northern coastal salt marsh) habitats.

In some areas, such as along the north boundary of the Plan Area and south of the railroad tracks, upland habitat is interspersed with low areas (depressions) that support wetland vegetation. A wetland delineation would be required to accurately map wetland habitats as well as determine agency jurisdiction.

i. Northern Coastal Salt Marsh

Salt marshes are transitional areas between land and water, and northern coastal salt marsh occurs along the north and east margin of the Plan Area adjacent to the San Francisco Bay. Northern coastal salt marsh habitat is typically dominated by a small number of hydrophytic and herbaceous plant species forming a dense cover. This habitat type has been significantly reduced in size within the San Francisco Bay since European settlement and development/filling of the bay. Remaining salt marsh habitat is highly valued for its function in maintaining a healthy bay ecosystem. Northern coastal salt marsh habitat supports a variety of wildlife species and provides critical filtration of sediments and toxins from the water. Decaying salt marsh vegetation provides a source of nourishment for bacteria and invertebrates, and remaining detritus provides fertilizer for regeneration of marsh vegetation.

Vegetation within the salt marsh is segregated into zones influenced by the amount of tidal inundation. The lower zone (to mean high tide) is characterized by cordgrass (*Spartina* spp.), the middle zone (from mean high tide to higher tide) is characterized by pickleweed (*Salicornia* spp.), and the upper zone is typified by saltgrass (*Distichlis spicata*). Other species found within the Plan Area in the middle and upper salt marsh zones include marsh gumplant (*Grindelia stricta* var. *angustifolia*), alkali heath (*Frankenia salina*), dodder (*Cuscuta salina*), salt marsh fleabane (*Pluchea odorata*), cattail (*Typha angustifolia*), fat hen (*Atriplex triangularis*), and alkali weed (*Cressa truxillensis*), among others.

The northeast part of the Plan Area, between University Village and Ravenswood Open Space Preserve, supports primarily northern coastal salt marsh habitat. The very northwest corner of the Plan Area supports an area of salt marsh habitat, and the Plan Area's north boundary, between the edge of the University Village neighborhood and the railroad tracks, supports upland vegetation with scattered, low-lying areas that contain salt marsh vegetation. Salt marsh associated with Ravenswood Open Space Preserve and the Palo Alto Baylands is also found along Bay Road toward Cooley Landing.

Northern coastal salt marsh habitat supports a variety of bird species, both resident and migratory. Potential species within the Plan Area include a variety of shorebirds such as American avocet (*Recurvirostra americana*), willet (*Tringa semipalmata*), black-necked stilt (*Himantopus mexicanus*), long-billed curlew (*Numenius americanus*), short-billed dowitcher (*Limnodromus griseus*), and several sandpipers, as well as grebes, egrets, and herons. A diversity of ducks frequent the South Bay, some of which include canvasback (*Aythya valisineria*), American wigeon (*Anas americana*), common goldeneye (*Bucephala clangula*), greater scaup (*Aythya marila*), and northern shoveler (*Anas clypeata*). Raptors typically found in South Bay salt marsh habitats include northern harrier (*Circus cyaneus*) and American kestrel (*Falco sparverius*). Mammals found in this habitat include California vole (*Microtus californicus*), western harvest mouse (*Reithrodontomys megalotis*), and black-tailed jackrabbit (*Lepus californicus*), among others. Northern coastal salt marsh also provides habitat for several special-status species, as described in section B.3.b, below.

Northern coastal salt marsh is considered a sensitive community by the California Department of Fish and Game (CDFG) due to the extensive loss of salt marsh habitat throughout California, and due to the high level of productivity within this community and its crucial role in supporting bay and ocean health.

ii. Open Water/Tidal Slough

Within the salt marsh habitat is a network of channels and sloughs supporting open water. Unlike a salt marsh, open water is not a vegetation community, but a distinct habitat type within the salt marsh. The open water/tidal sloughs on-site are tidally influenced, and thus water levels change with the changing tide. Two areas of ponded water associated with this network and close to the urban interface are found at the terminus of Stevens Avenue, north of the Stanford Fill, and southeast of the University Village neighborhood, approximately 175 feet northwest of the terminus of Fordham Street.

Open water/tidal sloughs within the Plan Area support many of the same species found within the salt marsh habitat. Shorebirds may forage in the sloughs during low tide, and other types of birds, such as ducks and egrets, use the open water habitats during both low and high tide. Aquatic species such as invertebrates and fish occur in the open water habitats on-site.

iii. Non-Native Annual Grassland/Ruderal

Upland habitat within the Plan Area is composed of non-native annual grassland/ruderal habitat. Ruderal vegetation and non-native annual grassland are mixed plant communities in which the native vegetation has been modified by grading, cultivation, grazing, or other surface disturbances. Such areas, if left undeveloped, may become recolonized by invasive exotic species, as well as by certain native species. The native vegetation may ultimately become at least partially restored if the soils are left intact and there is no continued disturbance. This habitat community is found on the Stanford Fill as well as upland areas that occur between salt water marsh and the University Village and Ravenswood Industrial neighborhoods. The area located northeast of the University Village neighborhood supports upland habitat with low-lying areas that support salt marsh habitat. Some woody vegetation occurs in this area as well, such as coyote brush and a single coast live oak (*Quercus agrifolia*). Non-native annual grassland/ruderal habitat is also found north of University Village and on Cooley Landing. As described above, areas of salt marsh are interspersed in the upland area located north of University Village and south of the railroad tracks.

Vegetation species found in the Plan Area within non-native annual grassland habitat include curly dock (*Rumex crispus*), peppergrass (*Lepidium oxycarpum*), ice plant (*Carpobrotus edulis*), fennel (*Foeniculum vulgare*), bristly oxtongue (*Picris echioides*), wild radish (*Raphanus sativa*), Italian ryegrass (*Lolium multiflorum*), wild oat (*Avena fatua*) and yellow star thistle (*Centaurea solstitialis*), among others. Occasional woody species also occur, including coast live oak, coyote bush, and olive (*Olea europaea*). Common wildlife species found in this habitat include reptiles such as western fence lizard (*Sceloporus occidentalis*), urban-adapted birds such as mourning dove (*Zenaidura*

macroura), California towhee (*Pipilo crissalis*), house finch (*Carpodacus mexicanus*), and mockingbird (*Mimus polyglottus*), and small mammals such as California vole (*Microtus californicus*) and deer mice (*Peromyscus maniculatus*). These rodents serve as prey for various raptors such as red-tail hawk (*Buteo jamaicensis*).

iv. Urban Development

The majority of the Plan Area comprises urban development, with no native vegetation communities. The urban area is a mix of residences, small businesses, and industrial development. Scattered within the urban landscape are several undeveloped lots that are either barren or support ruderal vegetation. Typical ruderal vegetation within the urban setting includes wild radish, yellow star thistle, Italian thistle, black mustard, and non-native annual grasses. These undeveloped lots may be disked or mowed regularly to control weedy vegetation. Unlike the non-native annual grassland/ruderal habitat described above, these areas are isolated pockets within the urban landscape and the vegetation and soils are managed with mechanized equipment such as tractors or mowers.

Various ornamental plant species, as well as some natives, are found within the urban setting within landscaped features and street strips. For example, blue gum eucalyptus trees (*Eucalyptus globulus*) and sweet gum (*Liquidambar styraciflua*) are common, and native coast live oak is found infrequently. The urban setting provides some habitat value for urban-adapted bird species, such as house finch, mourning dove, American robin (*Turdus migratorius*), and Brewers blackbird (*Euphagus cyanocephalus*).

b. Special Status Species

Special-status species known to occur or with potential to occur within 5 miles of the Plan Area were analyzed for their potential to occur on-site, based on information obtained from CNDDB and CNPS.[4] Table 4.4-1 identifies species that were included in this analysis.

[4] California Department of Fish and Game (CDFG), Biogeographic Data Branch, 2009, California Natural Diversity Database (CNDDB).

i. Plants

Based on CNDDB and CNPS records, a total of 21 plants were found to have one or more records of occurrence within the Palo Alto and Mountain View USGS 7.5 minute quads.[5] The majority of these species have habitat requirements that are not met on-site. Four species were found to have suitable habitat on-site, and a map of these plant occurrences listed in the CNDDB is provided in Figure 4.4--2. Of these, three species—alkali milk vetch, Point Reyes bird's beak, and California seablite—were found to have a very low potential for occurrence within the Plan Area. All three species have habitat requirements met on-site; however, they have not been recorded in the region for decades and may be extirpated from the San Francisco Bay Area.

Only one species, Congdon's tarplant (*Centromadia parryi* spp. *congdonii*), was documented to occur in the Plan Area within the last decade and has a high potential for occurrence there. Congdon's tarplant is a CNPS List 1B.2 plant, with no Endangered Species Act listing. Congdon's tarplant is in the Asteraceae family and is known from eight central California coastal counties, including San Mateo County.[6] The species occurs in alkaline soils in valley and foothill grasslands, typically in sumps and disturbed sites where water

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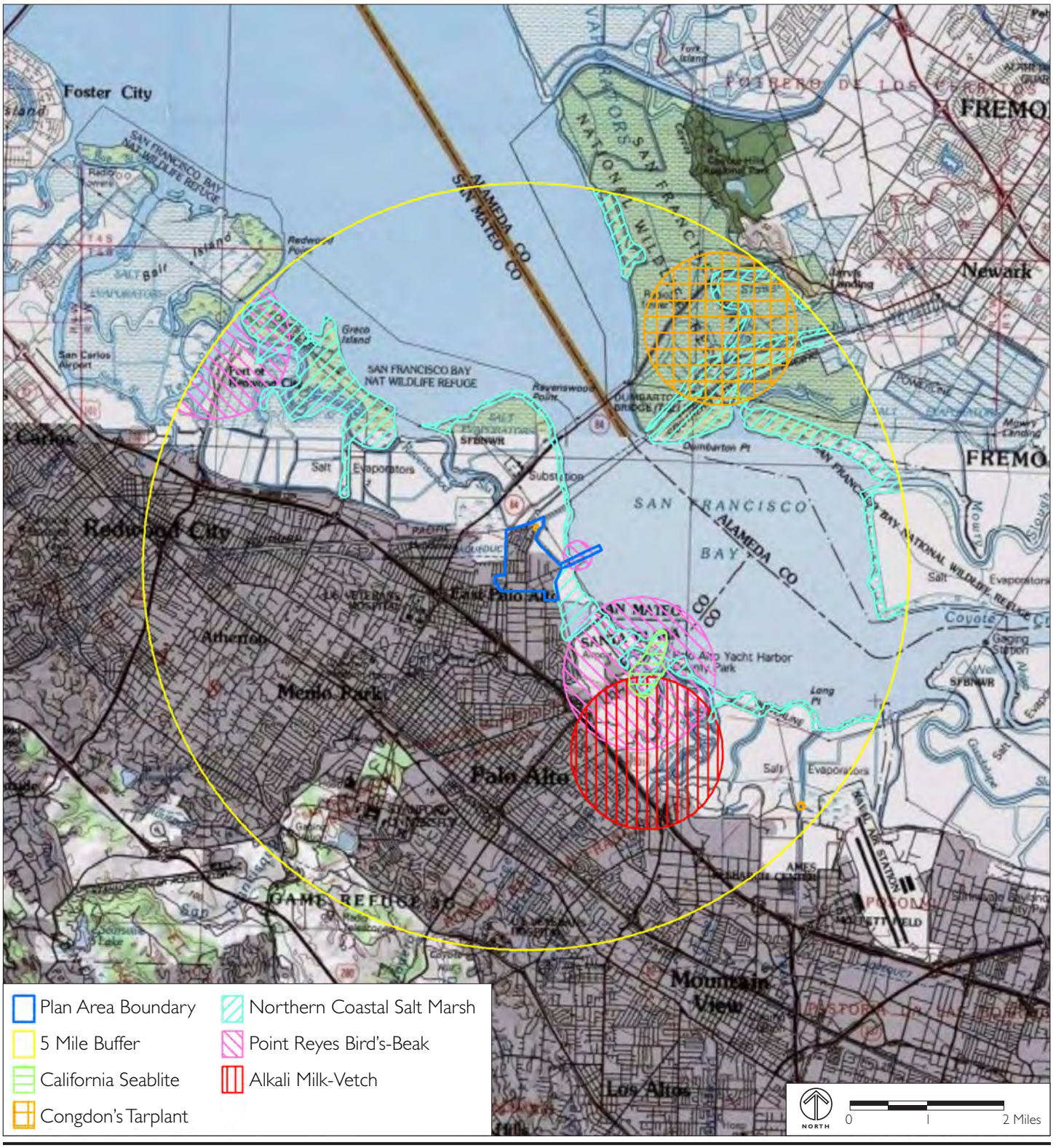
California Native Plant Society (CNPS), Online Inventory of Rare and Endangered Plants, http://cnps.site.aplus.net/cgi-bin/inv/inventory.cgi, accessed on October 19, 2009.

[5] California Department of Fish and Game (CDFG), Biogeographic Data Branch, 2009, California Natural Diversity Database (CNDDB).

California Native Plant Society (CNPS), Online Inventory of Rare and Endangered Plants, http://cnps.site.aplus.net/cgi-bin/inv/inventory.cgi, accessed on October 19, 2009.

[6] California Native Plant Society (CNPS), Online Inventory of Rare and Endangered Plants, http://cnps.site.aplus.net/cgi-bin/inv/inventory.cgi, accessed on October 19, 2009.



Source: CNDDB, 2009.

FIGURE 4.4-2

CNDDB SPECIAL-STATUS PLANT RECORDS

TABLE 4.4-1 **SPECIAL STATUS SPECIES AND SENSITIVE COMMUNITIES WITHIN 5 MILES OF THE PLAN AREA**

Species	Listing Status	Habitat Requirements	Potential for Occurrence in Plan Area
Birds			
Western burrowing owl (*Athene cunicularia hypugaea*)	CSC	Open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation. Nests in mammal burrows.	Low. No suitable burrows seen within grasslands on-site. Species could forage on-site.
Western snowy plover (*Charadrius alexandrinus nivosus*)	FT, CSC	Sandy beaches, salt pond levees, and shores of large alkali lakes. Needs sandy, gravelly or friable soils for nesting.	Moderate. Species has been recorded south of Plan Area at San Francisquito Creek. Plan Area does not provide optimum habitat.
Saltmarsh common yellowthroat (*Geothlypis trichas sinuosa*)	CSC	Resident of the San Francisco Bay region, in fresh and salt water marshes. Uses tall grasses, tules, or willows for nesting.	Moderate. Species recorded in Palo Alto Baylands; species may forage on-site. Unlikely to nest on-site due to lack of nesting habitat.
Alameda song sparrow (*Melospiza melodia pusillula*)	CSC	Salt marshes of the south arm of San Francisco Bay. Nests low in grindelia bushes (high enough to escape high tides) and in pickleweed.	Moderate. Species recorded south of Cooley Landing; suitable breeding and foraging habitat on-site.
California black rail (*Laterallus jamaicensis coturniculus*)	ST, CFP	Inhabits freshwater marshes, wet meadows, and shallow margins of saltwater marshes bordering larger bays. Nests and forages in tidal emergent wetland with pickleweed and cordgrass.	High. Species recorded in Palo Alto Baylands; suitable breeding and foraging habitat on-site.
California clapper rail (*Rallus longirostris obsoletus*)	FE, SE, CFP	Salt-water and brackish marshes traversed by tidal sloughs in the vicinity of San Francisco Bay. Nests and forages in emergent wetland with pickleweed, bulrush, and cordgrass.	High. Species recorded in Palo Alto Baylands; suitable breeding and foraging habitat on-site.
California least tern (*Sterna antillarum browni*)	FE, SE, CFP	Nests along the coast from San Francisco Bay south to northern Baja California. Breeds on bare or sparsely vegetated flat substrates.	Low. Species may forage on-site. No suitable nesting habitat.
Mammals			
Pallid bat (*Antrozous pallidus*)	CSC	Deserts, grasslands, shrublands, woodlands, and forests. Most common in open, dry habitats with rocky areas for roosting.	Low. Some foraging and roosting habitat available, but not of high quality. Species sensitive to disturbance.
Salt marsh harvest mouse (*Reithrodontomys raviventris*)	FE, SE, CFP	Only in the saline emergent wetlands of San Francisco Bay and its tributaries dense with pickleweed.	High. Species has been recorded on-site. Suitable habitat present.

TABLE 4.4-1 ***SPECIAL STATUS SPECIES AND SENSITIVE COMMUNITIES WITHIN 5 MILES OF THE PLAN AREA*** (CONTINUED)

Species	Listing Status	Habitat Requirements	Potential for Occurrence in Plan Area
Salt marsh wandering shrew (*Sorex vagrans halicoetes*)	CSC	Salt marshes of the south arm of San Francisco Bay.	Moderate. Species recorded north of Dumbarton Bridge at Ravenswood Point. Moderately suitable habitat present.
Plants			
Alkali milk-vetch (*Astragalus tener var. tener*)	CNPS 1B.2	Alkali flats, vernal pools in valley grassland.	Very Low. Marginal habitat in annual grassland habitat. Last Bay Area collection in 1959.
Congdon's tarplant (*Centromadia parryi* ssp. *congdonii*)	CNPS 1B.2	Alkaline areas in valley and foothill grassland.	High. This species was found on-site in 2001 and is most likely still present.
Point Reyes bird's beak (*Cordylanthus maritimus* ssp. *palustris*)	CNPS 1B.1	Upper zones of coastal salt marsh.	Very Low. Habitat present in salt marsh, but species believed extirpated from Bay Area.
California seablite (*Suaeda californica*)	FE, CNPS 1B.1	Coastal saltwater marshes and swamps.	Very Low. Habitat present in salt marsh. Formerly known from Bay Area, now only extant in Morro Bay.
Communities			
Northern coastal salt marsh	N/A	N/A	Present

Notes: FE: Federal endangered; FT: Federal threatened; SE: State endangered; ST: State threatened; CSC: California species of special concern; CFP: California fully protected

CNPS: California Native Plant Society
List 1A: Plants presumed extinct in California
List 1B: Plants rare, threatened, or endangered in California and elsewhere
List 2: Plants rare, threatened, or endangered in California, but more common elsewhere
List 3: Plants about which we need more information – a review list
List 4: Plants of limited distribution – a watch list
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

collects.[7] The species is severely threatened by development and nearly extirpated in the Bay Area. Congdon's tarplant is often associated with non-native grassland species, including mustard (*Brassica* spp.) and star thistle (*Centaurea* spp.).

A small population of Congdon's tarplant was discovered within the Plan Area in 2001.[8] Seventeen plants were observed in the Plan Area within upland habitat located approximately behind the address of 2888 Illinois Street (generally shown in Figure 4.4-2). This represents the only known, extant population of Congdon's tarplant in San Mateo County.

ii. Wildlife

Of the wildlife species with records of occurrence in the Palo Alto and Mountain View USGS 7.5-minute quads, nine were determined to have potential to occur in the habitats found in the Plan Area. A map of these animal species' occurrences listed in the CNDDB is provided in Figure 4.4--3. Species likely to be present include salt marsh harvest mouse and salt marsh wandering shrew. Other species with a high likelihood of occurring on-site include California black rail and California clapper rail. All ten species determined to have potential for occurrence on-site are discussed below.

a) Western Burrowing Owl (Athene cunicularia hypugaea)

Burrowing owls (California Species of Special Concern) are a year-round resident of the San Francisco Bay Area. Burrowing owls inhabit open, annual and perennial grasslands, deserts and scrublands characterized by low-growing vegetation. The species also can be found within disturbed sites, such as airports, fallow fields or berms on the edges of agricultural land. Within these habitats, burrowing owls nest in and occupy burrows made by digging mammals, particularly those of California ground squirrels. They will also

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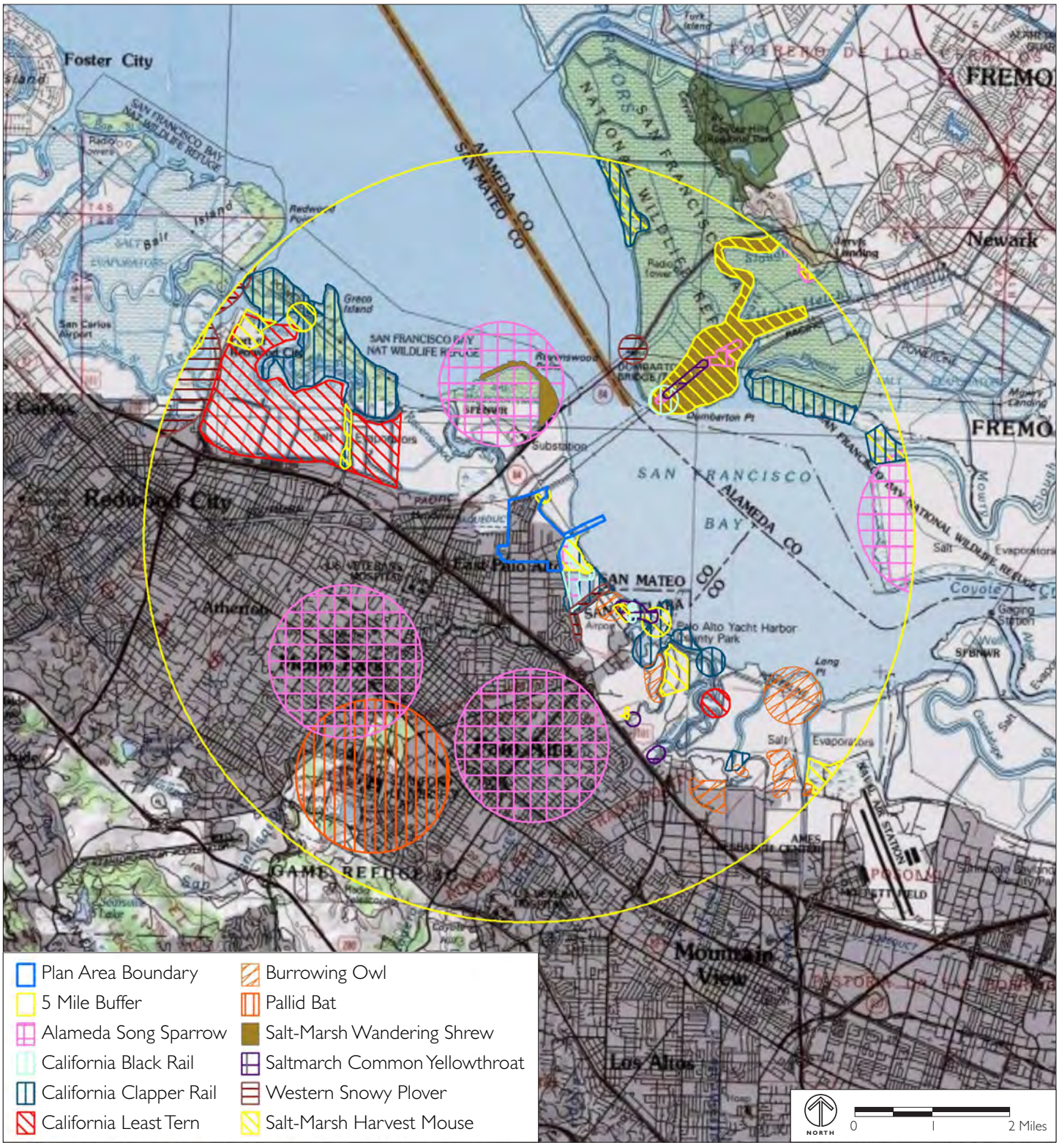
[7] Corelli, Toni and Zoe Chandik, 1995, *The Rare and Endangered Plants of San Mateo and Santa Clara County,* Half Moon Bay: Monocot Press.

[8] Wellington Corporation, 2001, *Biological Assessment for APN 063-050-003, East Palo Alto, CA.*



Source: CNDDB, 2009.

FIGURE 4.4-3

CNDDB SPECIAL-STATUS ANIMAL RECORDS

occupy man-made structures, including cement culverts, pipes, cement, or wood debris piles.[9]

Within the Plan Area, upland areas supporting non-native grassland habitat, such as that at the Stanford Fill, support moderately suitable foraging habitat for burrowing owls. However, no ground squirrel burrows or activity were observed during the site visit on October 21, 2009. There are no records in the CNDDB of burrowing owls within the Plan Area, although the species has been recorded at the Palo Alto Municipal Airport, less than 1 mile south-east of the Plan Area.[10] A study conducted within a portion of the Plan Area that included the Stanford Fill area in 2001 found no evidence of burrowing owls after eight field surveys.[11]

b) Western Snowy Plover (*Charadrius Alexandrinus Nivosus*)

The western snowy plover is a federal Threatened species and a California Species of Special Concern. The species can be found on sandy beaches, salt pond levees and shores of large alkali lakes and needs sandy, gravelly or friable soils for nesting. Western snowy plovers breed above the high tide line on coastal beaches, sand spits, dune-backed beaches, sparsely-vegetated dunes, beaches at creek and river mouths, and salt pans at lagoons and estuaries.[12] Less common nesting habitat includes bluff-backed beaches, dredged material disposal sites, salt pond levees, dry salt ponds, and river bars. Poor reproductive success, resulting from human disturbance, predation, and inclement weather, combined with permanent or long-term loss of nesting habitat to non-native beachgrass encroachment and urban development, has led to a

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[9] California Burrowing Owl Consortium (CBOC), 1993, *Burrowing Owl Survey Protocol and Mitigation Guidelines*.

[10] California Department of Fish and Game (CDFG), Biogeographic Data Branch, 2009, California Natural Diversity Database (CNDDB).

[11] Thomas Reid Associates, , 2001, *Biological Assessment for APN 063-050-003, East Palo Alto, CA*.

[12] US Fish and Wildlife Service (USFWS), Aracata Fish and Wildlife, http://www.fws.gov/arcata/es/birds/WSP/plover.html, accessed on November 3, 2009.

population decline along the Pacific coast.[13] Western snowy plovers typically forage for small invertebrates in wet or dry beach sand above and below mean high-water line, among tide-cast kelp, and within low foredune vegetation.

Western snowy plovers have been observed south of the Plan Area at San Francisquito Creek.[14] However, the site supports only low-suitability habitat for this species. Given the close proximity to a known population, the species may be found moving through the Plan Area.

c) Saltmarsh Common Yellowthroat (*Geothlypis Trichas Sinuosa*)

Saltmarsh common yellowthroat, a California Species of Special Concern, is a warbler species found breeding in woody swamps, brackish marsh, and freshwater marsh habitats. They require thick vegetation in moist environments and high densities of insects. Saltmarsh common yellowthroat is a year-round resident, and the species requires tall grasses, tule patches, or willows for breeding. Males and females raise the young together. A loss of wetland habitat has resulted in a decline in this species' population and range.

The species has not been recorded within the Plan Area, although suitable foraging habitat is present.[15] The site does not support high quality nesting habitat. The species has been recorded approximately 1.25 miles south of the Plan Area, within the Baylands Preserve adjacent to the Palo Alto Municipal Airport.[16]

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[13] US Fish and Wildlife Service (USFWS), Aracata Fish and Wildlife, http://www.fws.gov/arcata/es/birds/WSP/plover.html, accessed on November 3, 2009.

[14] California Department of Fish and Game (CDFG), Biogeographic Data Branch, 2009, California Natural Diversity Database (CNDDB).

[15] California Department of Fish and Game (CDFG), Biogeographic Data Branch, 2009, California Natural Diversity Database (CNDDB).

[16] California Department of Fish and Game (CDFG), Biogeographic Data Branch, 2009, California Natural Diversity Database (CNDDB).

d) Alameda Song Sparrow (*Melospiza Melodia Pusillula*)

The Alameda song sparrow, a California Species of Special Concern, is a subspecies of the song sparrow, one of the most diverse and widespread songbirds in North America.[17] The Alameda song sparrow is endemic to California, where it occurs in tidal marshes on the fringes of south San Francisco Bay. The loss of tidal marsh in the Bay has resulted in a substantial loss of the species within its range. Alameda song sparrow is a year-round resident and prefers tidally influenced habitat.[18] Where the marsh plain is intersected by sloughs, song sparrow territories are arranged linearly along the slough, providing each pair with access to the slough and its overhanging banks for food and cover. Exposed ground for foraging is required. Vegetation is required for nesting sites, song perches, and concealment from predators. Alameda song sparrows require some upper marsh vegetation for nesting, so that nests remain dry during all but the highest tides.[19]

Alameda song sparrow has been recorded just south of the Plan Area, southwest of Cooley Landing at the mouth of San Francisquito Creek. Moderately suitable habitat for this species occurs in the Plan Area's salt marsh habitat.

e) California Black Rail (*Laterallus Jamaicensis Coturniculus*)

The California black rail is a California Threatened and Fully Protected species. A subspecies of black rail, the California black rail prefers shallow water

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[17] Birds of North America Online (BNAO), Cornell Lab of Ornithology. http://bna.birds.cornell.edu, accessed on November 2, 2009.

[18] Shuford, W.D. and Gardali, T., eds., 2008, *California Bird Species of Special Concern: A Ranked Assessment of Species, Subspecies, and Distinct Populations of Birds of Immediate Conservation Concern in California. Studies of Western Birds 1.* Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game (CDFG), Sacramento.

[19] Shuford, W.D. and Gardali, T., eds., 2008, *California Bird Species of Special Concern: A Ranked Assessment of Species, Subspecies, and Distinct Populations of Birds of Immediate Conservation Concern in California. Studies of Western Birds 1.* Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game (CDFG), Sacramento.

within both fresh and salt marsh habitats. The species is found in the vicinity of tidal sloughs, saline emergent wetlands, and freshwater marshes with bulrushes, cattails, and saltgrass. California black rails tolerate flooding in tidal marshes provided there is upland vegetation for escape during high tide.[20] The species will nest in low, marshy meadows, dense freshwater marshes, and thick marsh vegetation near upper limits of high tides. The nest is placed in center of clumps of vegetation, including pickleweed, over moist soil or very shallow water, often in areas of higher elevation than surrounding habitat.[21]

Within the South Bay, California black rails have been found to breed only within the Don Edwards San Francisco Bay National Wildlife Refuge, located 3 miles northeast of the Plan Area.[22] The species has been recorded in the Palo Alto Baylands, southwest of Cooley Landing.[23] The species has not been recorded within the Plan Area, although suitable foraging and breeding habitat is present in salt marsh and open water habitats.

f) California Clapper Rail (*Rallus Longirostris Obsoletus*)

The California clapper rail is a State and federal Endangered species and a State Fully Protected species. Loss of habitat has resulted in marked declines of this subspecies throughout its range. In the South Bay, clapper rails typically inhabit pickleweed- and cordgrass-dominated salt marshes. The species habitat requirements include shallow water or mudflats for foraging and adjacent upland vegetation for escape during high tide. California clapper rails nest in areas characterized by the presence of tidal sloughs, abundant inverte-

[20] Birds of North America Online (BNAO), Cornell Lab of Ornithology. http://bna.birds.cornell.edu, accessed on November 2, 2009.

[21] Birds of North America Online (BNAO), Cornell Lab of Ornithology. http://bna.birds.cornell.edu, accessed on November 2, 2009.

[22] ESA, 2009, *East Palo Alto General Plan and Zoning Ordinance Amendments and Infrastructure Improvements Draft EIR*.

[23] California Department of Fish and Game (CDFG), Biogeographic Data Branch, 2009, California Natural Diversity Database (CNDDB).

brate populations, pickleweed with extensive cordgrass coverage in the lower zone, and tall pickleweed, gum plant, and wrack in the upper zone.[24]

The California clapper rail is known to breed in the Palo Alto Baylands, south of the Plan Area. A breeding population is known from the north of the Palo Alto Baylands, in the Faber-Laumeister Marsh, where over 100 individuals were observed in 2001.[25] Suitable foraging and breeding habitat is present within the northern coastal salt marsh habitat in the Plan Area, and presence would likely be assumed by the United States Fish and Wildlife Service (USFWS).

g) California Least Tern (*Sterna Antillarum Browni*)

The California Least Tern is a State and federal Endangered species and a State Fully Protected species. The California least tern is a migratory subspecies that breeds along the edges of the San Francisco Bay. The species hunts primarily in shallow estuaries and lagoons, where smaller fishes are abundant. Adults do not require cover, so that they commonly roost on the open ground. The species is a colonial nester, and nests are situated on barren to sparsely vegetated places near water, normally on sandy or gravelly substrates, and sometimes including abandoned salt flats. Notable disruption of colonies can occur from predation by burrowing owls and American kestrels.

The Plan Area does not provide optimum foraging or nesting habitat for the California least tern, and the species has never been recorded in the Plan Area.[26] However, because it is known to occur along the edges of San Francisco Bay, this species could occur in the Plan Area within sloughs during low tide or in other areas that support shallow water.

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[24] Birds of North America Online (BNAO), Cornell Lab of Ornithology. http://bna.birds.cornell.edu, accessed on November 2, 2009.

[25] Thomas Reid Associates, 2001, *Biological Assessment for APN 063-050-003, East Palo Alto, CA*.

[26] California Department of Fish and Game (CDFG), Biogeographic Data Branch, 2009, California Natural Diversity Database (CNDDB).

h) Salt Marsh Harvest Mouse (*Reithrodontomys Raviventris*)

The salt marsh harvest mouse is a State and federal Endangered species and a state Fully Protected species. The species is restricted to coastal salt marsh habitat of the San Francisco Bay. The mouse is a "cover dependent" species that inhabits tidal and diked salt marshes characterized by dense stands of pickleweed. Pickleweed inhabited by this species must be in contact with the upper zone of the salt marsh to allow for movement away from the water at high tide.[27] There may be some daily movement between marsh to high elevation grasslands in spring or summer or when adjacent grasslands provide protection from predators during high tide or flood events. The species breeds from May to November and constructs nests at ground level within grasses and sedge. Salt marsh harvest mouse is mainly active at night.

The CNDDB maps salt marsh harvest mouse occurrences to the immediate south of Cooley Landing in the Palo Alto Baylands.[28] The species has also been recorded in the north of the Plan Area, near the railroad tracks.[29] Suitable habitat for the species occurs in the northern coastal salt marsh and adjacent upland in the Plan Area, and the USFWS and California Department of Fish and Game (CDFG) would likely assume presence within the Plan Area. There are isolated pockets of northern coastal salt marsh in the Plan Area that have a lower likelihood of supporting salt marsh harvest mouse, because they do not have direct tidal influence and are separated from other salt marsh.

i) Salt Marsh Wandering Shrew (*Sorex Vagrans Halicoetes*)

The salt marsh wandering shrew is a California Species of Special Concern and, like the salt marsh harvest mouse, is restricted to coastal salt marsh habitat of the San Francisco Bay. The species is limited to medium high marsh

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[27] US Fish and Wildlife Service (USFWS), Sacramento Fish and Wildlife Office, http://www.fws.gov/sacramento/es/animal_spp_acct/salt_marsh_harvest_mouse.pdf, accessed on November. 2, 2009.

[28] California Department of Fish and Game (CDFG), Biogeographic Data Branch, 2009, California Natural Diversity Database (CNDDB).

[29] California Department of Fish and Game (CDFG), Biogeographic Data Branch, 2009, California Natural Diversity Database (CNDDB).

that is 6 to 8 feet above sea level and with pickleweed usually 1 to 2 feet tall.[30] The shrew's habitat is further defined by the presence of driftwood and other debris that provides moisture and refuge during dry periods.[31] The shrew builds its nest within duff, primarily cordgrass.

Salt marsh wandering shrew has not been recorded in the Plan Area. The nearest record in the CNDDB is approximately 1 mile north of the Plan Area, within the salt marsh habitat from Ravenswood Point to the west approach to the Dumbarton Bridge. Suitable habitat for salt marsh wandering shrew is found within the northern coastal salt marsh mapped in the Plan Area. Typically this species is assumed present when salt marsh harvest mouse presence is assumed,[32] which is the case for the Plan Area.

j) Pallid Bat

Pallid bats, a California Species of Special Concern, may use a wide variety of habitats, including grasslands, shrublands, woodlands, and forests. The species is most common in open, dry habitats with rocky areas for roosting. Pallid bats will use a variety of microhabitats for day and night roosts, including crevices in rocky outcrops and cliffs, caves, mines, trees (in cavities or under bark), and structures such as bridges, barns, and buildings. A suitable roost will have unobstructed entrances/exits, be high above the ground, and be inaccessible to terrestrial predators.[33] Day roosts must protect bats from high temperatures. Night roosts may be in more open sites, such as porches

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[30] San Francisco Bay Regional Water Quality Control Board (RWQCB), 2000, *Baylands Ecosystem Species and Community Profiles: Life Histories and Environmental Requirements of Key Plants, Fish and Wildlife.*

[31] San Francisco Bay Regional Water Quality Control Board (RWQCB), 2000, *Baylands Ecosystem Species and Community Profiles: Life Histories and Environmental Requirements of Key Plants, Fish and Wildlife.*

[32] ESA, 2009, *East Palo Alto General Plan and Zoning Ordinance Amendments and Infrastructure Improvements Draft EIR.*

[33] Sherwin, Rick, 1998, *Species Account: Antrozous Pallidus, Pallid Bat.* Developed for the 1998 Reno Biennial Meeting; updated at the 2005 Portland Biennial Meeting by Daniela A. Rambaldini, Western Bat Working Group.

and open buildings. Pallid bats are very sensitive to disturbance of roosts. Pallid bats forage by gleaning a variety of terrestrial arthropods such as beetles, crickets, and termites. Bats will forage over grasslands, forests, talus slopes, gravel and dirt roads, orchards, and vineyards. This bat prefers foraging in dry open grasslands near water and rocky outcroppings or old structures.

The CNDDB has records of pallid bat within 5 miles of the Plan Area. The Plan Area does not provide optimum roosting habitat for this species, although potential roosts might be found within structures in the Plan Area. There is moderately suitable foraging habitat in the non-native grassland/ruderal habitat in the Plan Area, as well as along paths and roads outside of the urban landscape.

c. Wetlands

The open water/tidal slough and northern coastal salt marsh habitats described under B.2.a, above, are waters and wetlands of the United States. Waters of the United States and wetlands are defined and governed by the federal government, as described below under the Clean Water Act (CWA). Fill placed in these areas is subject to authorization from the US Army Corps of Engineers (USACE) and the California Regional Water Quality Control Board (RWQCB) under the federal CWA and the State Porter-Cologne act.

d. Wildlife Movement Corridors

Wildlife movement includes migration, typically one way per season; interpopulation movement, which provides for long-term genetic flow; and small travel pathways that support daily movement within an animal's territory. While small travel pathways usually facilitate movement for daily home range activities, such as foraging or escape from predators, they also provide connections between outlying populations and the main corridor, permitting an increase in gene flow among populations. These linkages among habitats can extend for miles and occur on a large scale throughout California. Habitat linkages facilitate movement between populations located in discrete areas and populations located within larger habitat areas.

The salt marsh habitat along the east side of the Plan Area provides an important movement corridor, as it is part of a larger system of marsh habitat around San Francisco Bay. The Plan Area is adjacent to both the Ravenswood and Baylands Preserves, which provide valuable wetland habitat for a variety of species, including several that are listed under the Endangered Species Act, as described below.

C. Standards of Significance

Biological resource impacts associated with the Plan would be considered significant if the Plan would:

a. 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 California Department of Fish and Game or U.S. Fish and Wildlife Service.

b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or US Fish and Wildlife Service.

c. 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.

d. 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.

e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

D. Impact Discussion

This section describes the environmental impacts to biological resources that would result from implementation of the Ravenswood/4 Corners TOD Specific Plan.

1. Candidate, Sensitive, or Special Status Species

a. 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 California Department of Fish and Game or U.S. Fish and Wildlife Service. ***(LTS with Mitigation)***

i. Plants

As described above under B. Existing Conditions, several candidate, sensitive, and special-status plant species could occur in the Specific Plan area according to the CNDDB and CNPS records. Of those species, four (three California-only threatened and endangered species, and one also federally listed) have suitable habitat on site; however, three of them (alkali milk vetch (*Astragalus tener* var. *tener)*, Point Reyes' bird's beak (*Cordylanthus maritimus* spp. *palustris*), and California seablite (*Sueda californica*) have a very low potential to occur in the Plan area. Only Congdon's tarplant (*Centromadia parryi* spp. *Congdonii*) has a high potential to occur within the Plan area and it was recorded on the land approximately behind the address of 2888 Illinois Street in 2001. Loss of Congdon's tarplant or any of the other three other special-status species would be a ***significant*** impact.

Impact BIO-1: Special-status plant species, such as Congdon's tarplant, alkali milk vetch, Point Reyes' bird's beak, and California seablite, that could occur in the Plan Area, could be impacted by construction activities. ***(LTS with Mitigation)***

Mitigation Measure BIO-1: If development is proposed on a site identified as "Natural Habitat" in Figure 4.4-1 of the Draft EIR, the site shall first be subjected to focused pre-construction surveys during the appropriate blooming seasons by a qualified biologist to assess for the presence of Congdon's tarplant, alkali milk vetch, Point Reyes' bird's beak, and California seablite. Survey methods shall comply with CNPS/CDFG rare plant survey protocols, and shall be performed by qualified field botanists. Any populations of special-status plant species that are detected shall be mapped.

If special-status plant populations are detected, they shall be avoided to the greatest extent feasible; however, where construction would have unavoidable impacts, a compensatory mitigation plan shall be prepared and implemented in coordination with regulatory agencies. Such plans may include salvage, propagation, on-site reintroduction in restored habitats, and monitoring.

Significance after Mitigation: With these avoidance and compensation measures, the impact would be ***less than significant.***

ii. Animals

As described in the Existing Conditions, nine special-status animal species have potential to occur in the Specific Plan area. The ten species are as follows: western burrowing owl (*Athene cunicularia hypugaea*, foraging and nesting); western snowy plover (*Charadrius alexandrius nivosus*, foraging only*);* saltmarsh common yellowthroat (*Geothlypis trichas sinuosa*, foraging only); Alameda song sparrow (*Melospiza melodia pusillula*, foraging and nesting); California black rail (*Laterallus jamaicensis coturniculus*, foraging and nesting); California clapper rail (*Rallus longirostris obsoletus*, foraging and nesting); California least tern (*Sterna antillarum browni*, foraging only); salt marsh harvest mouse (*Reithrodontomys raviventris*); salt marsh wandering shrew (*Sorex vagrans halicoetes*); and pallid bat (*Antrozous pallidus*). All of these species have either a moderate or high potential to occur on site with the exception of pallid bat, western burrowing owl, and California least tern, which

have only a low potential for occurrence (Table 4.4-1). Loss of any individuals or the entire population of any of these species would be a ***significant*** impact.

Impact BIO-2: Salt marsh harvest mouse and salt marsh wandering shrew could be impacted by construction activities. ***(LTS with Mitigation)***

Mitigation Measure BIO-2a: Any development project in an area identified as Salt Marsh on Figure 4.4-1 of the Draft EIR shall be subject to a wetland delineation and habitat assessment prepared by a qualified biologist. All jurisdictional wetlands and areas of dense pickleweed identified by the biologist as suitable habitat for the salt marsh harvest mouse shall be avoided for development and preserved in their existing state, unless Mitigation Measure BIO-2b is implemented. This would also avoid impacts to the salt marsh wandering shrew, whose habitat overlaps with wetlands and that of the salt marsh harvest mouse.

Mitigation Measure BIO-2b: Where avoidance of suitable habitat for salt marsh harvest mouse or salt marsh wandering shrew is not possible, the U.S. Fish and Wildlife Service shall be consulted.

Significance after Mitigation: By avoiding these areas, the impact would be reduced to ***less than significant.***

Impact BIO-3: Project construction activities could result in impacts to nesting birds, including California black rail, California clapper rail, and western burrowing owl, as a result of disturbance to active nests and breeding behavior. ***(LTS with Mitigation)***

Mitigation Measure BIO-3a: If construction activities are scheduled to occur during the breeding season (February 1 through August 31), a qualified wildlife biologist shall conduct pre-construction surveys of all potentially suitable nesting habitat within 0.25 miles of active construction areas, including trees, shrubs, grasslands and wetland vegetation. The qualified wildlife biologist shall determine the timing of pre-

construction surveys based on the time of year and habitats that are present, and shall conduct the surveys no more than 15 days prior to construction.

a. If active California clapper rail or California black rail nests are found, a 500-foot no-disturbance setback zone shall be flagged and maintained around active nests until it is determined that young have fledged. If active nests for other bird species are found, a 250-foot no-disturbance setback zone shall be flagged and maintained around active nests until it is determined that young have fledged.
b. If pre-construction surveys indicate that nests are inactive or potential habitat is unoccupied during the construction period, no further mitigation shall be required.
c. If construction is scheduled to occur during the non-nesting season (September 1 – January 31), then no nesting bird surveys shall be required before the start of construction activity, except for provisions for surveys for wintering western burrowing owls, as specified in Mitigation Measure BIO-3b.
d. A worker education program shall be provided to the construction crew. This program shall review sensitive species and habitats that might be present on the site. Workers shall be informed of mitigation and avoidance measures.

Mitigation Measure BIO-3b: The following guidelines, adapted from the CDFG Staff Report on Burrowing Owl Mitigation (CDFG 1995), shall be implemented:

a. Pre-construction western burrowing owl surveys shall be conducted in all areas that may provide suitable nesting habitat according to CDFG (1995) guidelines. These likely areas are shown as areas of upland habitat on Figure 4.4-1 of the Draft EIR.
    i. No more than 30 days before construction, a habitat survey, including documentation of burrows and western burrowing owls, shall be conducted by a qualified wildlife biologist within 500 feet of the construction area in areas suitable for western bur-

rowing owls. If no suitable habitat is found, no further mitigation is needed.

ii. The survey shall conform to the protocol described by the California Burrowing Owl Consortium, including up to four surveys on different dates if there are suitable burrows present.

iii. The survey shall identify as any impact any disturbance within 160 feet of occupied burrows during the non-breeding season of September 1 through January 31, or within approximately 250 feet during the breeding season of February 1 through August 31.

b. If, as determined by a qualified biologist, construction activities will not adversely affect occupied burrows or disrupt breeding behavior, construction may proceed without any restriction or mitigation measures for western burrowing owls.

c. If construction could adversely affect occupied burrows during the February 1 through August 31 breeding season, a 250-foot no disturbance buffer shall be maintained around the occupied burrow until a qualified biologist has determined that the chicks have fledged. If construction could adversely affect occupied burrows during the September 1 through January 31 non-breeding season, the subject owls may be passively relocated from the occupied burrow(s) using one-way doors, according to CDFG guidelines, using the following measures:

i There shall be at least two unoccupied burrows suitable for western burrowing owl within 300 feet of the occupied burrow before one-way doors are installed in the occupied burrow.

ii The unoccupied burrows shall also be located at least 160 feet from construction activities and can be natural burrows or artificial burrows constructed according to current design specifications.

iii. If artificial burrows are created, these burrows shall be in place at least one week before one-way doors are installed on the currently occupied burrows.

iv. One-way doors must be in place for a minimum of 48 hours to ensure that owls have left the burrow before the burrow is excavated.

Significance after Mitigation: If the recommended surveys are carried out and the specified avoidance and mitigation measures put in place, impacts to the California black rail, California clapper rail, and western burrowing owl would be ***less than significant***.

b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or US Fish and Wildlife Service. ***(LTS with Mitigation)***

Northern coastal salt marsh is considered a sensitive habitat by the CDFG. This habitat is present in the northeastern part of the Specific Plan area between University Village and Ravenswood Open Space Preserve, the northwest corner, and the Plan area's northern boundary. Some is also found along Bay Road towards Cooley Landing. Loss of northern coastal salt marsh would be a ***significant*** impact.

Northern coastal salt marsh and open water/tidal slough habitats are both wetland habitats and their removal is covered by Mitigation Measure BIO-5.

Impact BIO-4: Northern coastal salt marsh could be impacted as a consequence of development under the Specific Plan. ***(LTS with Mitigation)***

Mitigation Measure BIO-4: See Mitigation Measure BIO-5.

Significance after Mitigation: With implementation of surveys, and avoidance and mitigation measures as specified in BIO-5, the impact would be ***less than significant.***

c. 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. ***(LTS with Mitigation)***

Both northern coastal salt marsh and open water/tidal slough habitats are waters and wetlands of the United States. Filling of wetlands is a ***significant*** impact.

Impact BIO-5: Wetland habitat including northern coastal salt marsh could be disturbed to install subsurface infrastructure, or filled and lost as a consequence of development under the Specific Plan. ***(LTS with Mitigation)***

Mitigation Measure BIO-5: During or prior to project design, a wetland delineation of the project area shall be conducted to determine precise boundaries of jurisdictional wetlands. If wetlands under State or federal jurisdiction occur in the construction areas and involve the placement of fill or dredged materials or other alteration, the necessary and appropriate permits and approvals from responsible resources agencies shall be secured. As appropriate for the type of permit to be considered, options that avoid, minimize, or mitigate potential impacts on jurisdictional wetlands shall be evaluated. Conditions of approval attached to the permits shall be followed. In addition, the following mitigations as described below shall be carried out.

- Sensitive habitat areas including wetlands adjacent to, but outside of, the construction area shall be demarcated with orange construction fencing to exclude workers, vehicles, and equipment.
- Construction and staging areas shall be flagged to clearly define the limits of the work area. The locations of habitats to be avoided shall be identified in the contract documents (plans and specifications) as "Sensitive Biological Resources – Do Not Disturb."
- Jack-and-bore or other trenchless methods shall be used to reduce the need for surface construction within identified sensitive habitats and exclusion zones, and construction activities and vehicles shall be restricted to a specified right-of-way.
- Where possible, pre-project topography shall be restored.

- ♦ Where possible, trenches shall be worked from only one side to minimize impacts on adjacent habitat.
- ♦ Watering of exposed earth shall be conducted consistent with construction BMPs to minimize dust production.
- ♦ Trench lines shall be reseeded with native vegetation appropriate for the affected habitat type, and/or a double-trenching technique shall be used through sensitive habitats to help preserve the existing seedbank.
- ♦ When wetland impact avoidance is not possible, mitigation in the form of on-site or offsite habitat restoration/revegetation, or purchase of mitigation bank credits shall be secured in accordance with resource agency guidelines, and subject to approval of all resource agencies with jurisdiction on the site.

Significance after Mitigation: With wetland delineation, permits, resource agency oversight, and adherence to conditions of approval together with additional avoidance and mitigation, the impact would be ***less than significant.***

d. 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. ***(LTS)***

As described in Section B. Existing Conditions, the salt marsh habitat along the east side of the Plan Area, provides an important movement corridor for wildlife between the Ravenswood Open Space Preserve to the north and Palo Alto Baylands Nature Preserve to the south. This corridor would not be affected by development under the Specific Plan and there would be a ***less-than-significant*** impact.

The Specific Plan would develop the bayside area with office buildings that could be up to 7 stories in height and are likely to have substantial glass surfaces. To prevent death of birds, particularly migratory birds, by their crash-

ing into the glazed areas, the Plan contains a number of bird-safe policies.[34] These require that the reflective surfaces are broken up using methods such as netting, or stenciling or other physical grids, so that they become more visible to birds. With these policies in place, the risk to migratory birds becomes ***less than significant.***

e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. ***(LTS)***

The City of East Palo Alto's General Plan Conservation and Open Space Policy 2.1, states "Conserve, protect, and maintain important natural plant and animal communities, such as the Baylands, Cooley Landing, the shoreline, and significant tree stands." Destruction of the important natural plant community represented by the northern coastal salt marsh would be in conflict with that policy. This inconsistency was described above under Signficance Measure b above.

BCDC's jurisdiction on San Francisco Bay includes all sloughs, marshlands between mean high tide and 5 feet above mean sea level, tidelands, submerged lands, and land within 100 feet of the Bay shoreline. The precise boundary is determined by BCDC on request. BCDC jurisdiction over the Plan Area is likely to include (from north to south): some of the northern part of the loop road, a portion of the Industrial/Office flex on the 391 Demeter Street Property, the northern part of the General Industrial and Office Flex designations, and an outside band around 100 feet in width running through the Office, General Industrial, Industrial Buffer Specific Plan development. Water pipes north of Tara Road, the water tank, and at the easternmost points on Bay Road and Weeks Street; the storm drainage channel excavations to the O'Connor pump station; and the sanitary sewer upgrades inside the levee are also probably in BCDC jurisdiction.[35]

[34] Specific Plan, Appendix B. Additional Development Standards.

[35] The DEPLAN showed electricity transmission lines south of the 391 Demeter Street property that would be undergrounded across some areas of tidal marsh. These were removed from the DEPLAN. If the undergrounding takes place, it would

The Plan's consistency with BCDC's policies and findings as outlined in the Bay Plan with respect to sea level rise are analyzed in Section 4.10 Land Use.

The 1999 report Baylands Ecosystem Habitat Goals: A Report of Habitat Recommendations by San Francisco Bay Area Wetlands Ecosystem Goals Project, the US EPA and the San Francisco RWQCB, included these goals specific to the Mountain View Segment, which includes the Plan Area:

- Restore large areas of tidal marsh and provide a continuous corridor of tidal marsh along the bayshore.
- Provide more and wider buffers to tidal marshes, and improve management to reduce human intrusion and predators.

The recommended minimum buffer distance 100 feet with a 300-foot buffer desirable. The current buffer is less than 100 feet in places. Development in areas around tidal marshes would decrease the buffer zone area and intensify development in this zone. Although the Specific Plan would be in conflict with these recommendations as it would decrease the buffer distance to less than 100 feet in places, the Baylands Ecosystem Habitat Goals is not a statutory requirement, and a conflict with it is not considered a significant impact. The impact would therefore be ***less than significant.***

f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. ***(NI)***

The area is not covered by an adopted Habitat Conservation or other Natural Community Conservation Plan and there would therefore be ***no impact.***

2. Cumulative Impacts

This cumulative analysis considers the Plan in the context of the East Palo Alto General Plan, which takes into account the entire incorporated area of East Palo Alto. The Specific Plan proposes development that includes an in-

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be the responsibility of the private developer and additional environmental review would be required.

crease primarily in industrial, office and retail space. Much of this development would occur in areas currently vacant, as shown on Figure 4.10-5. Thirty acres of parks and trails would be added within the Plan Area, including on Cooley Landing and along the Bay Trail (see Figure 3-4). An increase in parks and trails is expected to bring more people in closer proximity to the Plan Area's natural resource areas, such as salt marsh habitat alongside the Bay Trail. However, biological resources would be protected by requiring users to stay on trails and within designated park areas. Increased trail and park use is likely to have an indirect and cumulatively beneficial effect on natural resources by increasing user awareness and appreciation of these resources and potentially promoting conservation. In addition, the park and trail system is expected to not only provide connections to the Bay Trail, but also to become an integral pedestrian system that can provide an alternative to driving. It is anticipated that new parks would be built in areas that have already been urbanized to some extent. No negative cumulative impacts on biological resources are anticipated from an increase in parks and trails.

Some dredging or filling of wetlands, including northern coastal salt marsh, may result from development under the Specific Plan. These activities are expected to be limited, as nearly all proposed development is within urbanized areas. Fill may occur as part of new trail development, or for specific development projects. However, areas of wetland habitat that may potentially be impacted by development are expected to be small in size, and most of the wetland habitat would remain unchanged under these proposed plans, and mitigation above requires avoidance or compensation for wetland impacts. The Ravenswood Open Space Preserve and Baylands Nature Preserve are outside of the Plan Area and protected from development by their owners, the Midpeninsula Open Space District and City of Palo Alto, respectively.

Areas currently designated as parks or open space would retain this designation as shown in Figure 3-4, so there would be no cumulative loss of the parks or open space that contain biological resources. Development as proposed under the Specific Plan does not extend services in a way that will increase

development pressure on natural or open space areas in the region; in addition, the baylands contain sensitive biological habitat that is protected by several laws and regulations, making development impractical. In summary, the Specific Plan will not result in a significant cumulative loss of biological resources due to direct loss of the resources, increased use near the resources, or development pressure that would remove the resources. There would be a ***less-than-significant cumulative impact.***

4.5 CULTURAL RESOURCES

This chapter describes the existing cultural resource conditions in the Ravenswood/4 Corners Transit-Oriented Development Specific Plan area and evaluates the potential impacts of the Plan on cultural resources. A summary of the relevant regulatory setting and existing conditions is followed by a discussion of Plan-specific and cumulative impacts.

A. Regulatory Framework

This section describes the regulatory setting as it relates to cultural resources in the Ravenswood/4 Corners Transit-Oriented Development Specific Plan area.

1. Federal Regulations

a. National Historic Preservation Act

The federal law which governs the treatment of cultural resources is Section 106 of the National Historic Preservation Act (NHPA). Under Section 106, when a federal agency is involved in an undertaking, it must take into account the effects of the undertaking on historic properties, which are defined as those properties that meet criteria for inclusion on the National Register of Historic Places (National Register). Properties are not required to be listed on the National Register to be considered historic properties.

The National Register defines a historic property or historic resource as a district, site, building, structure or object significant in American history, architecture, engineering, archaeology, or culture that may be of value to the nation as a whole or important to the community in which it is located.[1] Properties eligible for listing in the National Register possess integrity of location, design, setting, materials, workmanship, feeling and association, and:

- ♦ are associated with important historical events; or
- ♦ are associated with the lives of significant persons in our past; or

[1] National Park Service, 1995, National Register Bulletin 15, *How to Apply the National Register Criteria for Evaluation*, page 2.

- ♦ embody the distinct characteristics of a type, period, or method of construction; or
- ♦ may yield information important in prehistory or history.

b. Executive Order 11593 (May 13, 1971), 36 Code of Federal Regulations, Section 8921 as incorporated into Title 16, United States Code, Section 470

Executive Order 11593, Protection of the Cultural Environment, orders the protection and enhancement of the cultural environment through providing leadership, establishing State offices of historic preservation, and developing criteria for assessing resource values.

c. American Indian Religious Freedom Act, Title 42 United States Code, Section 1996

The American Indian Religious Freedom Act protects Native American religious practices, ethnic heritage sites, and land uses.

d. Native American Graves Protection and Repatriation Act (NAGPRA) (1990), Title 25, United States Code Section 3001, *et seq.*

Native American Graves Protection and Repatriation Act (NAGPRA) defines "cultural items," "sacred objects," and "objects of cultural patrimony;" establishes an ownership hierarchy; provides for review; allows excavation of human remains, but stipulates return of the remains according to ownership; sets penalties; calls for inventories; and provides for return of specified cultural items. NAGPRA applies only on Federal or Indian lands.

e. National Environmental Policy Act

The National Environmental Policy Act (NEPA) does not provide specific guidance regarding cultural or paleontological resources. NEPA requires that federal agencies take all practicable measures to "preserve important historic, cultural and natural aspects of our national heritage."[2] Under NEPA, cultural and paleontological resources are typically treated in a similar manner.

[2] NEPA Section 101[b][4].

2. State Regulations

a. California Register of Historic Resources (California Register)

California Code of Regulations Title 14, Chapter 11.5, Section 4850 creates the California Register. The California Register establishes a list of properties to be protected from substantial adverse change (Public Resources Code Section 5024.1). The State Office of Historic Preservation (OHP) has determined that buildings, structures and objects 45 years or older may be of historical value. A historical resource may be listed in the California Register if it meets any of the following criteria.

- It is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
- It is associated with the lives of persons important in California's past.
- It 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 value.
- It has yielded or is likely to yield information important in prehistory or history.

The California Register includes properties that are listed or have been formally determined eligible for listing in the National Register, State Historical Landmarks, and eligible Points of Historical Interest. Other resources that may be eligible for the California Register, and which require nomination and approval for listing by the State Historic Resources Commission, include resources contributing to the significance of a local historic district, individual historical resources, historical resources identified in historic surveys conducted in accordance with OHP procedures, historic resources or districts designated under a local ordinance consistent with the procedures of the State Historic Resources Commission, and local landmarks or historic properties designated under local ordinance.

b. California Environmental Quality Act

Section 15064.5 of the California Environmental Quality Act (CEQA) Guidelines states that a project may have a significant impact on the environment if

it causes a substantial adverse change in the significance of a historical resource. The CEQA Guidelines define four ways that a property can qualify as a significant historical resource for purposes of CEQA compliance:

- The resource is listed in or determined eligible for listing in the California Register of Historical Resources, as determined by the State Historical Resources Commission.
- The resource is included in a local register of historical resources, as defined in Section 5020.1(k) of the Public Resources Code, or identified as significant in a historical resource survey meeting the requirements of Section 5024.1(g) of the Public Resources Code, unless the preponderance of evidence demonstrates that it is not historically or culturally significant.
- The lead agency determines the resource to be significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military or cultural annals of California, as supported by substantial evidence in light of the whole record.
- The lead agency determines that the resource may be a historical resource as defined in Public Resources Code Sections 5020.1(j) or 5024.1 (CEQA Guidelines Section 15064.5) which means, in part, that it may be eligible for the California Register.

In addition, Public Resources Code Section 21083.2 and Section 15126.4 of the CEQA Guidelines specify lead agency responsibilities to determine whether a project may have a significant effect on archaeological resources. If it can be demonstrated that a project will damage a unique archaeological resource, the lead agency may require reasonable efforts for the resources to be preserved in place or left in an undisturbed state. Preservation in place is the preferred approach to mitigation. The Public Resources Code also details required mitigation if unique archaeological resources are not preserved in place.

Section 15064.5 of the CEQA Guidelines specifies procedures to be used in the event of an unexpected discovery of Native American human remains on

non-federal land. These codes protect such remains from disturbance, vandalism and inadvertent destruction; establish procedures to be implemented if Native American skeletal remains are discovered during construction of a project; and establish the Native American Heritage Commission (NAHC) as the authority to identify the most likely descendant and mediate any disputes regarding disposition of such remains.

c. Health and Safety Code Section 7052 and 7050.5

Section 7052 of the Health and Safety Code states that the disturbance of Native American cemeteries is a felony. Section 7050.5 requires that construction or excavation be stopped in the vicinity of discovered human remains until the County Coroner can determine whether the remains are those of a Native American. Section 7050.5(b) outlines the procedures to follow should human remains be inadvertently discovered in any location other than a dedicated cemetery. The section also states that the County Coroner, upon recognizing the remains as being of Native American origin, is responsible to contact the NAHC within twenty-four hours. The NAHC has various powers and duties to provide for the ultimate disposition of any Native American remains, as does the assigned Most Likely Descendant.

d. Title 14, Penal Code, Section 622.5

According to Penal Code Section 622.5, anyone (except the owner) who willfully damages or destroys an item of archaeological or historic interest or value is guilty of a misdemeanor.

e. California Historical Building Code, California Code of Regulations, Title 24, Part 8

The California Historical Building Code, defined in Sections 18950 to 18961 of Division 13, Part 2.7 of Health and Safety Code, provides regulations and standards for the rehabilitation, preservation, restoration (including related reconstruction) or relocation of historical buildings, structures and properties deemed by any level of government as having importance to the history, architecture, or culture of an area.

f. Native American Historic Resource Protection Act; Archaeological, Paleontological, and Historical Sites; Native American Historical, Cultural, and Sacred Sites (Public Resources Code Sections 5097-5097.994)

Public Resources Code Section 5097 specifies the procedures to be followed in the event of the unexpected discovery of human remains on non-federal public lands. California Public Resources Code 5097.9 states that no public agency or private party on public property shall "interfere with the free expression or exercise of Native American Religion." The code further states that:

> *No such agency or party [shall] cause severe or irreparable damage to any Native American sanctified cemetery, place of worship, religious or ceremonial site, or sacred shrine. . . except on a clear and convincing showing that the public interest and necessity so require.*

County and city lands are exempt from this provision, expect for parklands larger than 100 acres.

g. Government Code 65352.3-5, Local Government – Tribal Consultation

California Government Code Section 65352.3-5, commonly referred to as Senate Bill (SB) 18, states that prior to the adoption or amendment of a City or County's General Plan, or Specific Plans, a City or County must consult with California Native American tribes that are on the contact list maintained by the NAHC. The intent of this legislation is to preserve or mitigate impacts on places, features and objects that are culturally significant to Native Americans. The bill also states that the City or County shall protect the confidentiality of information concerning the specific identity, location, character and use of those places, features and objects identified by Native American consultation.

3. Local Regulations

a. East Palo Alto General Plan

East Palo Alto General Plan contains the following goals and policies pertaining to cultural resource:

Conservation/Open Space Goal 1.0: Identify and conserve important historic, archaeologic, and paleontologic resources.

Policy 1.1: Protect areas of important archaeologic and paleontologic resources.

Policy 1.2: Protect and conserve buildings or sites of historic significance.

B. Existing Conditions

Cultural Resources in the area were investigated in a separate study by Basin Research Associates in March 2010. An edited version of Basin Research's analysis is included directly in this section of the EIR, although precise locations and details of finds have been excluded to preserve the integrity of the sites.

The research includes: (1) the results of an archival records search conducted by the California Historical Resources Information System, Northwest Information Center, Sonoma State University, Rohnert Park (known by the acronym CHRIS/NWIC); (2) a limited literature review; (3) the results of a search of the Native American Heritage Commission Sacred Lands Inventory; and (4) a focused field review of two potential rail stations and connecting road.

1. Methodology

A prehistoric and historic site record and literature search was conducted by the CHRIS/NWIC. The literature review included a review of lists of various state and/or federal historically or architecturally significant sites, structures, landmarks, and points of interest in/adjacent to the Plan Area. Materials consulted included the:

- Historic Properties Directory for San Mateo County were also consulted including updates of the National Register of Historic Places, California Landmarks, and Points of Interest
- California History Plan

- California Inventory of Historic Resources
- Five Views: An Ethnic Sites Survey for California, Historic Properties Directory
- Historic Civil Engineering Landmarks of San Francisco and Northern California
- Archeological Determinations of Eligibility for San Mateo County and other local and regional lists.

Literature provided by the City of East Palo Alto included:

- City of East Palo Alto Historic Resources Inventory Report
- Archaeological Survey Report for the Ravenswood Business District Project, City of East Palo Alto, San Mateo County
- Historic Resources Evaluation of the Ravenswood Business District
- The NAHC was contacted for a review of the Sacred Lands Files.

2. Historical Context

Various documents provide background context on the prehistory and history of the City of East Palo Alto. The most informative include:

- A History of East Palo Alto (Rigenhagen and Romic Environmental Technologies Corp., 1993). Background on the history of East Palo Alto.
- City of East Palo Alto Historic Resources Inventory Report (1994) provides a background context in which to evaluate historic resources in East Palo Alto. Part 2 includes, "A History of East Palo Alto" with brief sections on the Native American prehistoric/ethnographic era ("The Ohlone") and the Hispanic era ("Spanish Ranchos"), "The Town of Ravenswood", etc. including "Runnymede: The Charles Weeks Poultry Colony." Part 3 provides a review of "Architecture in East Palo Alto."
- Preliminary Cultural Landscape Assessment East Palo Alto, California provides an abridged history, various articles, community notes, etc. (Mastran et al., 1994).

- Archaeological Survey Report for the Ravenswood Business District Project, City of East Palo Alto, San Mateo County (Sutch et al., 2003) provides concise ethnographic, regional archaeological and historic contexts. The report also notes that 75 percent of the business district had been subject to previous inventories with negative results but that the general area should be considered very highly sensitive for buried prehistoric and historic archaeological resources due to prior subsurface discoveries of significant cultural materials.
- Historic Resources Evaluation of the Ravenswood Business District (Carey & Co., 2003) provides reviews of the historical development of East Palo Alto, the general Plan Area and a partial review of the built environment. Carey & Co. (2003) note that 82 built environment resources were reviewed and determined that only two were of significance.
- Cooley Landing Cultural Resource Inventory and Assessment (Baxter, Allen and Hylkema, 2007) provides an extensive archaeological and historic context with a focus on the Cooley Landing that is pertinent to the general area.

3. Historic Resources

a. City of East Palo Alto Historic Resources Inventory Report of 1994

The following historic resources were identified as a result of the 1994 historic resources inventory and constitute the initial baseline data for the city for both prehistoric and historic archaeological resources as well as the built environment. This inventory has not been revised.

- *19th Century Artifacts*. Former brick clay pit now occupied by Jack Farrell Park; Pulgas East Base Monument (reported cultural resource C-390).
- *Remnants of Runnymede*. An agricultural colony dating from 1916 through the 1920s [sic]; many one acre lots, small "garden homes," poultry houses, and tank houses [Note: this former utopian community appears eligible for inclusion on the National Register of Historic Places, according to previous evaluation].

- *Vacation Cottages*. Used by people from the city for week-end and summer vacations.
- *Suburban houses of the 1920s and 1930s.* Including bungalows and houses in "period revival" styles; Note: over 450 buildings aged 50 years and older have been identified within the City.
- *Greenhouses.* Representing the early phases of flower growing in East Palo Alto [late 1930s through the 1950s, dominated by Italian- and Japanese-Americans].
- *Early commercial structures*. Predating the widening of State Highway 101 in the 1950s.

b. Information Center Records Search Results

A prehistoric and historic site record and literature search was conducted by CHRIS/NWIC. Twenty-three cultural resource compliance reports on file at the CHRIS/NWIC include the Plan Area and/or adjacent areas. Potentially significant cultural resources have been identified within and immediately adjacent to the Plan Area. The reports on file include a number of overviews, compendiums and/or syntheses, but the majority of the documents cover specific projects undertaken to meet environmental requirements for project compliance pre-planning. The entire Plan Area east of the former railroad spur (e.g. east of Illinois and Demeter streets and the area south of Bay Road) has been subject to pedestrian archaeological surveys and limited testing.

Five cultural resources and one reported cultural resource have been recorded by the CHRIS/NWIC as in, partly within, and/or immediately adjacent to the Specific Plan boundary. These include four prehistoric archaeological sites, an architectural property and a Survey Marker.[3] In addition, unrecorded prehistoric and historic era resources have been observed in and adjacent to the Plan Area, and portions of three potential historic districts have

[3] CA-SMA-77 (P-41-000080), CA-SMA-235 (P-41-000233), CA-SMA-375 (P-41-002143), and CA-SMA-248 (P-41-000244); architectural property, P-41-002156; and, C-390, a Survey Marker.

been identified by several researchers in the Plan Area. None of the potential districts have been submitted for review by the State Historic Preservation Officer.

i. Reports on File – CHRIS/NWIC

Twenty-three cultural resource compliance reports on file at the CHRIS/NWIC include the Plan Area and/or adjacent areas. Four are overviews, 14 are redevelopment and private development projects, one is a site-specific report, and 4 are compliance or other reports not on file.

ii. Hispanic Period – Historic Era Resources

No Hispanic era archaeological resources were identified within or adjacent the Plan Area as part of the CHRIS/NWIC records search.

None of the known Spanish expedition (routes or scouts) passed through the Plan Area.

The National Park Service (NPS) maps the historic route of the Juan Bautista de Anza National Historic Trail [1776] to the south of the Specific Area. A proposed "recreational trail on the County Plan with potential to be marked as the Anza Trail" is shown crossing the Plan Area and within the Baylands Nature Preserve. This recreational trail corresponds in part to the Bay Trail around the periphery of San Francisco Bay. The existing Bay Trail to Mountain View is located just east of the Plan Area through the Ravenswood Open Space Preserve and Baylands Nature Preserve; the New Bay Trail Segment to University Avenue is located north of the Plan Area on the north side of the railroad tracks.

The former boundary of the Rancho Las Pulgas[4] includes the majority of the Plan Area with a small portion in ungranted lands. No known Hispanic era

[4] This rancho extended from present-day San Mateo to Palo Alto and was known variously as Pulgas Rancho, the fleas or Cachanigtac, Cachinetac, Cochenetas, Cochinitas or little pigs.

structures or features (dwellings, mills, embarcaderos, storage areas, holding ponds, roads, etc.) are known to have present in or adjacent to the Plan Area.

Bay Road was a former Spanish era cart road through the eastern portion of Rancho Las Pulgas (see American Period – Historic Era Resources for additional information).

iii. American Period – Historic Era Resources

P-41-002156, a ca. 1917 tankhouse converted into a residence and a detached garage at 965 Weeks Street has been recorded in and/or adjacent to the Plan Area. The resource has been demolished.

> **P-41-002156**, a ca. 1917 Craftsman style residence with a detached garage was located on the north side of Weeks Street at 965 Weeks Street opposite a Southern Pacific Railroad spur (APN 063-232-220). The residence consisted of a converted tankhouse with several additions associated with the former berry farm of Edward and Ida M. Tobin, who also owned adjacent parcels. They were among "this section's first settlers," that is the First Addition of the Poultry Colony, also known as Runnymede. The tankhouse is described as "...similar to those found throughout the [Charles] Weeks Poultry Colony area." In spite of the alterations to the structure, it was evaluated as eligible for listing in the California Register of Historical Resources under criterion 1 for its association with Charles Weeks' utopian agricultural colony (1916-1930s) for the period of ca. 1917 to the colony's demise in the early 1930s. The structure was subject to photo documentation by Mesa Technical prior to the demolition of the farmhouse. The location is now a vacant lot.

C-390, a Survey Marker, is located within the Plan Area.

> **C-390**, a Survey Marker, appears to conform to a triangulation station symbol shown on the USGS Palo Alto 1899 topographic quadrangle (surveyed in 1895). The "sandstone monument, one of many erected by the United States Coast Survey...was six feet high and 31 inches square at

the base, tapering to 22 inches at the top. It was inscribed: 'East end of the Pulgas base. Alexander Dallas Bache, U.S. Coast Survey. Measured in July and August, 1853.'" The Monument, also referred to as the Pulgas East Base Monument, "...originally stood at the point that is now the middle of Gonzaga Street, 150 feet north of its intersection with Notre Dame Street. Disturbed by the construction of the University Village subdivision, it was moved a short distance into Jack Farrell Park in 1951."

Unrecorded historic era sites and features are present within the Plan Area. These have not been formally reported or recorded and include: Bay Road; the Cooley Landing Site; the Ravenswood Townsite (site); the Hunter and Shackleford brick factory (site); Lester Phillip Cooley's 1870's frame house (site); and, a rail spur.

Bay Road, a former Spanish era cart road west of Menalto Avenue, which was extended in April 1854 to the edge of the bay at Ravenswood wharf [Cooley Landing]. The east end of the road was referred to as the Embarcadero Road because of the landing. Between 1874 and 1884, bricks rejected by Ravenswood manufacturer Hunter and Shackleford were crushed and used to gravel the road to Cooley's Landing [Bay Road].

Cooley Landing Site [sic] at the end of Bay Road is listed as San Mateo County Historical and Archaeological Resource #12 and is alternatively known as Ravenswood Wharf. The wharf was built in 1849 by the Adams Banking and Express Company in San Francisco. Alternatively, the long wharf was finished in July 1854. Partners Isiah C. Woods, Rufus Rowe, D.H., Haskell, John K. Hackett and C.D. Judah purchased the John Beal Steinberger property in the southeast corner of Rancho de los Pulgas in 1848/1853 in anticipation of the arrival of Pacific and Atlantic Railroad [Central Pacific Railroad Company]. Woods planned to transport lumber from the Woodside area to the wharf/landing site and ship the lumber to San Francisco. But by 1852 Redwood Creek prevailed

over the Ravenswood Wharf. Lester Phillip Cooley purchased the wharf in 1863/1868 and by 1878 owned 400 acres along Bay Road in the study area and raised cattle and grain. Reportedly the Ravenswood Wharf extended 75-feet into 18-foot-deep channel and included remnants of pilings still extant in the 1940s. By the 1990s the former wharf consisted of "...two narrow, rocky spits that project out into the waters of the bay." The wharf to Cooley Landing was a county dump in the 1940s but closed prior to 1975.

Ravenswood Townsite (site), located at the end of Bay Road on May 3, 1854, was the first townsite in what later became San Mateo County. It was laid out in anticipation of the arrival of the Central Pacific Railroad [Pacific and Atlantic Railroad], which failed to materialize. Ravenswood was purportedly named by Isaiah Churchill Woods Jr. (1825-1880) by combining his name with ravens due to the "number of huge crows inhabiting the marsh" (Svanevik and Burgett 2000:18). "Within a couple of months there were 500 feet or so of buildings on both sides of the road" and the long wharf was completed in July. "Lots [25 x 100 feet] were sold, a few houses were erected, and a store was opened by William Paul". Hotels, saloons, and shacks were constructed along the main street. Ravenswood appears on Goddard's 1857 Map of the State of California and the 1857 United States Coast Survey. Easton's 1868 Official Map of the County of San Mateo, California shows a number of buildings flanking Bay Road in "Ravenswood." However, it lacked sufficient size to merit a post office. By 1860, Ravenswood had been absorbed by neighboring ranches, due in part to the absence of a railroad and the inactivity of its wharf. Whitney's 1873 Map of the Region Adjacent to the Bay of San Francisco shows "Ravenwood" and six buildings flanking Bay/Embarcadero Road with a single building further east on the north side of the road/wharf. The latter is likely the grain warehouse that was built near the wharf by Cooley and was located east of the Rancho Las Pulgas boundary. In addition, the road provided access from the vicinity of San Francisquito Creek. The 1883 General Land Office survey plat for Township 5 South, Range 2 West (T5S R2W) shows "Ravenswood" in

the NW part of Section 30, but does not show any roads, buildings, wharves, etc.. Bay Road and at least four dwellings or structures associated with Ravenswood appear to have survived until at least the late 1890s.

Hunter and Shackleford Brick Factory (site) was located in the Specific Area from 1874 to 1884 on five acres leased from Lester Phillip Cooley. Facilities included seven field kilns and a number of pugmills and associated buildings south of the clay pit, along with rail cars, and a private wharf to transport bricks to San Francisco and San Jose on their ships "Dora" and "Heckla."[5] They made about 40,000 bricks a day with up to 100 employees, mostly Chinese laborers, and at the time were the second largest producer of bricks in California. The factory was Ravenswood's main business enterprise during the 1870s and early 1880s.The clay pit was exhausted in 1884. This area, depressed in contour due to the clay pit, is now occupied by Jack Farrell Park north of Bay Road in the area bounded by Fordham on the west between Michigan and Notre Dame Avenues. The factory stood until 1942. A view by Moore & DePue (1878) shows two field kilns and eight pugmills, as well as associated buildings, along with the wharf and schooners.

Lester Phillip Cooley, 1870's frame house (site) was located opposite reported cultural resource C-390, a survey marker/triangulation station. In addition, four dwellings were located north of Bay Street in the Plan Area. An 1878 lithograph shows the Cooley property with a gabled farmhouse and agricultural buildings on the "...site of what is now the University Village subdivision, not far from where the Nairobi Village shopping center once stood at the corner of University Avenue."

Railroad Feature. Two pairs of standard gauge railroad tracks, part of a spur that extended south and east from the former Southern Pacific Rail-

[5] Moore & DePue (1878) provide a view of the facility showing two field kilns and eight pugmills and associated buildings along with the wharf and schooners (see Mosier 2009)

road (SP) Dumbarton cut off across San Francisco Bay were identified south of the 2477 Pulgas Avenue parcel in southeast part project. The railroad spur, constructed in 1912, crossed and then looped eastward between Bay Road and Weeks Street. The Runnymede/Poultry Colony cooperative warehouse (site?) and a number of companies were located in the vicinity of the siding. The feature appears to have been removed during recent development.

Unrecorded historic era archaeological remains (shell and brick rubble) have been observed within the Plan Area. These not been formally reported or recorded. The presence of these cultural materials could indicate the presence of potentially significant subsurface archaeological resources.

Shell/Brick Rubble. Shell – oyster, mussel, whelk, and a sea snail (*Ostrea lurida, Mytilus edulis, Buccinidae*) mixed with imported gravel and sand was observed on the east side of Tara Street "near the hazardous material waste area." The atypical presence of whelks and sea snail and absence of Mud Flat Snail (*Cerithidea californica*) and presence of gravel and sand indicated this deposit is "probably historic and associated with the development of Tara Street." A small amount of brick rubble was observed in five locations: between 2493 and 2477 Pulgas Avenue (Peck and Hiller parcel), Baylands Nursery parcel on Weeks Street [located at 965 Weeks and also 1165 Weeks Street], east end circle of Weeks Street, southeast corner lot at Bay Road and Pulgas Avenue, and vacant lot on Bay Road across from the high voltage power station. The "heavily disturbed" Weeks Street rubble may have been imported while the brick at the other locations "could possibly be associated with the former 1870s brick factory established by Hunter, Shackelford and Company or early Twentieth century Runnymede Farm structures." None appear to be associated with the 1850's Ravenswood era.

iv. Historic Districts – Potential

Three potential historic districts have been identified in and immediately adjacent to the Plan Area: These consist of:

- Runnymede (also known as the Poultry Colony and/or Weeks Poultry Colony);
- Southern Pacific Railroad Dumbarton Cutoff; and
- Hetch Hetchy Aqueduct Bay Division Pipeline No. 1 and No. 2 Alignment.

Listings and other data on file at the CHRIS/NWIC do not include these three historic districts, indicating that their status was never formalized for listing on either the National Register of Historic Places and/or the California Register of Historical Resources.

a) Runnymede

Part of Runnymede, a utopian community founded in East Palo Alto by Charles Weeks in 1916, is located in the Plan Area south of Bay Road. This "poultry farming experiment" reportedly failed by the end of the 1920s. The community was also known as the Poultry Colony, and/or the Charles Weeks Poultry Colony and/or Weeks Poultry Colony.

According to Carey & Co. (2003) this district may be eligible under National Register criterion A, and may "...possess historic significance at the local level and retain sufficient integrity to the Runnymede period."

The community founder, Charles Weeks, arrived in Palo Alto in 1909 and partnered with local dairy farmer Peter Faber. They subdivided and sold the Faber land to prospective colonists who passed both physical and financial tests. The enterprising utopian community appears to have been formally organized as the Runnymede Associated Little Farms or as Runnymede Poultry Farms, Inc. It was part of the "Little Landers" Movement of planned agrarian cooperatives. An individual or family purchased small plots (1 to 5

acres) of arable land at reasonable prices (or held land co-operatively), irrigated, and worked these farms or "little lands" intensively without hired help.

By 1916, at least five colonies had been established: the parent colony, known as San Ysidro, established in 1909 by William E. Smythe in the Tijuana Valley 14 miles south of San Diego; Runnymede in East Palo Alto; Hayward Heath near Hayward; one in the San Fernando Valley; and Cupertino in Santa Clara County. The movement disintegrated around the time of World War I.

By 1922 Runnymede had over 640 acres with a population of approximately 1,200 individuals on small farms. Poultry was raised in long rectangular poultry houses with 8- by 8-foot coops occupied by 20-25 birds each, along with goats, rabbits, and a variety of produce including berries, kale, cabbage, apples, peaches, corn, and potatoes. Reportedly "Runnymede once covered the area from Bay Road to San Francisquito Creek and from Cooley's Landing to Menalto" and was one of the largest poultry producers in the United States.

New colonists stayed in dormitories during training at Charles Weeks' ranch in the "Charles Weeks Poultry System." Each farm was individually owned. Advantages of the cooperative included a cooperative warehouse along the Southern Pacific Railroad spur, social facilities (club house), a monthly journal "One Acre and Independence," the group purchasing of supplies, and marketing.

Part of the second addition, the "Charles Weeks Poultry Colony," is within the Plan Area. This 135 acre area, formerly the Cooley Ranch, extended from Runnymede to Bay Road between Pulgas and Cooley, with a portion projecting along Bay Road to the south.

Runnymede's demise by the early 1930s was due in part to the departure of Charles Weeks between 1921 and 1923, along with the sale of his demonstration farm and loss of his relentless promotion of the colony and ideals. Other factors included rising land values, which resulted in sales to outsiders, and an

unreliable source of clean water due to wells which had become contaminated with salt water.

b) Southern Pacific Railroad Dumbarton Cutoff

Part of the proposed Southern Pacific Railroad Dumbarton Cutoff [Historic District] is located adjacent to the northern part of the Plan Area. The proposed district contributors – the Southern Pacific Railroad Dumbarton Bridge and the Southern Pacific Railroad Newark Slough Bridge – are not located in or adjacent to the Plan Area. The Southern Pacific Railroad Dumbarton Cutoff consists of a single track rail line 16.4 miles long, connecting two main lines between Niles, Alameda County and Redwood Junction, San Mateo County. It is an integral part of a national, regional and local transportation system and should be evaluated within the context of a linear historic district comprising the rail line between the various route segments linked by the bridges. The proposed district links the Sunset Route (San Francisco-New Orleans) with the Ogden (San Francisco-Ogden) and Shasta (San Francisco-Portland) lines with a cutoff from the former route that required trains to transit San Francisco Bay via San Jose.

The potential district appears eligible for inclusion in the National Register at the local level of significance in transportation and engineering for the period 1909-1945 under criteria a, b, and c and retains integrity of location, setting, feeling, and association. Under criterion a, the district is associated with the system-wide improvements to the Southern Pacific Railroad that gave the railroad its 20th century form and made it the standard railroad of the West. It is linked with the growth of San Francisco and its port in the first half of the 20th century, and with national defense efforts during both world wars. Under criterion b, it is associated with the life of E.H. Harriman, who directed the modernization of the Southern Pacific. He saw the need for the Cutoff and directed its building. Under criterion c, contributive elements of the Cutoff, such as the Dumbarton and Newark Slough Bridges, built in 1908-1909, are representative examples of their type (Harriman Common Standard timber trestle, deck girder, and through truss bridges), period (first decade of the 20th century), and method of construction.

c) Hetch Hetchy Aqueduct Bay Division Pipeline (BDPL) No. 1 and No. 2 Alignment

The Hetch Hetchy Aqueduct Bay Division Pipeline (BDPL) No. 1 and No. 2 crosses through the Plan Area between Georgetown and Fordham streets crossing University Avenue north of Notre Dame Street. These two 21-mile-long water pipelines run between the Irvington Tunnel Portal in the City of Fremont and the Pulgas Tunnel Portal near Redwood City in unincorporated San Mateo County. BDPL No. 1 was built in 1925 and BDPL No. 2 was installed in 1936.[6] This district extends approximately 21 miles – from the Irvington Tunnel Portal in Fremont to the Pulgas Tunnel Portal in Redwood City. They are contributors to the Bay Division Pipeline No. 1 and No. 2 Historic District,[7] evaluated as eligible for the National Register of Historic Places (NRHP) and California Register of Historical Resources (CRHR) under criteria a, c/1, 3. The district is significant for its association with the Hetch Hetchy water system with a period of significance from 1924 to 1936. In addition, the resource was evaluated as eligible under CRHR criteria 2 for its association with Michael M. O'Shaughnessy, the City of San Francisco engineer responsible for the Hetch Hetchy Aqueduct.

4. Archaeological Resources and Native American Remains

a. City of East Palo Alto Historic Resources Inventory Report of 1994

The following prehistoric and archaeological resources were identified as a result of the 1994 historic resources inventory and constitute the initial baseline data for the city for both prehistoric and historic archaeological resources as well as the built environment. This inventory has not been revised.

- *Prehistoric Native American Ohlone Archaeological Resources.* Artifacts and human remains associated with Native American prehistoric site CA-SMA-77 (P-41-000080) known as the University Village Site.

[6] As built between 1922 and 1934 (Jones & Stokes 2002:16/S-27290; Lanz 2002/form).

[7] Assigned P-01-10620 and P-01-001767 in Alameda County.

b. Information Center Records Search Results

A prehistoric and historic site record and literature search was conducted by the CHRIS/NWIC.

Twenty-three cultural resource compliance reports on file at the CHRIS/ NWIC include the Plan Area and/or adjacent areas. Potentially significant cultural resources have been identified within and immediately adjacent to the Plan Area. None of the "Indian Mounds" mapped by Whitney (1873) or shellmound sites recorded and mapped between 1906 and 1908 by Nels C. Nelson (1909, ca. 1912) were located in or near the Plan Area. The reports on file include a number of overviews, compendiums and/or syntheses, but the majority of the documents cover specific projects undertaken to meet environmental requirements for project compliance pre-planning. The entire Plan Area east of the former railroad spur (e.g. east of Illinois and Demeter streets and the area south of Bay Road) has been subject to pedestrian archaeological surveys and limited testing.

Five cultural resources and one reported cultural resource have been recorded by the CHRIS/NWIC as in, partly within, and/or immediately adjacent to the Specific Plan boundary. These include four prehistoric archaeological sites, an architectural property and a Survey Marker. In addition, unrecorded prehistoric and historic era resources have been observed in and adjacent to the Plan Area, and portions of three potential historic districts have been identified by several researchers in the Plan Area. None of the potential districts have been submitted for review by the State Historic Preservation Officer.

i. Reports on File – CHRIS/NWIC

Twenty-three cultural resource compliance reports on file at the CHRIS/ NWIC include the Plan Area and/or adjacent areas. Four are overviews, 14 are redevelopment and private development projects, one is a site-specific report, and four are compliance or other reports not on file.

ii. Prehistoric Resources

Note: To protect the integrity of the finds, precise locations and nature of the have been removed from the following text.

CA-SMA-77 (P-41-000080), the University Village Site, and **CA-SMA-375** (P-41-002143) have been recorded within the Plan Area.

> **CA-SMA-77** (P-41-000080), the significant University Village Site was exposed during construction and excavated 1951-1952. Sixty burials and approximately 3,000 artifacts, along with faunal and shell remains, etc., were recovered.
>
> **CA-SMA-375** (P-41-002143), a prehistoric archaeological site was exposed during construction excavation within the Plan Area on a block east of University Avenue. This site included two Native American burials, sparse pieces of Cerithidea (horn shell), and one pestle, but no midden.

CA-SMA-235 (P-41-000233) has been recorded partly within the Plan Area.

> **CA-SMA-235** (P-41-000233) has been recorded partly in the Plan Area. This site was initially observed in 1978, but not formally recorded by Robert Cartier during a survey of a 70-acre parcel in the Ravenswood Slough area. Surface indicators of a probable prehistoric site included Cerithidea (horn snail) shell, sparse amounts of Franciscan chert used as tool stone and thermally altered sandstone.

CA-SMA-248 (P-41-000244) has been recorded adjacent to the Plan Area on the west side of University Avenue.

> **CA-SMA-248** (P-41-000244), a prehistoric site, has been recorded adjacent to the Plan Area. This site was observed in a marshy area on the west side of University Avenue (in Menlo Park).

Several unrecorded prehistoric remains have been observed within the Plan Area. Some appear putative – fire cracked rock, shellfish remains, and a single flake and/or possibly redistributed prehistoric remains excavated from recorded sites, notably **CA-SMA-77** (P-41-000080). Several potential resources of interest include the southern "Pierce Site" which have not been subject to further investigation.

c. Native American Resources

The NAHC Sacred Lands Inventory was negative for Native American resources in or adjacent to the project. The Sacred Lands Inventory includes Native American gravesites and other cultural and spiritual sites, but not other prehistoric resources such as shell remains and tools.

i. Ethnographic

Researchers differ as to Native American groups in the study area. Brown (1973-1974:17) places the Saucón tribelet on the north side of San Francisquito Creek in the Ravenswood area. Their village, known as Sipútca, may have been one of two large shell mounds formerly in the Ravenswood area, identified as CA-SMA-160 and 235 after Milliken (1983:92). Milliken places the Puichon in the study area between the lower San Francisquito Creek and lower Stevens Creek with the Puichon village of Siputca [sic] at the mouth of the lower San Francisquito Creek in the Palo Alto/East Palo Alto area (Milliken 1983:91-94, 139, Map 4; Milliken 1995:252). Levy (1978:485, Fig. 1, #12-13) shows the Ramaytush subdivision of the Costanoan in the Plan Area. The lamsin (Las Pulgas) were located north of San Francisquito Creek and the puyson (Arroyo de San Francisco) were located south of San Francisquito Creek.

No known ethnographic, traditional or contemporary Native American resources have been identified in or adjacent to the project.

d. Archaeological Inventories – Previous

Various portions of the Plan Area have been surveyed and tested previously. Previous fieldwork has been associated with various development and overview projects, with archaeological data recovery focused primarily on two

recorded prehistoric sites in/partially in the Specific Area – CA-SMA-77 (P-41-000080) [University Village Site] and CA-SMA-235 (P-41-000233) and adjacent CA-SMA-248 (P-41-000244). The Archaeological Survey Report for the Ravenswood Business District Project, City of East Palo Alto, San Mateo County notes that 75 percent of the business district which is included within the proposed Plan Area has been subject to previous inventories with negative results.

e. Archaeological Field Review – Plan Area

Archaeological field inventories of Areas 3-5 were completed by Dr. Colin I Busby on January 10, 2010 with an emphasis on the potential locations of the railroad stations (Areas 4-5). The areas were accessed via paved roads and improved trails. Area 3 is characterized by a disused railroad right of way (east-west) and both formal and informal trails (north-south). Surface visibility was very low due to dense vegetation, gravel, informal dumping and the presence of various swales. Areas 4 and 5 were similar with seasonal wetlands covering portions of each area.

Area 3, the proposed loop road from Area 4 at University Avenue to Area 5 and continuing around east side of University Village would run along the south side of the Union Pacific Company tracks and around the periphery of the street grid to the approximate north end of Stevens Avenue. There appears to be a potential for prehistoric material in the vicinity of Area 5 and just south of the southern boundary of the proposed alignment.[8]

A major prehistoric site CA-SMA-77 (P-41-000080), the University Village Site, is located south of Purdue Avenue. Possible outliers associated with CA-SMA-77 and/or redeposited prehistoric material from the resource may present in Area 3. Unrecorded resources have been reported in the vacant areas east of Illinois Street.

[8] These areas were shown on a figure in the original Cultural Resources survey report by Basin Research Associates, a confidential copy of which is on file with the City of East Palo Alto. The map is kept confidential in order to information about the exact location of known resources.

Area 4 on the east side of University Avenue near the railroad tracks is opposite CA-SMA-248 (P-41-000244) which has been recorded adjacent to the Plan Area on the west side of University Avenue. The railroad tracks of the potential Southern Pacific Railroad Dumbarton Cutoff [Historic District] are located nearby.

Area 5 is located in the northeast corner of the Plan Area just east of the apex of Fordham Street. No formally recorded cultural resources have been identified in this location, although the prehistoric cultural materials associated with the northern "Pierce Site" on Fordham Street appear to include the potential station location. The railroad tracks of the potential Southern Pacific Railroad Dumbarton Cutoff [Historic District] are located nearby.

No surface indicators of prehistoric or historically significant archaeological or architectural resources were observed during the field inventory of Areas 3-5 aside from the railroad right of way.

Systematic reviews of Areas 1 and 2 were not undertaken due to their urban nature. The former Ravenswood Townsite (end of Bay Road) is in a developed industrial area. The site of the Hunter and Shackleford Brick Factory is within a developed city park. Other known prehistoric archaeological sites (CA-SMA-235, SMA-375 and SMA-77) are in developed subdivisions or school property. Subsurface indications of prehistoric cultural materials have been noted on Demeter Street and the "southern" Piece site (vacant areas east of Illinois Street) that may be linked with CA-SMA-77. The built environment resources noted on Weeks Street have been demolished. Subsurface historic archaeological deposits could be present.

5. Paleontologic Resources

The surficial soils and sediments of the Plan Area are described in Section 4.6 Geology and Soils. These describe generally Holocene-age Bay Mud and artificial fill. The Holocene deposits may contain fossils.

C. Standards of Significance

Cultural resource impacts associated with the Plan would be considered significant if the Plan would:

a. Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5.

b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5.

c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

d. Disturb any human remains, including those interred outside of formal cemeteries.

D. Impact Discussion

This section describes the environmental impacts to cultural resources that would result from implementation of the Ravenswood/4 Corners TOD Specific Plan.

1. Project Impacts

a. Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5. ***(LTS)***

The Plan Area appears to possess an overall moderate to very high level of cultural sensitivity in regard to known and potential historic era archaeological resources. The location, type, and distribution of historic properties identified in the Plan Area reflects successive occupations and uses within the area from the prehistoric era onward.

Future projects within the Plan Area have the potential to both indirectly and directly impact known and unknown historic buildings and structures. Such disturbance could result in significant impacts associated with the loss of information important to history. For example, the Plan could alter and or

remove of buildings and structures, or alter the setting for extant historic properties. Potential effects on these resources should be considered during the development of currently vacant parcels and when parcels are redeveloped and reused.

The buildings and structures in East Palo Alto represent a visible, tangible link with its past and a view of its future. Archival research suggests that there is a potential for additional significant American Period architectural resources. However, previous research has indicated that the majority of potential resources will probably have problems of integrity, fabric, and location. Destruction of recognized or as yet unrecognized buildings and structures of historic interest would be a significant impact under CEQA.

Two Specific Plan policies have effective measures to prevent damage to historic resources. **Specific Plan Policy CUL-1.1** would ensure that City, State, and Federal historic preservation laws, regulations, and codes are implemented, including State laws related to archaeological resources, to ensure the adequate protection of historic and prehistoric resources.

Specific Plan Policy CUL-1.2 requires preparation of a project-specific *Historic Architectural Resources Assessment* (HARA) by a professional Architectural Historian for any buildings or structures that are over 45 years in age that could be affected by a project. The HARA will provide background context, identify any architectural resources including standing buildings and structures, and provide an evaluation using the criteria of the California Register of Historic Resources. HARA recommendations must be followed to avoid and minimize damage to these resources. These may include additional research, measured drawings and photographic recordation with deposition of any research materials with a historical society or repository.

With these two policies in place, and adherence to these policies, there would be a ***less-than-significant*** impact.

b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5. ***(LTS)***

The Plan Area appears to possess an overall moderate to very high level of cultural sensitivity in regard to known and potential prehistoric and archaeological resources.

Archaeological researchers over the past 35 years have recognized that the Plan Area is very sensitive. Dr. Laura Jones, now Stanford University's campus archaeologist, "...believes that nearly the entire city is a potential archaeological site."[9] Other archaeologists, such as Cartier (2003), and Dotta (1974) conducting environmental compliance related studies have concluded that portions of the Plan Area are extremely sensitive[10] with a "high probability of hidden sites."[11] The recent archaeological review of the Ravenswood Business District ~~by Sutch et al. 2003~~ concurs with previous assessments of high sensitivity for subsurface archaeological resources within the City of East Palo Alto.[12]

Anticipated archaeological resources include Native American occupation sites (villages), isolated burials, and short-term use areas. Historic era archaeo-

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[9] San Mateo County Historical Association and San Mateo County Historic Resources Advisory Board (SMaCoHA/HRAB), 1994. Alan Michelson and Katherine Solomonson (Survey Coordinators). City of East Palo Alto Historic Resources Inventory Report. February, 1994.

[10] Cartier, Robert (Archeological Resource Management) (ARM), 2001. Archival Background Report for the Ravenswood Project, East Palo Alto, CA. MS on file, S-24182, CHRIS/NWIC, CSU Sonoma, Rohnert Park.

[11] Dotta, James, 1974. A Preliminary Reconnaissance of the Archaeological Resources of the East Palo Redevelopment Project Area No. 1. MS on file, S-3023, CHRIS/NWIC, CSU Sonoma, Rohnert Park.

[12] Sutch, Cordelia, Michelle St. Clair, Elena Reese and John Holson (Pacific Legacy Incorporated), 2003. Archaeological Survey Report for The Ravenswood Business District Project, City of East Palo Alto, San Mateo County (including Attachment 3: Historic Resources Evaluation, Ravenswood Business District, Environmental Impact Report [EIR] by Carey & Co., Inc., April 14, 2003). MS on file, S-30516, CHRIS/NWIC, CSU Sonoma, Rohnert Park.

logical deposits, including trash pits, foundations, wells, privies, etc., have been and will continue to be exposed by ongoing infrastructure installation and repair and new development.

In general, a proactive approach for the identification and mitigation of potential adverse impacts to recorded and potential archaeological sites and architectural resources in the Plan Area is recommended. **Specific Plan Policy CUL-1.3** requires preparation of a project-specific *Archaeological Resources Assessment* (ARA) by a professional Archaeologist for any construction that will impact native soil in the parts of the Plan Area known to be archaeologically sensitive, that are within the 200-foot buffer of known historic and prehistoric resources, as recorded on the supplemental figure *Archaeological Sensitivity Zones* on file with the City. The map is kept confidential in order to information about the exact location of known resources. The ARA will provide background context, identify any archaeological resources, and provide an evaluation using the criteria of the California Register of Historic Resources. ARA recommendations must be followed to avoid and minimize damage to these resources. These may include archeological testing, data recovery, and archaeological monitoring during construction. With adherence to this policy, the impact would be ***less than significant***.

c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature, ***(LTS with Mitigation)***

The natural deposits of the Plan Area could be fossil-bearing and destruction of any unique paleontological deposits is a ***significant*** impact.

Impact CULT-1: Excavation of unique fossil deposits during development in the Plan Area could result in their destruction. ***(LTS with Mitigation)***

Mitigation Measure CULT-1: If paleontological resources are encountered during grading or excavation, all construction activities within 50 feet shall stop and the City shall be notified. A qualified paleontologist shall inspect the findings within 24 hours of discovery. If it is determined that the proposed development could damage unique paleontological re-

sources, mitigation shall be implemented in accordance with Public Resources Code Section 21083.2 and Section 15126.4 of the CEQA Guidelines. Possible mitigation under Public Resources Code Section 21083.2 requires that reasonable efforts be made for resources to be preserved in place or left undisturbed. If preservation in place is not feasible, project applicants shall pay in-lieu fees to mitigate significant effects. Excavation as mitigation shall be limited to those parts of resources that would be damaged or destroyed by a project. Possible mitigation under CEQA emphasizes preservation-in-place measures, including planning construction avoid paleontologic sites, incorporating sites into parks and other open spaces, covering sites with stable soil, and deeding the site into a permanent conservation easement. Under CEQA Guidelines, when preservation in place is not feasible, data recovery through excavation shall be conducted with a data recovery plan in place. Therefore, when considering these possible mitigations, the City shall have a preference for preservation in place.

Significance after Mitigation: With protection of the unique fossil deposits as described by Mitigation Measure CULT-3, the impact would be reduced to a level of ***less than significant.***

d. Disturb any human remains, including those interred outside of formal cemeteries. ***(LTS)***

It is possible that the project would directly or indirectly disturb human remains, including those interred outside of formal cemeteries. **Specific Plan Policy CUL-1.4** recognizes that Native American human remains may be encountered at unexpected locations and imposes a requirement on all development permits and tentative subdivision maps that upon their discovery during construction, development activity will cease until professional archaeological examination confirms that the burial is human. If the remains are determined to be Native American, applicable State laws shall be implemented. A professional Archaeologist with expertise in human remains must be retained to review, identify, and evaluate the discovery. The County

Coroner and Native American Heritage Commission must be notified and the remains treated in accordance with State law.

2. Cumulative Impacts

This cumulative analysis considers the Plan in the context of the East Palo Alto and the neighboring cities of Menlo Park and Palo Alto. The same general issues apply to these jurisdictions as to East Palo Alto, and the same mitigation measures, or a version of them, are usually applied. Impacts to historic, archaeological, and paleontological resources are dealt with on a project-specific basis. Moreover, the adjacent jurisdictions are mostly built out, except adjacent to the Bay where the land is preserved as open space. Development under the Specific Plan, in addition to development in the bayside areas of the rest of East Palo Alto, Menlo Park, and Palo Alto, would have ***no cumulative impacts.***

4.6 GEOLOGY, SOILS, AND MINERAL RESOURCES

This chapter summarizes information on geology, soils, and mineral resources relevant to the proposed Ravenswood/4 Corners Transit-Oriented Development Specific Plan. It provides an overview of the current regulatory framework, describes existing conditions and analyzes the potential impacts of the proposed Specific Plan.

A. Regulatory Framework

Both the State of California and local agencies have established regulations and requirements related to seismic, soil and geological safety and structural integrity. The following regulations are relevant to the CEQA review process for geology and soils.

1. State Regulations

a. Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act was passed by the California Legislature in 1972 to mitigate the hazard of surface faulting to structures. Its intent is to increase safety and minimize the loss of life during and immediately following earthquakes by facilitating seismic retrofits to strengthen buildings against ground shaking.[1] The Act addresses only surface fault rupture; it is not directed toward other earthquake hazards. Before a project can be permitted in a designated Alquist-Priolo Earthquake Fault Zone, the City or County with jurisdiction must require a geologic investigation to demonstrate that proposed buildings would not be constructed across active faults.

b. Unreinforced Masonry Building Law

The State of California enacted the Unreinforced Masonry Building Law in 1986. Under the law, local governments in Seismic Zone 4 (as established by the 1985 California Building Code – a zone that includes almost all of coastal California) were required to inventory unreinforced masonry buildings, es-

[1] California Department of Conservation, http://www.conserv666ation.ca.gov/cgs/rghm/ap/Pages/chp_7_5.aspx, accessed on November 12, 2010.

tablish an unreinforced masonry loss program, and report their progress to the State by 1990. The City of East Palo Alto participated in this survey.

c. California Seismic Hazards Mapping Act

The California Seismic Hazards Mapping Act of 1990 (California Public Resources Code Sections 2690-2699.6) addresses seismic hazards other than surface fault rupture, such as liquefaction and seismically-induced landslides. Under the Seismic Hazards Mapping Act zones are designated by the United States Geological Survey (USGS) where additional investigation is required for new development. The Palo Alto quadrangle, that included East Palo Alto, was published in 2006. The Act allows the lead agency for a project to withhold development permits until geologic or soils investigations are conducted for specific sites and mitigation measures incorporated into project plans to reduce hazards associated with seismicity and unstable soils.[2]

d. California Building Code (CBC)

The City of East Palo Alto has adopted the 1991 Uniform Building Code through its municipal code. However, structures in East Palo Alto are also regulated under State law and subject to the provisions of the California Building Code (CBC), of which the 2010 edition is the most recent.[3] Construction starting after January 1, 2011, is also subject to the provisions of the 2010 California Green Building Standards, or CALgreen building code.

The CBC assigns a Seismic Design Category to structures to define seismic hazard in terms of Mapped Acceleration Parameters (spectral values), Site Class (soil profile), and Occupancy Category (hazardous materials content).

The earthquake protection law (California Heath and Safety Code section 19100 et seq.) requires that structures be designed to resist stresses produced

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[2] California Department of Conservation, http://www.consrv.ca.gov/CGS/shzp/Pages/article10.htm, accessed on May 9, 2011.

[3] California State building codes are mandated by the California Building Standards Commission. Information is available online at http://www.bsc.ca.gov/default.htm.

by lateral forces caused by wind and earthquakes. Specific minimum standards for seismic safety and structural design to meet earthquake protection requirements are set forth in Chapter 16 of the CBC.

e. Surface Mining and Reclamation Act

The California Surface Mining and Reclamation Act of 1975 (SMARA) was enacted in response to land use conflicts between urban growth and essential mineral production. SMARA requires the State Geologist to classify land according to the presence or absence of significant mineral deposits. Local governments must consider this information before land with important mineral deposits is committed to land uses incompatible with mining.

2. Local Regulations and Policies

a. City of East Palo Alto General Plan Safety Element

The following is a summary of City of East Palo Alto General Plan[4] goals and policies relevant to geological and seismic hazards and mineral resources.

Safety Goal 1.0: Reduce the risk to the community from hazards associated with geologic conditions, seismic activity and flooding.

- Policy 1.1: Reduce the risk of impacts from geologic and seismic hazards by applying proper development engineering and building construction requirements.

B. Existing Conditions

1. Geologic Setting

The Plan Area is located in the Coast Ranges geomorphic province of California. The Coast Ranges are dominated by a series of northwest-trending ridges and valleys that have been formed by faulting and folding of the earth's crust.

[4] City of East Palo Alto, 1999. *City of East Palo Alto General Plan*. December, 1999.

Surficial soils mapped by Brabb[5] at the northwestern and eastern Plan Area boundaries, including Cooley Landing, generally comprise Holocene-age Bay Mud (Qhbm) and artificial fill (af). The Bay Mud grades into unconsolidated silty clay basin deposits (Qhb) progressing inward from the eastern and northwestern site boundaries. Further inward, the basin deposits transition into interfingered flood plain deposits (Qhfp) and natural Holocene-age levee deposits (Qhl). The flood plain deposits typically comprise dense sandy to silty clay with lenses of coarser silt and sand and the levee deposits generally consist of loose sandy or clayey silt that is permeable in nature. These soil types are generally consistent with mapping by USDA.[6] During an October 2009 site reconnaissance, an additional area of artificial fill, the Stanford Fill, was also observed and mapped.

Figure 4.6-1 shows the Plan Area's geologic setting, which is described in further detail below.

a. Bay Mud

The approximate thickness of younger Bay Mud (Qhbm) underlying the Plan Area is estimated to range from 10 to 15 feet, increasing in thickness to the east.[7] The younger Bay Mud is anticipated to project to the surface along the eastern Plan Area boundary, but in other areas is overlain by basin (Qhb), flood plain (Qhfp), and levee (Qhl) deposits. In addition, the mapped younger Bay Mud thicknesses may include other soft sediments and pre-1969 artificial fill. Figure 4.6-1 shows the approximate delineation of younger Bay Mud that is anticipated to project to the surface.

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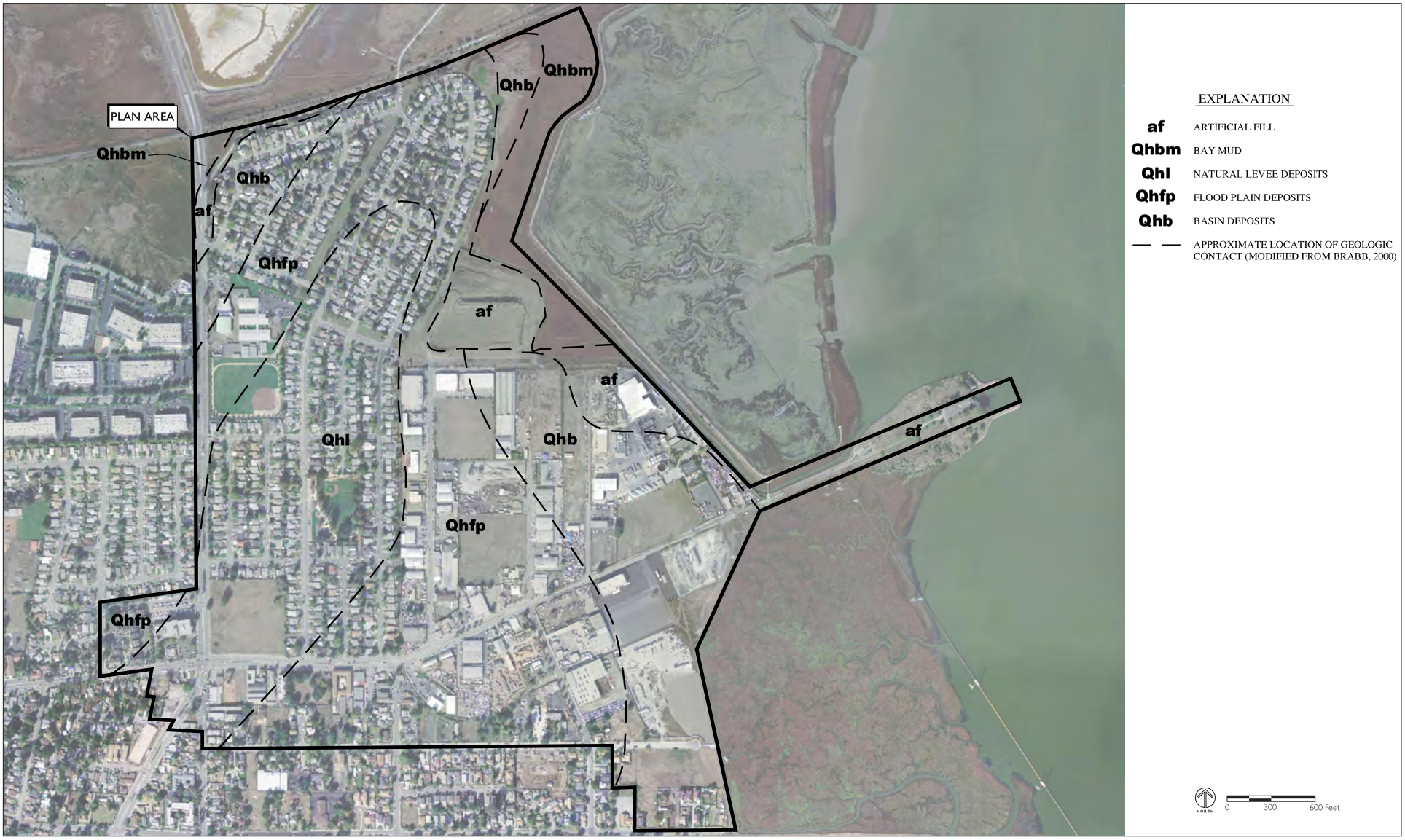
[5] Brabb, E.E., Graymer, R.W., and Jones, D.L., 2000, Geologic Map and Map Database of the Palo Alto, 30 x 60-Minute Quadrangle, California: A Digital Database: U.S. Geological Survey, Miscellaneous Field Studies Map MF-2332, Version 1.0.

[6] United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS), 2005, Web Soil Survey, San Mateo County, California.

[7] State of California, Division of Mines and Geology (CDMG), 1969, Geologic and Engineering Aspects of San Francisco Bay Fill, Special Report 97, Plates 1 through 4.



Source: USGS Terraserver, 2004.

FIGURE 4.6-1

GEOLOGIC CONDITIONS

Younger (soft) Bay Mud deposits are highly compressible when subjected to increased loads such as those imposed by fill or structures. Significant total and differential settlement may occur when the younger Bay Mud is subjected to these new loads. The design of surface grades and site improvements, such as buildings, utilities, and streets, must accommodate or resist this potential for total and differential settlements.

b. Existing Fill

Existing artificial fill (af), in the areas shown on Figure 4.6-1, is generally situated along portions of the northwestern and eastern Plan Area boundaries, including Cooley Landing. Additional artificial fill is mapped around the Stanford Fill in the north-central Plan Area. These mapped fills are considered "thicker" fills that may extend up to 20 feet in thickness. Shallower fills placed during prior site development and utility trench backfill are also anticipated across the majority of the Plan Area. These fills are generally anticipated to be less than 5 feet thick.

Existing fills could undergo vertical movement due to new loads (fills or buildings) or change in drainage/irrigation patterns. These movements are not easily characterized and could ultimately be inadequate to support the proposed building loads and may need to be removed and replaced with engineered fill in areas that will support new fill, structures, or improvements.

c. Expansive Soils

The mapped basin deposits (Qhb) and flood plain deposits (Qhfp) on Figure 4.6-1 are expected to be of clayey nature, and therefore anticipated to be moderately to highly expansive. Expansive soils shrink and swell as a result of moisture changes. This can cause heaving and cracking of slabs-on-grade, pavements, and structures founded on shallow foundations. Successful construction on expansive soils requires special attention during grading and foundation designs that take the expansive soils into consideration. The effect of expansive soils can be reduced by the choice of a proper foundation system (rigid grid or mat), proper moisture conditioning and compaction of subgrade

soils and engineered fill, or the use of low-expansive material or chemical treatment on the subgrade soils.

d. Soil Erosion

Soil erosion is a process that transports soil materials to another area, typically by wind or water. Erosion is a natural process that can vary depending on the soil material and structure, placement, and human activity. Fine-grained silts and clays or fine-grained sands can be easily eroded, while coarser-grained sandy soils are less susceptible. Excessive soil erosion can lead to damaged building foundations and roadways. Wind erosion can occur under most topographic conditions containing exposed soil, while runoff erosion is most likely to occur on areas that contain slopes and have exposed soil. The relatively flat topography of the Plan Area minimizes runoff erosion hazards, and the clayey soil conditions minimize wind erosion. Future grading may increase the potential for wind and runoff erosion; therefore, appropriate post-development landscaping and ground cover should be integrated as part of new development.

e. Mineral Resources

The CGS has classified lands within the San Francisco-Monterey Bay Region into Aggregate and Mineral Resource Zones (MRZs) based on guidelines adopted by the California State Mining and Geology Board. The Plan Area is mapped as MRZ-1, an area where no significant mineral or aggregate deposits are present.[8]

f. Chrysotile Asbestos

Serpentine bedrock (serpentinite) is a common bedrock material in northern California, of which some is known to contain the mineral chrysotile, a naturally occurring form of asbestos. Chrysotile asbestos, however, is not found in all serpentine rock. Chrysotile asbestos is a silicate mineral and the most commonly encountered form of natural asbestos.

[8] State of California, Division of Mines and Geology, 1996, Update of Mineral Land Classification: Aggregate Materials in the South San Francisco Bay Production-Consumption Region, DMG Open File Report 96-03.

Where chrysotile asbestos does occur, it is typically present in concentrations of less than 1 percent but may be present in concentrations up to about 10 percent considering regional information. The chrysotile mineral can become airborne when the serpentine rock is crushed or pulverized. This can occur when vehicles travel over unpaved roads or driveways that are surfaced with serpentine materials, when land is graded for building purposes, or in quarrying operations. Chrysotile asbestos is considered a health risk only in this air-born form.

Since the Plan Area is not mapped in a serpentine bedrock area, or an area where significant mineral or aggregate deposits are present, the potential for chrysotile asbestos is low. During design-level studies (when fill materials would be fully characterized), imported aggregates and existing fills would be observed for serpentinite fragments and could be tested by CARB 435 test methods, as applicable.

g. Groundwater Conditions

Historical groundwater levels vary from 0 to 10 feet below existing grade in proximity to the Plan Area.[9] Groundwater levels can be influenced by tidal changes, precipitation changes, perched zones, changes in drainage patterns, and irrigation. For some site areas, particularly within the Bay Mud areas, the groundwater may be brackish due to the proximity of San Francisco Bay. If proposed development includes below-grade levels or if the depth of excavation extends below groundwater levels, temporary dewatering during construction may be necessary. Based upon site-specific exploration and design, permanent dewatering may also be needed on below-grade structures.

2. Site Seismicity and Seismic Hazards

Because of the presence of nearby active faults, the Bay Area Region is considered seismically active. Numerous small earthquakes occur every year in

[9] State of California, California Geologic Survey (CGS), 2006, Seismic Hazard Zones Report, Palo Alto Quadrangle.

TABLE 4.6-1 ***NEAREST ACTIVE FAULTS***

Fault Name	Approximate Distance (Miles)	Estimated Maximum Moment (Magnitude)
Monte Vista – Shannon	6.3	6.7
San Andreas	8.1	7.9
Hayward (Total Length)	10.9	7.3
Calaveras	16.0	6.9
San Gregorio	17.9	7.4

Source: EQ Fault, 2000.

the region, and large earthquakes (greater than Magnitude 7 on the Richter Scale) have been recorded and can be expected to occur in the future.

The Plan Area is not located within a Special Studies Zone for active faulting, and no known faults cross the Plan Area.[10] Although not zoned as requiring further study by the State of California, two concealed potentially active faults, the Palo Alto fault and the San Jose fault, are mapped in the vicinity of the Plan Area.[11] The San Jose fault is mapped approximately ¼-mile east of the Plan Area, and the Palo Alto Fault is mapped approximately 1½ miles west of the Plan Area.

Table 4.6-1 lists the five nearest active faults, defined by the State Mining and Geology Board as one that has had surface displacement within Holocene

[10] State of California, Division of Mines and Geology (CDMG), 1974, Special Studies Zone Map, Palo Alto Quadrangle.

[11] Bortugno, E.J., et al., 1991, Map Showing Recency of Faulting, San Francisco-San Jose Quadrangle USGS Map Sheet 5A; Jennings, C.W., 1994, Fault Activity Map of California and Adjacent Areas, California Division of Mines and Geology, California Geologic Data Map Series, Map No. 6.

time (about the last 10,000 years),[12] along with their estimated earthquake magnitudes.[13]

a. Seismic Hazards

Potential seismic hazards resulting from a nearby moderate to major earthquake can generally be classified as primary and secondary. The primary effect is ground rupture, also called surface faulting. The common secondary seismic hazards include ground shaking, ground lurching, soil liquefaction, lateral spreading, earthquake-induced lurch cracking, and regional subsidence or uplift.

Based on topographic and lithologic data, risk from earthquake-induced lurch cracking and regional subsidence or uplift is considered low at the Plan Area.

i. Ground Rupture

The Plan Area is not located within a State of California Earthquake Fault Hazard Zone.[14] Therefore, since no known active faults cross the Plan Area, ground rupture is not likely to occur at the Plan Area.

ii. Ground Shaking

An earthquake of moderate to high magnitude generated within the San Francisco Bay Region, similar to those that have occurred in the past, could cause considerable ground shaking at the Plan Area.

iii. Lurching

Ground lurching is a result of the rolling motion imparted to the ground surface during energy released by an earthquake. Such rolling motion can cause ground cracks to form. The potential for the formation of these cracks is considered greater at contacts between deep alluvium and bedrock. Such an

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[12] Hart, E.W., 1997, Fault-Rupture Hazard Zones in California, California Division of Mines and Geology Special Publication 42.

[13] EQ Fault, Version 3.00b, 2000.

[14] State of California, Division of Mines and Geology (CDMG), 1974, Special Studies Zone Map, Palo Alto Quadrangle.

occurrence is possible at the Plan Area, as in other geologically similar locations in the Bay Area, but the offset or strain is expected to be low to negligible.

iv. Liquefaction

Liquefaction is a phenomenon in which saturated, cohesionless soils are subject to a temporary loss of shear strength because of pore pressure buildup under the cyclic shear stresses associated with earthquakes. Liquefaction causes ground failure that can damage buildings and foundations, underground utilities and roadways. The potential for liquefaction is highest in areas underlain by loose, cohesionless granular materials and shallow groundwater.

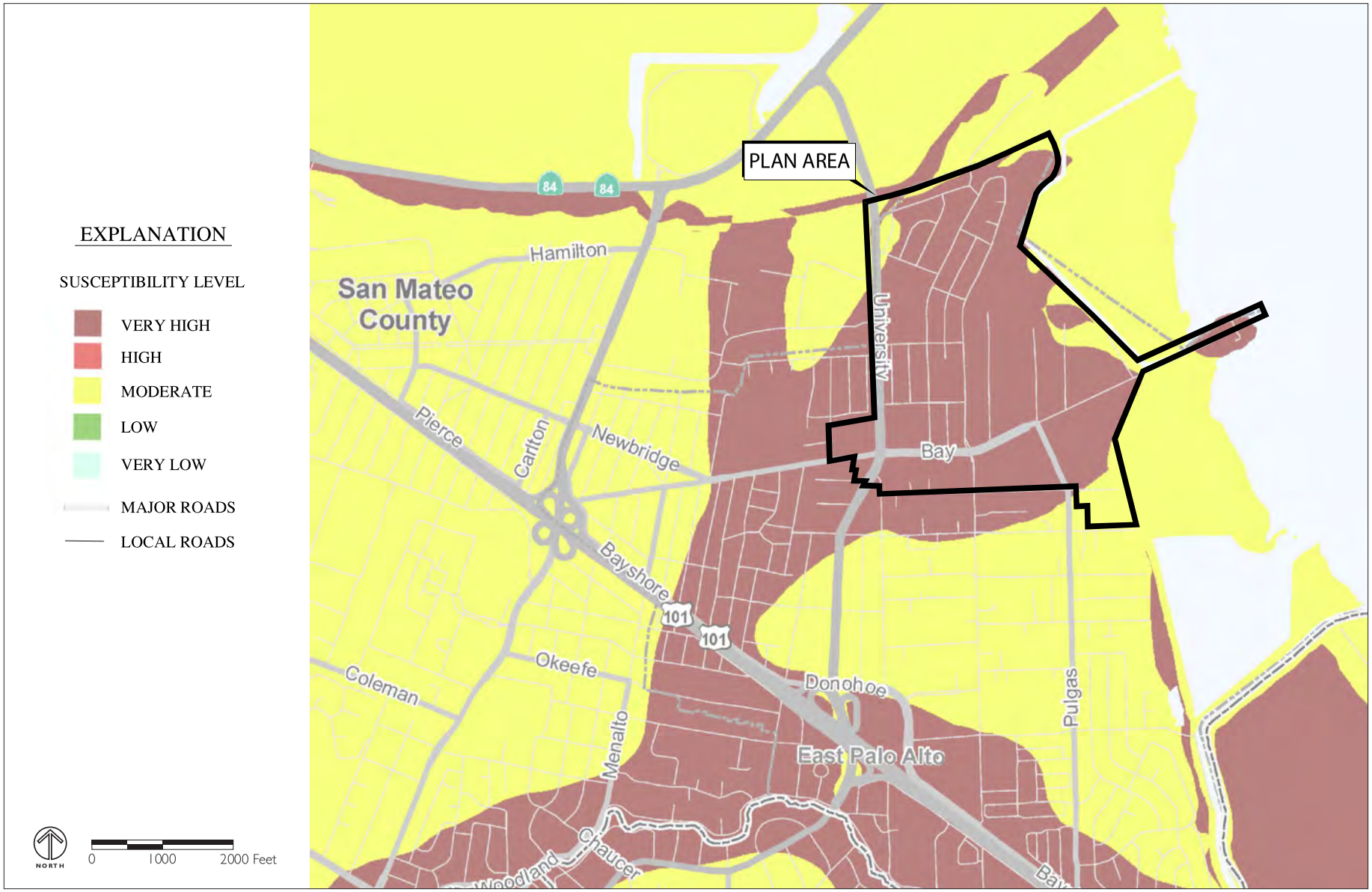
The Plan Area is mapped by ABAG as having a moderate to very high liquefaction susceptibility, as shown in Figure 4.6-2.[15] This potential susceptibility is consistent for sites containing shallow groundwater conditions in conjunction with unconsolidated alluvial materials, such as Holocene-age levee deposits (Qhl), granular artificial fill (af), or silt/sand lenses in flood plain deposits (Qhfp) that are generally more permeable in nature.

v. Earthquake-Induced Settlement

Densification of sandy or silty soils above and below groundwater levels can result in settlement or densification during an earthquake. The potential for earthquake-induced settlement at the site is expected to be moderately-high to high due to the moderate to very high liquefaction susceptibility at the Plan Area and the presence of underlying unconsolidated alluvium and artificial fill.

In order to reduce the effects of liquefaction-induced densification, shallow foundations should be designed to be sufficiently rigid to withstand the anticipated movements. Where significant liquefaction-induced settlement is anticipated, unless the soil is mitigated, a deep foundation system should be

[15] Association of Bay Area Governments (ABAG), 2009, Liquefaction Hazard Map for the San Francisco Bay Area.



Source: ABAG, JUNE 2009.

FIGURE 4.6-2

SUSCEPTIBILITY TO LIQUEFACTION

considered. Several mitigation methods are available to reduce the amount of anticipated earthquake-induced settlement, such as removal of potentially liquefiable soils and replacement as engineered fill, or dynamic compaction (DC).

vi. Lateral Spreading

Lateral spreading is a failure within a nearly horizontal soil zone (possibly due to liquefaction) that causes the overlying soil mass to move toward a free face or down a gentle slope. The lateral ground movements are often associated with a weakening or failure of an embankment or soil mass overlying a layer of liquefied sands or weak soils. Generally, the effects of lateral spreading are most significant at the free face or the crest of a slope and diminish with distance from the slope.

The Plan Area is located adjacent to the San Francisco Bay, which has an undetermined depth just off the Bay margin. Due to the anticipated configuration, the potential for lateral spreading should be considered moderate to high. Site-specific exploration will be required to further assess the potential for lateral spreading.

vii. Tsunamis and Seiches

Tsunamis are long sea waves, generated by displacements associated with earthquakes. These waves can reach great heights when they encounter shallow water. According to findings reported in the Redwood City Seismic Advisory Board report, the largest tsunami recorded at the Golden Gate was 3 feet high.[16] Since the Plan Area is located in the southern margin of the Bay, more than 20 miles from Golden Gate, the tsunami waves will attenuate to much less then 3 feet high. As such, the potential for tsunamis affecting the Plan Area is considered low to remote. The Plan Area will also gain some protection by the bordering marshland.

[16] City of Redwood City, 1972, *Seismic Advisory Board Report.*

Seiches are caused by seismically induced ground motions imparted to bodies of water that cause them to oscillate from side to side. The possibility of seiches causing serious damage in the Plan Area is extremely low, as the potential for tsunamis in the Plan Area is low to remote, and further reduced by the tidal marsh areas,

C. Standards of Significance

Geology and soils impacts associated with the Plan would be considered significant if the Plan would:

a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
    i. 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. Refer to Division of Mines and Geology Special Publication 42.
    ii. Strong seismic ground shaking.
    iii. Seismic-related ground failure, including liquefaction.
    iv. Landslides.

b. Result in substantial soil erosion or the loss of topsoil.

c. 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.

d. 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.

e. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water.

Impacts to mineral resources would be considered significant if they:

f. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state.

g. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.

D. Impact Discussion

This section describes the impacts of the Specific Plan.

a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

i. Rupture of a known earthquake fault. ***(LTS)***

There are no known active faults that cross the Plan Area and the area is not in a Special Studies Zone for active faulting. The impact from surface fault rupture would therefore be ***less than significant.***

ii. Strong seismic ground shaking. ***(LTS after Mitigation)***

As shown in Figure 4.6-3, there are several major earthquake-generating faults within 15 miles, the largest being the San Andreas Fault, which is approximately 8 miles from the Plan Area (see Table 4.6-1). In addition to these major faults, there are numerous smaller faults which could be active. The closest of these is the San Jose Fault, a quarter of a mile to the east at the shelf edge in the Bay, and the Palo Alto Fault that runs between Middlefield Road and Highway 101 in Palo Alto (see Figure 4.6-4).[17]

Seismic motion in the Plan Area is amplified by the Bay Mud deposits that may underlie the areas of artificial fill and possibly also the areas of coarser basin deposits. As a consequence of this underlying Bay Mud, the Plan Area

[17] http://geohazards.usgs.gov/qfaults/ca/California.php

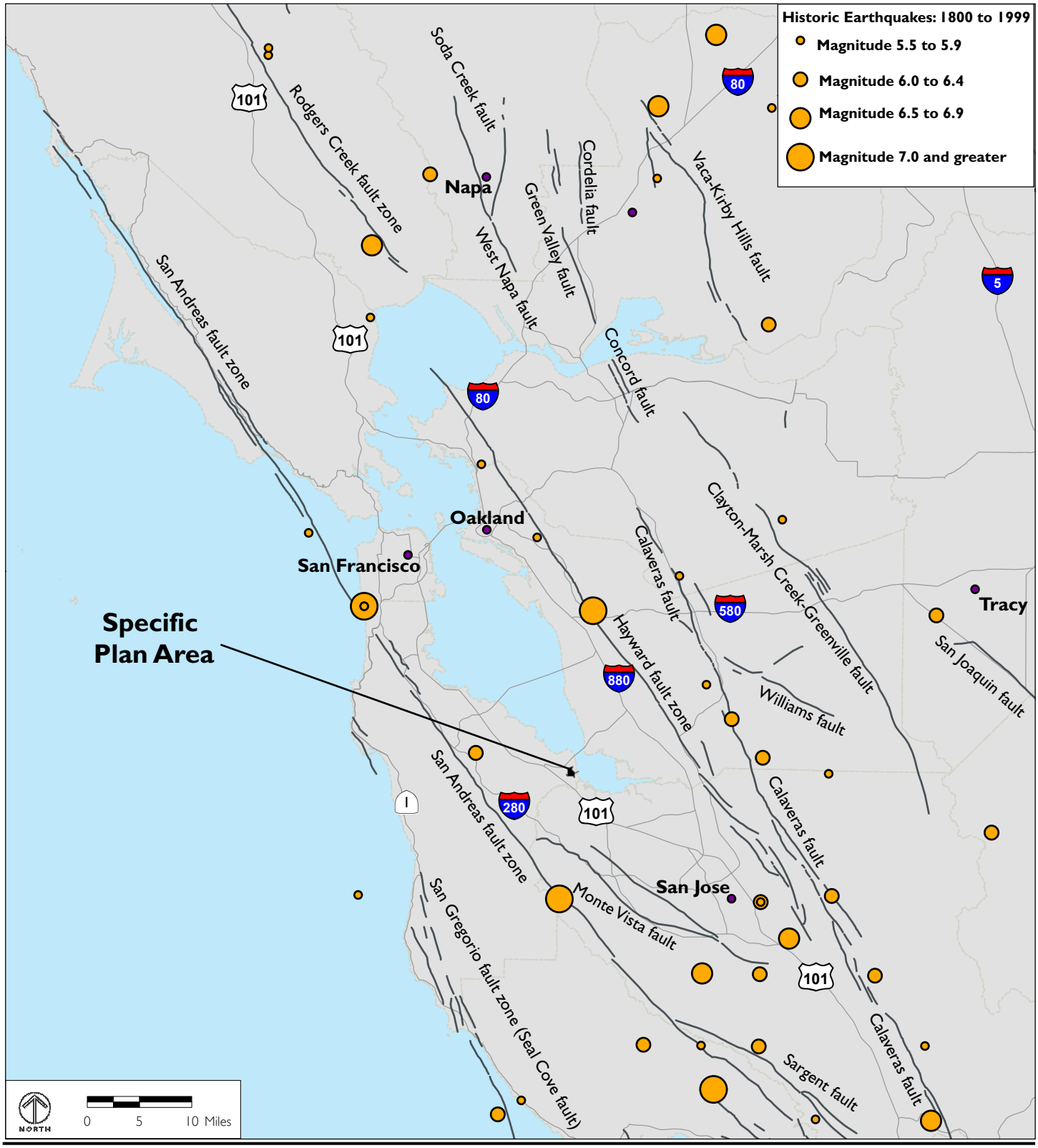
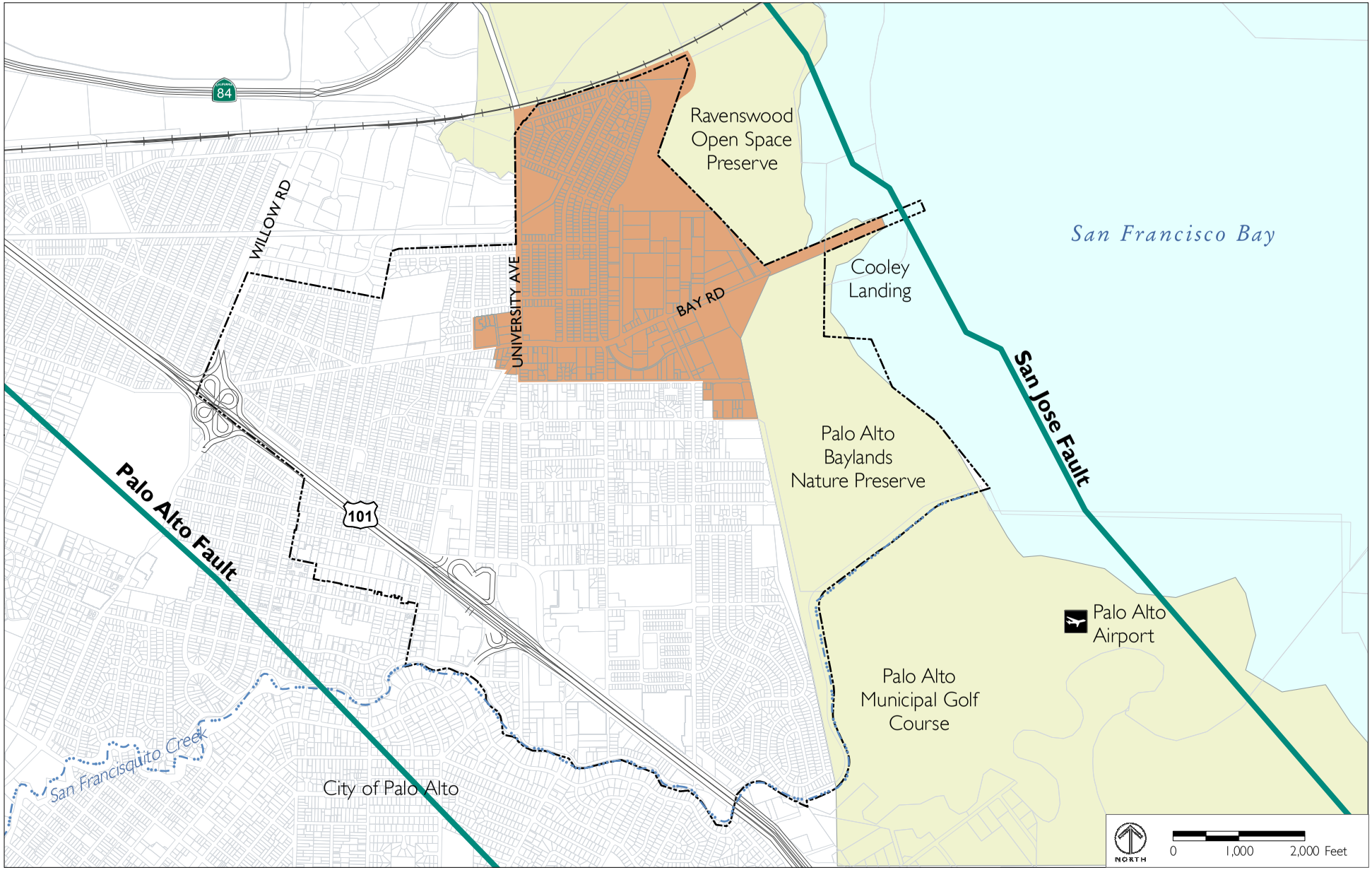


FIGURE 4.6-3

REGIONAL FAULTS AND HISTORIC EARTHQUAKES



Source: U.S. Geological Survey and California Geological Survey, 2006, Quaternary fault and fold database for the United States, accessed DATE, from USGS web site: http//earthquakes.usgs.gov/regional/qfaults/

Quarternary Fault
City Limits
Plan Area
Baylands
Railroad

FIGURE 4.6-4
QUARTERNARY FAULTS

is shown as being subject to Very Strong to Violent shaking on the maps generated by the Association of Bay Area Governments (ABAG) from a major earthquake on either the San Andreas Fault or Hayward Fault. Destruction of buildings from ground shaking in a major earthquake would be a ***significant*** impact.

Impact GEO-1: Strong ground shaking from earthquakes could cause major damage to buildings and other structures. ***(LTS with Mitigation)***

Mitigation Measure GEO-1: All structures shall be designed using sound engineering judgment and the latest California Building Code (CBC) requirements as a minimum. Seismic design provisions of current building codes generally prescribe minimum lateral forces, applied statically to the structure, combined with the gravity forces of dead and live loads. The code-prescribed lateral forces are generally substantially smaller than the expected peak forces that would be associated with a major earthquake. Therefore, structures shall be able to do all of the following:

- Resist minor earthquakes without damage.
- Resist moderate earthquakes without structural damage but with some nonstructural damage.
- Resist major earthquakes without collapse but with some structural as well as nonstructural damage.

Significance after Mitigation: Conformance to the current building code recommendations does not constitute any kind of guarantee that significant structural damage would not occur in the event of a maximum magnitude earthquake. However, it is reasonable to expect that a well-designed and well-constructed structure would not collapse or cause loss

of life in a major earthquake.[18] With this mitigation in place, the impact would be ***less than significant.***

iii. Seismic-Related Ground Failure/Liquefaction. ***(LTS with Mitigation)***
As shown on Figure 4.6-2, most of the Plan Area is a zone of high susceptibility to liquefaction during an earthquake because of the presence of unconsolidated alluvium and artificial fill in a zone of shallow groundwater. These can lose cohesion and "liquefy" during an earthquake and/or may settle differentially afterwards.

The effect can be mitigated with design of (shallow) foundations that are sufficiently rigid to withstand the soil movement, replacement of underlying fills or soil with engineered fill, and/or compacting the soil/fill. Another possibility for certain zones is use of a deeper foundation.

By State law, property owners are informed of this on property transfer, and although there is no specific City requirement for a geotechnical investigation with mitigation measures, the City of East Palo Alto may request it for specific sites as part of the Building Permit process. The risk of liquefaction and settlement is considered a ***significant*** impact.

Impact GEO-2: Soils underlying the Plan Area could liquefy and/or settle differentially due to an earthquake. ***(LTS with Mitigation)***

Mitigation Measure GEO-2: Foundations shall be designed to compensate for effects of liquefaction, differential settlement, and lateral spreading due to earthquakes. Foundations shall be designed by a qualified structural engineer using soil design parameters developed by qualified geotechnical consultants and verified by the City Building Department.

[18] SEAOC, 1996, Recommended Lateral Force Requirements and Tentative Commentary.

Significance after Mitigation: With verification of the foundation construction, impacts due to liquefaction and differential settlement would be reduced to a ***less-than-significant*** level.

iv. Seismic-related ground failure, including liquefaction ***(LTS with Mitigation)***
See response to iii. above.

v. Landslides ***(LTS with Mitigation)***
As the Plan Area itself is almost flat, and not adjacent to any areas of significant topography, landslides on the Plan Area are not likely. However, the Plan Area is adjacent to the Bay and the shelf edge falls off into deeper water within approximately a quarter-mile of the shore. There is therefore a moderate to high chance of lateral spreading as sediment moves downslope during an earthquake. Areas most susceptible to this would be those closest to the Bay. This would need to be investigated on a site-specific basis but would be a ***significant*** impact.

Impact GEO-3: Construction in areas close to the Bay could be subject to lateral spreading due to earthquakes. ***(LTS with Mitigation)***

Mitigation Measure GEO-3: Implement Mitigation Measure GEO-1 above. In addition, site development plans and foundations shall be designed to compensate for effects of lateral spreading due to earthquakes. Earthwork activities, including remedial grading, shall be performed using the recommendations provided by qualified geotechnical consultants, and foundations shall be designed by a qualified structural engineers using soil design parameters developed by qualified geotechnical consultants and verified by the City Building Department.

Significance after Mitigation: With verification of the foundation construction, impacts due to lateral spreading would be reduced to a ***less-than-significant*** level.

b. Result in substantial soil erosion or the loss of topsoil ***(LTS)***

Soils of the Plan Area range from mud to coarser levee deposits and the finer deposits of sands and silts are fairly easily eroded by wind and water, although the effects of soil erosion are reduced by the subdued topography. However, unless the area is vegetated, soil could erode and expose foundations. **Specific Plan Policy LU-4.5** requires landscaping and ground cover to be included in all projects. This would prevent substantial soil erosion. With these measures in place, the impact would be ***less than significant***.

Additional project components and mitigation measures to prevent soil erosion during construction are included in Section 4.9, Hydrology and Water Quality, of this EIR.

c. 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 ***(LTS with Mitigation)***

Younger (soft) Bay Mud deposits are mapped in the northeastern part of the Plan area at the surface and may underlie the areas of artificial fill. This substrate is highly compressible when structures or areas of fill are placed on top. Existing fills could also move vertically when structures are built on it. This potential for differential settlement is a ***significant*** impact.

Impact GEO-4: Areas of soft Bay Mud and artificial fill may be differentially compressed when structures and site improvements are built on these substrates, causing cracking, subsidence, and other damage to the overlying structure and adjacent structures. ***(LTS with Mitigation)***

Mitigation GEO-4: Improvements on areas of soft Bay Mud and artificial fill must be designed with under the guidance of suitably qualified geotechnical consultants to ensure that the underlying substrate is capable of withstanding the load. Existing fills may need to be removed and replaced with engineered fills.

Significance after Mitigation: With appropriate geotechnical support, the impact from construction on compressible underlying substrates would be ***less than significant***.

d. 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 ***(LTS with Mitigation)***

Soils in the area are mapped on Figure 4.6-1 as basin deposits or flood plain deposits and most of these are clay-rich and expansive. Unless the soil type is factored into foundation design, there could be a ***significant*** impact.

Impact GEO-5: Foundations could heave and crack due to underlying expansive soils, unless they are appropriately designed. ***(LTS with Mitigation)***

Mitigation Measure GEO-5: Earthwork and foundations shall be designed to compensate for effects of expansive soils. Fill placement and foundation design criteria shall be developed by qualified geotechnical consultants and verified by the City Building Department.

Significance after Mitigation: Provided fill placement is performed appropriately and foundations are designed appropriately and that this is verified, the impact from expansive soils would be ***less than significant***.

e. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water ***(LTS)***

Soils in the Plan Area are mostly clayey and the Plan Area is relatively flat, both of which support use of septic tanks and alternative wastewater disposal systems. Although these are not common in East Palo Alto, because the City has a sanitary waste disposal service from the East Palo Alto Sanitary District, they are allowed by the City. City ordinance prohibits these from close proximity to a well or stream bank. Given these conditions, impacts from sewer leakage from these structures would be ***less than significant.***

f. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state *(NI)*

There are no known mineral resources in the Plan Area and there would therefore be ***no impact***.

g. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan *(NI)*

Please see section f; because there are no mineral resources in the Plan Area, there would be ***no impact.***

2. Cumulative Impacts

This cumulative analysis considers the Plan Area in the context of the General Plan, which takes into account the entire incorporated area of East Palo Alto, including the Plan Area. Although there are significant impacts from the Plan Area due to seismically-related ground failure, and from construction on expansive soil, these can be mitigated to a less-than-significant level. Impacts from the Plan Area would be site-specific, and it is expected that impacts on sites outside of the Plan Area under the General Plan could be mitigated to less-than significant levels through similar mitigation measures. Therefore, the Specific Plan would not add cumulatively to impacts from the surrounding neighborhood and overall there would be ***no cumulative impacts***.

4.7 GREENHOUSE GAS EMISSIONS

This chapter describes the existing conditions in the Ravenswood/4 Corners Transit-Oriented Development Specific Plan area and evaluates the potential impacts of the Plan on greenhouse gas (GHG) emissions. A summary of the relevant regulatory setting and existing conditions is followed by a discussion of Plan-specific and cumulative impacts.

A. Background

Gases that trap heat in the atmosphere, GHGs, regulate the earth's temperature. This phenomenon, known as the Greenhouse Effect, is responsible for maintaining a habitable climate. The most common GHGs are carbon dioxide and water vapor but there are also several others, most importantly: methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). These are released into the earth's atmosphere through a variety of natural processes and human activities.

- Carbon dioxide and nitrous oxide are byproducts of fossil fuel combustion.
- Nitrous oxide is associated with agricultural operations such as fertilization of crops.
- Methane is commonly created by off-gassing from agricultural practices (e.g. keeping livestock) and landfill operation.
- Chlorofluorocarbons were widely used as refrigerants, propellants, and cleaning solvents but their production has been stopped by international treaty.
- Hydrofluorocarbons are now used as a substitute for chlorofluorocarbons in refrigeration and cooling.
- Perfluorocarbons and sulfur hexafluoride emissions are commonly created by industries such as aluminum production and semi-conductor manufacturing.

Each GHG has its own potency and effect upon the earth's energy balance. This is expressed in terms of a global warming potential (GWP), with carbon dioxide being assigned a value of 1 and sulfur hexafluoride being several orders of magnitude stronger with a GWP of 23,900. In GHG emission inventories, the weight of each gas is multiplied by its GWP and is measured in units of carbon dioxide equivalents (CO_2e).

An expanding body of scientific research supports the theory that global warming is currently affecting changes in weather patterns, average sea level, ocean acidification, chemical reaction rates, and precipitation rates, and that it will increasingly do so in the future. The climate and several naturally-occurring resources within California could be adversely affected by the global warming trend. Increased precipitation and sea level rise could increase coastal flooding, saltwater intrusion (a particular concern in the low-lying Sacramento–San Joaquin Delta, where potable water delivery pumps could be threatened), and degradation of wetlands. Mass migration and/or loss of plant and animal species could also occur. Potential effects of global climate change that could adversely affect human health include more extreme heat waves and heat-related stress; an increase in climate-sensitive diseases; more frequent and intense natural disasters such as flooding, hurricanes and drought; and increased levels of air pollution.

B. Regulatory Framework

This section summarizes key federal, State and City statutes, regulations and policies that would apply to the Plan. Global climate change resulting from GHG emissions is an emerging environmental concern being raised and discussed at the international, national, and statewide level. At each level, agencies are considering strategies to control emissions of gases that contribute to global warming.

1. Federal Laws and Regulations

The United States participates in the United Nations Framework Convention on Climate Change (UNFCCC). While the United States signed the Kyoto

Protocol, which would have required reductions in GHGs, Congress never ratified the protocol. The federal government chose voluntary and incentive-based programs to reduce emissions and has established programs to promote climate technology and science. In 2002, the United States announced a strategy to reduce the GHG intensity of the American economy by 18 percent over a 10-year period from 2002 to 2012. At this time, there are no federal regulations or policies pertaining to GHG emissions.

2. State Laws and Regulations

The State of California is concerned about GHG emissions and their effect on global climate change. The State recognizes that "there appears to be a close relationship between the concentration of GHGs in the atmosphere and global temperatures" and that "the "evidence for climate change is overwhelming." The effects of climate change on California, in terms of how it would affect the ecosystem and economy, remain uncertain. The State has many areas of concern regarding climate change with respect to global warming. According to the 2006 Climate Action Team Report, the following climate change effects and conditions can be expected in California over the course of the next century:

- A diminishing Sierra snowpack declining by 70 percent to 90 percent, effecting the state's water supply;
- Increasing temperatures from 8 to 10.4 degrees Fahrenheit (°F) under the higher emission scenarios, leading to a 25 to 35 percent increase in the number of days ozone pollution standards are exceeded in most urban areas;
- Coastal erosion along the length of California and seawater intrusion into the Sacramento River Delta from a 4- to 33-inch rise in sea level. This would exacerbate flooding in already vulnerable regions;
- Increased vulnerability of forests due to pest infestation and increased temperatures;

- Increased challenges for the state's important agricultural industry from water shortages, increasing temperatures, and saltwater intrusion into the Delta; and
- Increased electricity demand, particularly in the hot summer months.

a. Assembly Bill 1575 (1975)

In 1975, the Legislature created the California Energy Commission (CEC). The CEC regulates electricity production that is one of the major sources of GHGs. AB 1575 amended Public Resources Code Section 21100 et seq.

b. Title 24, Part 6 of the California Code of Regulations (1978)

The 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. The 2005 Standards went into effect October 1, 2005. Projects that apply for a building permit on or after this date have had to comply with the 2005 Standards. The 2008 Standards are currently being developed and were anticipated to become effective in late 2009.

c. Assembly Bill 1493 (2002)

Assembly Bill (AB) 1493 required California Air Resources Board (CARB) to develop and adopt regulations that reduce GHG emitted by passenger vehicles and light duty trucks. AB 1493 amended Health and Safety Code Sections 42823 and 43018.5.

d. State of California Executive Order S-3-05 (2005)

The Governor's Executive Order established aggressive emissions reductions goals: by 2010, GHG emissions must be reduced to 2000 levels; by 2020, GHG emissions must be reduced to 1990 levels; and by 2050, GHG emissions must be reduced to 80 percent below 1990 levels.

In June 2005, the Governor of California signed Executive Order S-3-05, which identified Cal/EPA as the lead coordinating State agency for establish-

ing climate change emission reduction targets in California. A "Climate Action Team," a multi-agency group of State agencies, was set up to implement Executive Order S-3-05. Under this order, the State plans to reduce GHG emissions to 80 percent below 1990 levels by 2050. GHG emission reduction strategies and measures to reduce global warming were identified by the California Climate Action Team in 2006.

e. Assembly Bill 32, California Global Warming Solutions Act (2006)

AB 32, the Global Warming Solutions Act of 2006, codifies the State's GHG emissions target by directing CARB to reduce the State's global warming emissions to 1990 levels by 2020. CARB regulations are required to begin phasing in by 2012. AB 32 was signed and passed into law by Governor Schwarzenegger on September 27, 2006. AB 32 has been codified in Health and Safety Code section 38500, et seq. Since that time, the CARB, CEC, CPUC, and Building Standards Commission have all been developing regulations that will help meet the goals of AB 32 and Executive Order S-3-05.

A Scoping Plan for AB 32 was adopted by CARB in December 2008. It contains the State's main strategies to reduce GHGs from business-as-usual emissions projected in 2020 back down to 1990 levels. Business-as-usual (BAU) is the projected emissions in 2020, including increases in emissions caused by growth, without any GHG reduction measures. The Scoping Plan has a range of GHG reduction actions, including direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, and market-based mechanisms such as a cap-and-trade system. It requires CARB and other State agencies to develop and adopt regulations and other initiatives reducing GHGs by 2012.

As directed by AB 32, CARB has also approved a statewide GHG emissions limit. On December 6, 2007, CARB staff resolved an amount of 427 million metric tons of carbon dioxide equivalent ($MMTCO_2e$) as the total statewide GHG 1990 emissions level and 2020 emissions limit. The limit is a cumulative statewide limit, not a sector- or facility-specific limit.

CARB is also conducting rulemaking, culminating in rule adoption by January 1, 2011 for reducing GHG emissions to achieve the emissions cap by 2020. The rules must take effect no later than 2012. In designing emission reduction measures, CARB must aim to minimize costs, maximize benefits, improve and modernize California's energy infrastructure, maintain electric system reliability, maximize additional environmental and economic co-benefits for California, and complement the State's efforts to improve air quality.

In addition, landfill gas capture and control was identified as an early adoption measure for AB 32, and CARB has proposed a rule requiring gas capture and collection for landfills having at least 450,000 tons of waste in place and establishing performance standards for systems already installed.

f. Senate Bill 97, Modification to the Public Resources Code (2007)

Pursuant to Senate Bill 97 (SB 97), the Governor's Office of Planning and Research (OPR) is in the process of developing CEQA Guidelines addressing GHGs. OPR is required to "prepare, develop, and transmit" the guidelines to the Resources Agency on or before July 1, 2009. In June 2008, OPR issued interim guidance for addressing climate change through CEQA. SB 97 amended Public Resources Code Section 21083.05.

At the direction of the OPR, CARB is currently developing statewide interim thresholds of significance for green house gas emissions. CARB is focusing on common project types that, collectively, are responsible for substantial GHG emissions – specifically industrial, residential, and commercial projects. The ongoing workshops have been planned to discuss further development of concepts introduced in its Preliminary Draft Staff Proposal on Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act (CEQA).

g. Senate Bill 375, California's Regional Transportation and Land Use Planning Efforts (2008)

Recently, California enacted legislation (SB 375) to expand the efforts of AB 32 by controlling indirect GHG emissions caused by urban sprawl. SB375 amended Public Resources Code Section 21061.3 and added Sections 21155, 21155.1, 21155.2, 21155.3 and 21159.28. SB 375 would develop emissions-reduction goals in which regions can apply in planning activities. SB 375 provides incentives for local governments and developers to implement new conscientiously planned growth patterns. This includes incentives for creating attractive, walkable, and sustainable communities and revitalizing existing communities. The legislation also allows developers to bypass certain environmental reviews under CEQA if they build projects consistent with the new sustainable community strategies. Development of more alternative transportation options that would reduce vehicle trips and miles traveled, along with traffic congestion, would be encouraged. SB 375 enhances CARB's ability to reach the AB 32 goals by directing the agency in developing regional GHG emission reduction targets to be achieved from the transportation sector for 2020 and 2035. CARB would work with the metropolitan planning organizations (e.g. ABAG and MTC) to align their regional transportation, housing, and land use plans to reduce vehicle miles traveled and demonstrate the region's ability to attain its GHG reduction targets. A similar process is used to reduce transportation emissions of ozone precursor pollutants in the Bay Area.

h. Executive Order S-13-08 (2008)

This Executive Order directed California agencies to assess and reduce the vulnerability of future construction projects to impacts associated with sea-level rise.

i. California's Heavy Duty Vehicle Greenhouse Gas Emissions Reduction Measure

On December 12, 2008 (one day after adopting the AB 32 Climate Action Plan), CARB adopted the Heavy Duty Vehicle GHG Emission Reduction measure that requires long-haul truckers to install fuel-efficient tires and aero-

dynamic devices on their trailers. This measure will reduce GHG emissions through improved fuel economy.

3. Regional and City Regulations

a. Bay Area Air Quality Management District (BAAQMD)

In 2005, the BAAQMD initiated a Climate Protection Program that integrates climate protection activities into existing District programs and functions. Current BAAQMD climate action activities include grant programs, CEQA commenting, regulations, inventory development, and outreach. BAAQMD awarded $3 million to 53 local climate protection programs aimed at reducing GHG emissions in the Bay Area. Elementary school teaching curriculums have been developed by the District.

A regional GHG emission inventory for 2002 was developed by BAAQMD and recently updated for 2007 conditions. This inventory provides an overview of GHG emission sources in the Bay Area, including a breakdown by county levels and emission sectors. The inventory allows District staff and others to identify emission sectors where potential GHG and criteria pollutant emission reductions can be achieved.

In 2008, BAAQMD adopted a fee program that applies to permitted stationary sources. These fees are used to fund the District's climate protection programs, while providing an incentive for sources to reduce their emissions.

BAAQMD is currently developing a comprehensive clean air plan update to address regional air pollution. This plan will also include BAAQMD plans to reduce GHG emissions.

BAAQMD adopted revised CEQA guidelines in May, 2011.[1] The guidelines include proposed thresholds for evaluating GHG emissions to ensure that

[1] BAAQMD, 2011. *California Environmental Quality Act. Air Quality Guidelines,* updated May 2011.

GHG emissions reductions targets specified in AB 32 are achieved in the Bay Area.

b. City of East Palo Alto Climate Action Plan

The City of East Palo Alto adopted a Climate Action Plan and IS/ND on September 20, 2011.[2] The Climate Action Plan provides a foundation for future community efforts to reduce GHG emissions. It is expected that future projects will identify and incorporate specific applicable measures from the Climate Action Plan.

The Climate Action Plan includes 23 actions to address climate change with measures, such as emission reductions and energy and water conservation goals. These GHG reduction measures and actions are structured around the four general categories of GHG emissions, as identified by the GHG inventory. The following describes the categories and the goals.

i. Energy Use in Buildings (Commercial/Industrial and Residential)

- Goal E-1: Become More Energy Efficient
- Goal E-2: Increase Renewable Energy

ii. Transportation and Land Use

- Goal TL-1: Prioritize Smart Growth Land Use
- Goal TL-2: Improve Public Transportation
- Goal TL-3: Encourage Walking and Bicycling
- Goal TL-4: Increase Urban Green Space

iii. Waste

- Goal W-1: Promote Material Re-use
- Goal W-2: Increase Recycling
- Goal W-3: Increase Composting

[2] City of East Palo Alto, 2011. Staff Report Item No. 29, Climate Action Plan and Initial Study and Negative Declaration. September 20.

iv. Municipal Operations

- Goal MU-1: Increase Municipal Energy Efficiency and Renewable Energy
- Goal MU-2: Efficient Municipal Transportation
- Goal MU-3: Work Towards Zero Waste Government Operations

C. Existing Conditions

1. Greenhouse Gas Inventories

a. U.S. Inventory

The United States participates in the United Nations Framework Convention on Climate Change (UNFCCC). The U.S. EPA is developing rulemaking to regulate GHGs under the Clean Air Plan (note that a 2007 Supreme Court ruling held that the U.S. EPA can regulate GHG emissions).[3]

As part of the commitments to UNFCCC, the U.S. EPA has developed an inventory of anthropogenic emissions by sources and removals by sinks of all greenhouse gases. This inventory is periodically updated with the latest update being 2009.[4] EPA reports that total U.S. emissions have risen by 7.3 percent from 1990 to 2009 to 6,633 million metric tons of equivalent CO_2 per year, while emissions decreased by 6.1 percent from 2008 to 2009. The decrease was primarily due to a decrease in economic output (resulting in lower energy consumption) and a decrease in the carbon density of fuels used to

[3] On April 2, 2007, the United States Supreme Court issued a 5-4 decision in *Massachusetts v. EPA*, which holds that the U.S. Environmental Protection Agency has authority, under the Clean Air Act, to regulate greenhouse gas emissions from new vehicles. The U.S. EPA had previously argued it lacked legal authority under the Clean Air Act to regulate greenhouse gases. The majority opinion of the Supreme Court decision noted that greenhouse gases meet the Clean Air Act's definition of an "air pollutant," and the EPA has the statutory authority to regulate the emission of such gases from new motor vehicles.

[4] U.S. EPA, 2011. *2011 U.S. Greenhouse Gas Inventory Report Inventory of U.S. Greenhouse Gas E3missions and Sinks: 1990-2009. (April 2011) USEPA #430-R-11-005.*

generate electricity. The inventory notes that the electric power industry is the highest emitter by economic sector at 33 percent. The transportation sector emits about 27 percent of CO_2 equivalent emissions, with 60 percent of those emissions coming from personal automobile use. Residential uses, primarily from energy use, accounted for 20 percent of CO2 emissions.

As a part of U.S. EPA's responsibility to develop and update an inventory of U.S. GHG emissions and sinks, EPA compared trends of other various U.S. data. Over the period between 1990 and 2009, GHG emissions grew at a rate of about 0.4 percent per year. Population growth was higher at 1.1 percent, while electricity consumption was at 1.5 percent and fossil fuel use grew at 0.5 percent. Gross domestic product grew at a much higher rate of 2.5 percent.

b. State of California Inventory

California emissions of GHGs or CO_2 equivalent emissions was estimated at 484 million metric tons of equivalent CO_2 emissions ($MMTCO_2e$), which is about 7 percent of the emissions from the entire United States. It is estimated that the United States contributes up to 35 percent of the world's CO_2 equivalent emissions. Transportation is the largest source of GHG emissions in California, contributing about 40 percent of the emissions. Electricity generation is second at over 20 percent, but California imports electricity during the summer bringing energy sources up to about 25 percent. Industrial activities account for about 20 percent of the State's emissions. Transportation is the largest source of GHG emissions in California, followed by industrial sources and electric power generation. On a per-person basis, GHG emissions are lower in California than most other states; however, California is a populous state and the second largest emitter of GHGs in the United States and one of the largest emitters in the world.

Under a "business as usual" scenario, emissions of GHG in California are estimated to increase to approximately 600 $MMTCO_2e$ by 2020. CARB staff has estimated the 1990 statewide emissions level to be 427 $MMTCO_2e$, therefore, requiring a reduction of almost 30 percent in emissions by 2020 to meet the AB 32 goal.

CARB updated the future 2020 forecast in light of the economic downturn and updated the 2020 projected annual emissions to 545 million metric tons of CO_2e . Two GHG emissions reduction measures currently enacted that were not previously included in the 2008 Scoping Plan baseline inventory were included, further reducing the baseline inventory to 507 million metric tons of CO_2e. Thus, an estimated reduction of 80 million metric tons of CO_2e is necessary to reduce statewide emissions to meet the AB 32 target by 2020.

c. Bay Area Inventory

BAAQMD estimated GHG emissions for the Bay Area in 2007.[5] It estimates that the total Bay Area emissions were 102.7 million metric tons of equivalent CO_2 ($MMCO_2e$). The inventory is broken down by county, of which San Mateo County accounted for 8.9 percent. Similar to most Bay Area counties, most of San Mateo County's emissions are from transportation.

d. City of East Palo Alto GHG Emissions

The adopted Climate Action Plan includes a "Baseline Emissions Inventory for 2005." The City emitted approximately 140,500 metric tons of CO_2e that year. Over 60 percent of those emissions were transportation related. A majority of these emissions were from regional traffic on the State highways that include Route 84 (Bayfront Expressway), Route 114 (Willow Road) and Route 109 (University Avenue). Much of this regional traffic is passing through East Palo Alto. However, the emissions inventory does not reflect emissions from vehicle traffic generated by East Palo Alto that occurs outside the City limits.

[5] BAAQMD, 2010. *Source Inventory of Bay Area Greenhouse Gas Emissions.*

D. Standards of Significance

1. Amendments to CEQA Appendix G Checklist

The Natural Resources Agency conducted formal rulemaking in 2009, as required by SB 97 for issuing criteria to determine the significance of projects or plans. Projects or plans would have a significant impact if they would:

a. Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment

b. Conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs

OPR recommends that each agency develop an approach to addressing GHG emissions that is based on best available information. The approach includes three basic steps: (1) identify and quantify emissions; (2) assess the significance of the emissions; and (3) if emissions are significant, identify mitigation measures or alternatives that will reduce the impact to a less-than-significant level.

It is also recommended that EIRs explain how climate change may result in environmental impacts that are applicable to a particular project site. If applicable to the project site, the following potential impacts should be discussed: wildfire hazard, flooding, and water supply reliability.

2. Significance Thresholds

The BAAQMD released thresholds of significance in their latest CEQA Air Quality Guidelines dated May 2011 to include performance standards for Plans and projects. BAAQMD proposes the two different project thresholds of significance for GHG emissions from plans: (1) compliance with a qualified Climate Action Plan or (2) emissions of 4.6 metric tons of CO2e per service population per year.[6,7,8]

[6] BAAQMD, 2011. *California Environmental Quality Act. Air Quality Guidelines,* updated May, 2011.

The City of East Palo Alto has adopted a Climate Action Plan and an IS/ND. The discussion below under 1.b. analyzes the Climate Action Plan and its qualifications according to the BAAQMD criteria, and judges the Specific Plan GHG emissions under the performance-based thresholds.

E. Impact Discussion

Because global warming is the result of GHG emissions and these emissions are the result of innumerable sources worldwide, global climate change is a cumulative impact and all analyses are, by their nature, cumulative analyses.

1. Plan and Cumulative Impacts

The following provides a discussion of the potential GHG impacts that could occur as a result of implementation of the Plan.

a. Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. ***(LTS)***

Operation-related GHG emissions derive primarily from five sources:

- Mobile source emissions due to additional trips generated by the Plan.
- Emissions from electricity generated by fossil-fuel power plants to the Plan Area.
- Emissions caused by consumption of natural gas for heating, cooking and water heating within the Plan.
- Municipal emissions created by transport and treatment of water supply to the Plan and by electricity used to light streets.
- Municipal emissions created by the disposal and decomposition in land-fills of solid waste generated from the Plan Area.

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[7] The threshold of 6.6 from the May 2011 BAAQMD guidelines is only applicable to General Plans.

[8] The term Service Population refers to the total number of employees and residents in the Plan Area.

GHG emissions were modeled for year 2020 to be consistent with AB 32 targets used by BAAQMD to develop GHG significance thresholds. In addition, emissions were also modeled for 2035, which is the assumed buildout year of the Specific Plan. The GHG emissions associated with the development of the Plan were calculated based primarily on guidance in the BAAQMD CEQA Air Quality Guidelines. Area and mobile source emissions were calculated using the URBEMIS2007 model using the Specific Plan land uses and trip generation forecasts. The URBEMIS2007 input file was then used with the BAAQMD Greenhouse Gas Model (BGM), to provide annual GHG emissions in terms of metric tons of CO_2e.

The URBEMIS2007 modeling used the project size and type to predict area source and operational (traffic-related) emissions. The total square footages for the various land uses (e.g., residential, office, retail, etc.) were input to the model. The traffic study trip generation rates were inputted to the model.

As discussed above, the BGM model uses the URBEMIS2007 input model file. The BGM model provides CO_2e emissions associated with transportation, area sources, natural gas usage, electricity usage, electricity usage associated with water conveyance, and solid waste generation. This model applies adopted Pavley rules and the low carbon fuel standard to URBEMIS2007 predicted vehicle emissions.

Adjustments were made either in the BGM model or to the model output. Trip generation rates were adjusted to reflect the traffic study predictions that take into account the mix of uses and retail pass-by trips. Hexagon Transportation Consultants predicted the daily trip generation for the Plan Area (see Table 4.14-5). Since Hexagon applied these reductions to the total trips, an adjusted trip generation rate was computed and used in the URBEMIS2007 modeling.[9] Appendix 3, which includes the GHG modeling information, contains the trip rate computations that are based on Hexagon data.

[9] Reductions in emissions associated with transit or a Transportation Demand Management Program were not included in the traffic modeling assumptions and also not included in the GHG modeling.

Emission of CO2e associated with natural gas combustion and electricity usage were computed using default consumption rates contained in BGM. Since the proposed project would include construction of new buildings that would be compliant with new State Building code, energy efficiency was assumed to be at least 15 percent greater than existing conditions.

Emissions associated with electricity consumption output by BGM were adjusted to account for Pacific Gas & Electric utility's (PG&E) lower emission rate. BGM uses a statewide rate of 805 pounds of CO2 per megawatt of electricity produced, while the rate for PG&E is much lower at about 526 pounds of CO2 per megawatt The PG&E rate was also adjusted to account for increased use of renewable sources. The current renewable portfolio of 13 percent was assumed to increase to 20 percent by 2020 and 33 percent before 2035 .

Default emissions rates of water and wastewater conveyance were used. The BGM output emissions for CO2e were adjusted based on the PG&E emissions rates for electricity described above.

For this assessment, a county-wide waste diversion rate of 50% was assumed in the modeling. Although GHG emissions were not included in development of the significance threshold by BAAQMD, they are included in this assessment.

The per capita rate is the total annual GHG emissions expressed in metric tons divided by the service population. New development under the Specific Plan is estimated to produce 4,851 new jobs and 2,766 new residences (see Section 4.12, Population and Housing).

The results shown in Table 4.7-1 reflect the primary features of the Specific Plan that produce emissions. As these results do not include the effects of the Specific Plan or Climate Action Plan policies that would reduce GHG emissions, emissions are overestimated.

The Specific Plan also includes several features that would reduce the GHG emissions from the levels shown in Table 4.7-1. Firstly, emissions reductions would occur through improved vehicle efficiency, as described above under project impacts.

Secondly, a project applicant would be required to develop and implement Green Building standards above those required by **Specific Plan Policy LU-4.6,** which is also a feature of the City's Climate Action Plan. These measures together are estimated to reduce annual 2020 emissions by at least 10 percent. As a result, the per capita emissions would be reduced to 4.4 metric tons or less of CO2e per service population.

According to the CEQA Guidelines, Section 15183.5.a:

> *Lead agencies may analyze and mitigate the significant effects of greenhouse gas emissions at a programmatic level, such as...a plan to reduce greenhouse gas emissions. Later project-specific environmental documents may tier from and/or incorporate by reference that existing programmatic review.*

The City's Climate Action Plan is considered a qualified plan using the BAAQMD criteria, as it contains a baseline inventory, business-as-usual scenario demonstrating the rise in GHG emissions in the absence of the Climate Action Plan, and an acceptable numerical target for GHG reduction in accordance with the Governor's Executive Order S-03-5.

The Climate Action Plan incorporated the Specific Plan by reference. It analyzed regional growth in East Palo Alto and included the three land use alternatives available at an earlier stage in the Specific Plan process. The Climate Action Plan included the construction of 1,075 housing units in its calculations.[10] As the Specific Plan would result in a maximum buildout of 835

[10] Climate Action Plan, page 44. At the time the Climate Action Plan was adopted, three possible land use alternatives had been chosen. The final Preferred Alternative was a combination of these three alternatives. The Climate Action Plan

TABLE 4.7-1 ***ANNUAL OPERATIONAL GHG EMISSIONS IN EMISSIONS IN METRIC TONS PER YEAR***

Exposure Type	2020 Specific Plan	2035 Specific Plan
Transportation	26,144	23,197
Area Sources	425	425
Indirect Sources (Electricity)	5,271	5,271
Indirect Sources (Natural Gas)	2,338	2,338
Water & Wastewater	183	180
Solid Waste	2,322	2,322
Total	**36,684**	**33,733**
Emissions per Service Population (SP)	4.82 metric tons/SP/year*	4.43 metric tons/SP/year*

* A service population of 7,617 is assumed for both 2020 and 2035.
Source: Illingworth & Rodkin, 2011.

housing units, the Climate Action Plan encompassed more than the growth that is now proposed. GHG emissions at the programmatic level were, therefore, found to be less than significant and this Specific Plan tiers off that finding. Therefore, GHG emissions from implementation of the Specific Plan would be ***less than significant.***

b. Conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs. ***(NI)***

As discussed above, the City of East Palo Alto adopted a Climate Action Plan on September 20, 2011. Measures included in the following Climate Action Plan sections are relevant to the Specific Plan.

analyzed the alternative with the mid-level number of housing units and therefore encompasses the growth outlined in this Specific Plan.

i. Energy Use in Buildings (Commercial/Industrial and Residential).
The goals and standards in this section require the City to establish a mandatory green building checklist and ordinances on new commercial and residential construction and retrofit projects. The Specific Plan Policy LU-4.6 also requires Green Building standards to be part of every development project application

ii. Transportation and Land Use.
The adopted Climate Action Plan established goals and measures to prioritize smart growth land use strategies, improve public transportation, encourage walking and bicycling, and increase urban green space. Specifically, one of the measures requires the implementation of the Ravenswood/4 Corners Transit-Oriented Development Strategy. The proposed Specific Plan's Transportation and Traffic goals and policies are consistent with the Climate **Action** Plan in this regard. Policies under **Specific Plan Goal TRA-1** and **TRA-3** would support the Climate Action Plan's Goal TL-3; Encourage Walking and Bicycling, and Goal TL-2, Improve Public Transportation, by requiring enhanced pedestrian and bicycle circulation and increased use of public transit and non-vehicular methods of travel. Additionally, the Specific Plan would allow for increased open space, including parks and civic areas, pursuant to the Climate Action Plan's Goal TL-4, Increase Urban Green Space.

Overall, the proposed Specific Plan would be in compliance with the major goals and policies of the Climate Action Plan. Therefore, the impacts would be ***less than significant***.

4.8 HAZARDS AND HAZARDOUS MATERIALS

This chapter describes the existing conditions of hazards and hazardous materials in the Ravenswood/4 Corners Transit-Oriented Development Specific Plan area and evaluates the potential hazards and hazardous materials impacts of the Plan. A summary of the relevant regulatory setting and existing conditions is followed by a discussion of Plan-specific and cumulative impacts.

A. Regulatory Framework

This section describes the regulatory setting as it relates to hazards and hazardous materials in the Ravenswood/4 Corners Transit-Oriented Development Specific Plan area.

This section summarizes existing federal, State, and local agencies, policies, and regulations that apply to hazards and hazardous materials.

1. Federal Agencies

a. Environmental Protection Agency (EPA)

The EPA is the federal agency responsible for enforcement and implementation of federal laws and regulations pertaining to hazardous materials. Legislation enforced by the EPA includes the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (commonly referred to as "Superfund"), the Superfund Amendments and Reauthorization Act (SARA) of 1986, and the Resource Conservation and Recovery Act of 1976 (RCRA). The EPA provides oversight and supervision for site investigations and remediation projects, and has developed land disposal restrictions and treatment standards for the disposal of certain hazardous wastes.

b. U.S. Department of Transportation

The United States Department of Transportation (DOT) regulates the transportation of hazardous materials by truck and rail. The DOT also establishes criteria for safe handling procedures of hazardous materials, including the types of containers, labeling, and other restrictions to be used in the movement of such material on interstate highways.

c. Occupational Safety and Health Administration (OSHA)

Enacted in 1970, the Occupational Safety and Health Act established this administration to ensure healthy working conditions in the United States. There are approximately 2,100 OSHA inspectors, who along with other experts and support staff, establish and enforce protective standards in the workplace. California, under an agreement with OSHA, operates an occupational safety and health program in accordance with Section 18 of the Occupational Safety and Health Act of 1970. The program applies to all public and private sector places of employment in the State, with the exception of federal employees, the United States Postal Service (USPS), private sector employers on Native American lands, maritime activities on the navigable waterways of the United States, private contractors working on land designated as exclusive Federal jurisdiction, and employers that require Federal security clearances.

2. State Agencies and Regulations

a. California Environmental Protection Agency (Cal/EPA)

Within the State of California, Cal/EPA serves as the umbrella agency for six boards and departments: the California Air Resources Board (CARB), the California Integrated Waste Management Board (CIWMB), the Department of Pesticide Regulation (DPR), the Department of Toxic Substance Control (DTSC), the California Integrated Waste Management Board, the Office of Environmental Health Hazard Assessment (OEHHA), and the State Water Resources Control Board (SWRCB) and its associated regional Water Boards. Each of these agencies is described below.

- **California Air Resources Board.** CARB has the responsibility for developing and enforcing regulations to achieve and maintain ambient air quality standards in the district. CARB is responsible for enforcing the Clean Air Act and California's State Ambient Air Quality Standards.
- **California Integrated Waste Management Board.** The CIWMB provides grants and funds to help California municipalities and private companies meet the State's waste reduction, reuse and recycling goals. Funds are also allocated to clean up solid waste disposal sites, and promote alternatives to the illegal disposal of used oil.

- **Department of Pesticide Regulation.** The DPR has the primary responsibility for regulating all aspects of pesticide sales and use to protect public health and the environment. The DPR's mission is to evaluate and mitigate impacts of pesticide use, maintain the safety of the pesticide workplace, ensure product effectiveness, and encourage the development and use of reduced-risk pest control practices while recognizing the need for pest management in a healthy economy.
- **Department of Toxic Substance Control.** The DTSC works in conjunction with the EPA to enforce and implement specific laws and regulations pertaining to hazardous wastes. California legislation, for which the DTSC has primary enforcement authority, includes the Hazardous Waste Control Act and the Hazardous Substance Account Act. Most State hazardous waste regulations are contained in the California Code of Regulations, Title 22 and 27. The DTSC often acts as the lead agency for soil and groundwater cleanup projects when the project is not under the purview of the RWQCB and establishes cleanup and action levels for subsurface contamination that are equal to, or more restrictive than, federal levels.
- **Office of Environmental Health Hazard Assessment.** The mission of the OEHHA is to protect and enhance public health and the environment by objective scientific evaluation of risks posed by hazardous substances.
- **State Water Resource Control Board.** The SWRCB, through its regional boards, regulates discharge of potentially hazardous materials to waterways and aquifers and administers basin plans for groundwater resources in various regions of the State. The SWRCB provides oversight for sites at which the quality of groundwater or surface waters is threatened, and has the authority to require investigations and remedial actions. The San Francisco Bay Regional Quality Water Quality Control Board is the regional board that has jurisdiction over the City of East Palo Alto.

b. The California Department of Transportation (Caltrans)

Caltrans manages more than 50,000 miles of California's highway and freeway lanes, provides inter-city rail services, permits more than 400 public-use airports and special-use hospital heliports, and works with local agencies. Caltrans is also the first-responder for hazardous material spills and releases that occur on those highway and freeway lanes and inter-city rail services.

c. California Building Code

The California Building Code (CBC) is Part 2 of California Code of Regulations Title 24. The 2007 CBC is based upon the 2006 International Building Code and contains building requirements to minimize risks to life safety.

3. County Regulations

a. San Mateo County Department of Environmental Health

San Mateo County Department of Environmental Health has several regulations regarding use of hazardous materials in the County. Businesses in San Mateo County must complete a Hazardous Materials Business Plan (Business Plan) for the safe storage and use of chemicals. Firefighters, health officials, planners, public safety officers, health care providers and others rely on the Business Plan in an emergency. There is also a Household Hazardous Waste Program. San Mateo County also has a Groundwater Protection Program and a San Mateo Countywide Pollution Prevention Program.

b. Palo Alto Airport Comprehensive Land Use Plan

The Palo Alto Comprehensive Land Use Plan (CLUP) was adopted by the Santa Clara County Airport Land Use Commission on November 19, 2008. The purpose of the CLUP is to protect the safety of the nearby residents and to ensure that the surrounding land uses are compatible with the operation of the airport. Section 21675 of the California Public Utilities Code requires all Airport Land Use Commissions to prepare a CLUP for the area surrounding a public airport. However, there is no airport land use plan that is adopted

by San Mateo County and the Palo Alto Airport CLUP is not valid over the Specific Plan area.[1]

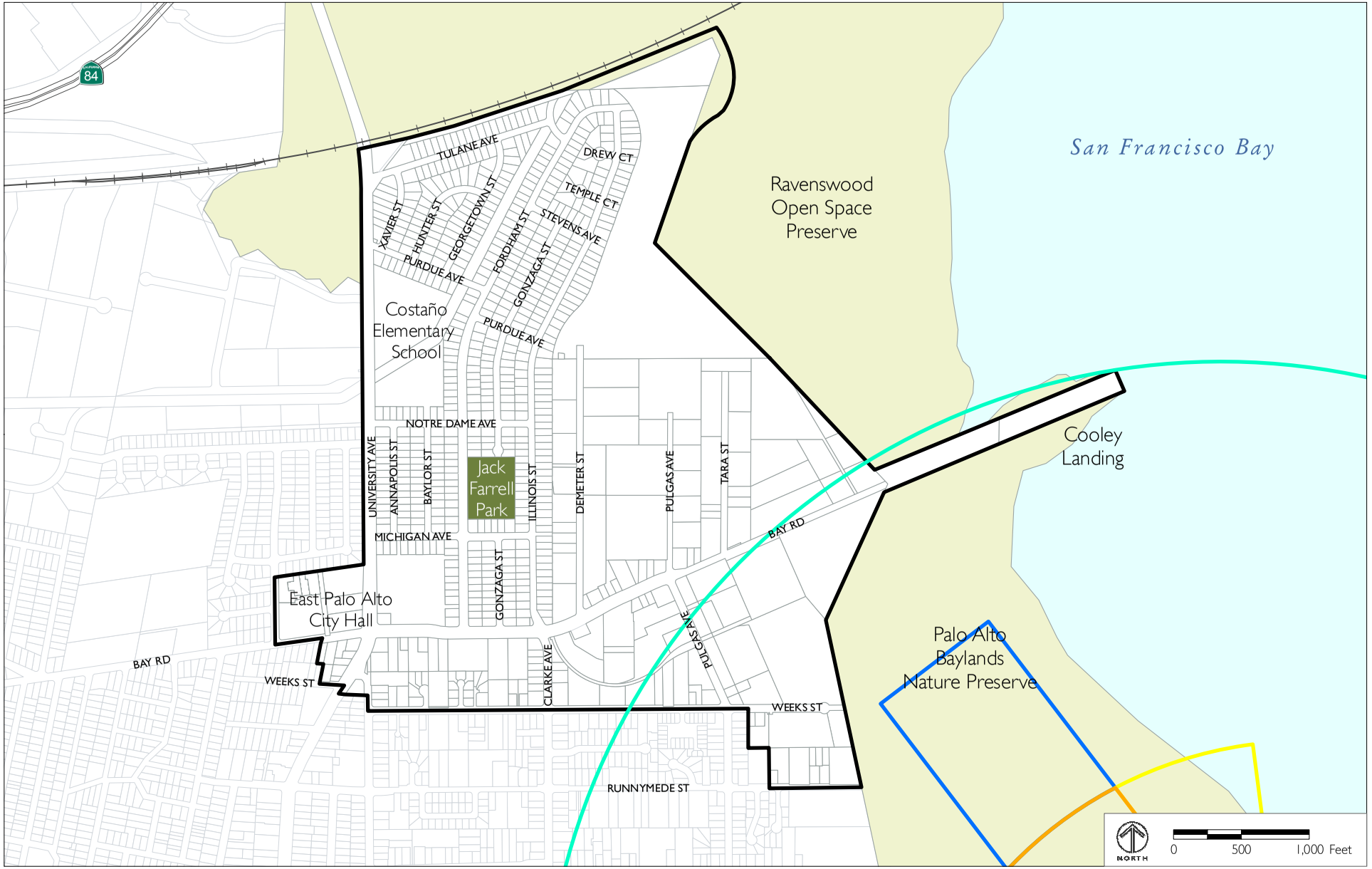
The CLUP defines several safety zones around the airport. The outermost zone, the Traffic Pattern Zone (TPZ), intersects the Specific Plan area as shown on Figure 4.8-1. Several policies act to reduce the number of people potentially at risk from airplane accidents. Land uses prohibited within the Traffic Pattern Zone include amphitheaters, sports stadiums, and other land uses that encourage a very high concentration of people. Schools, hospitals, nursing homes, and other land uses where the majority of occupants are children are discouraged within the Traffic Pattern Zone. In addition, the Traffic Pattern Zone requires that 10 percent of the gross area every half mile of the zone be set aside for open space. The open space requirement is to be established at the General Plan level for sites that can accommodate open space.

As required under Federal Aviation Regulations, to reduce the obstructions to airplane navigation, the ALCUP restricts building height to a height between 154 and 354 feet over the Specific Plan area. These height restrictions are shown on Figure 4.8-2.

In addition, there are several uses that are prohibited in all Airport Safety Zones, including:

- "Any use which would direct a steady light or flashing light of red, white, green, or amber colors associated with airport operations toward an aircraft engaged in an initial straight climb following takeoff or toward an aircraft engaged in a straight final approach toward a landing at an airport, other than an FAA-approved navigational signal light or visual approach slope indicator.
- Any use that would cause sunlight to be reflected towards an aircraft engaged in an initial straight climb following takeoff or towards an aircraft engaged in a straight final approach towards a landing at an airport.

[1] Letter from City/County Association of Governments of San Mateo County to Sean Charpentier, June 2, 2011.

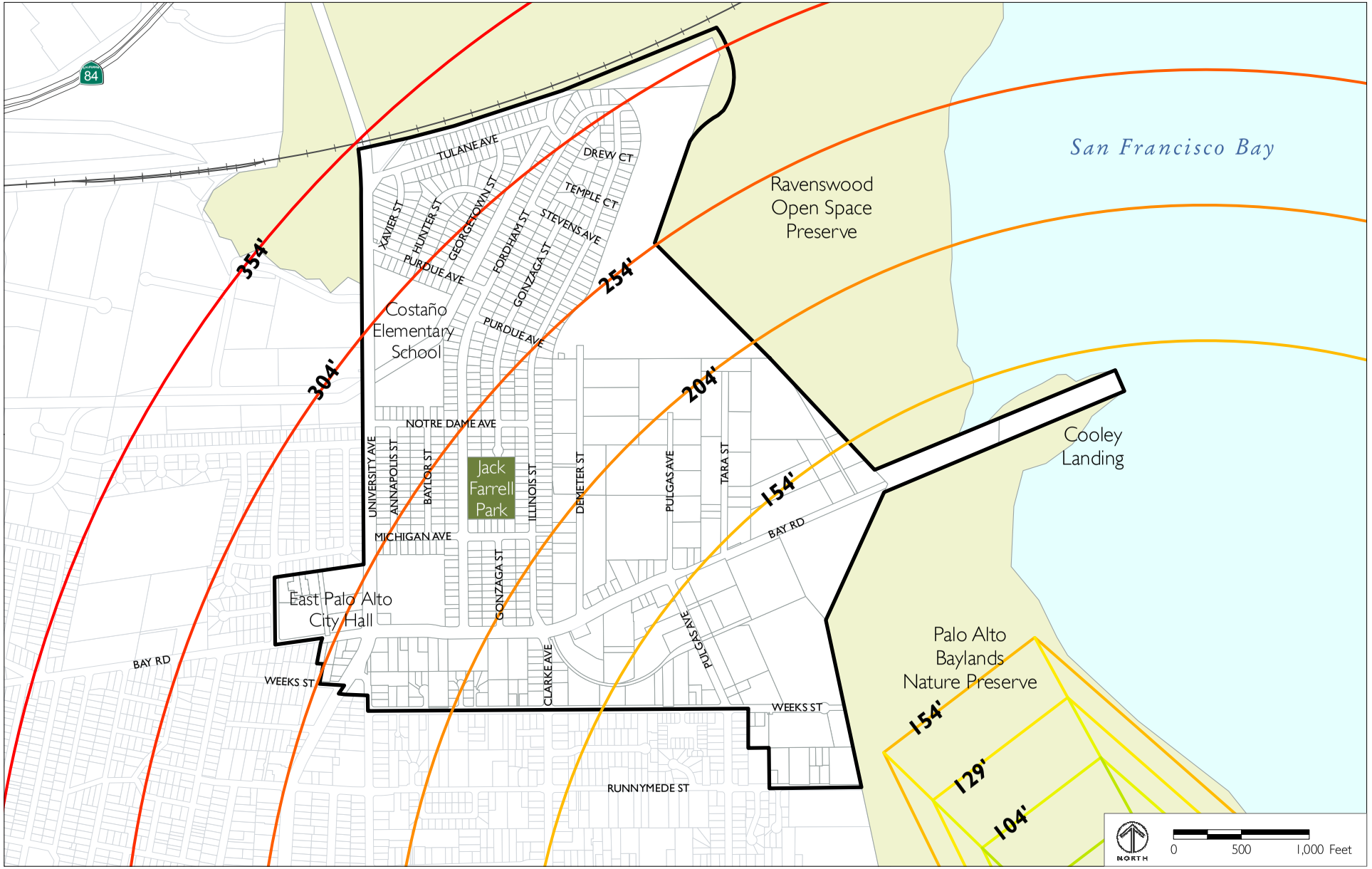


Source: County of Santa Clara, 6/2008.

Airport Safety Zone
Traffic Pattern Zone
Inner Safety Zone
Outer Safety Zone
Turning Safety Zone
Plan Area
Park
Baylands
Railroad

FIGURE 4.8-1

PALO ALTO AIRPORT SAFETY ZONES



Source: County of Santa Clara, 6/2008.

Airport Height Restrictions
(Feet Above Mean Sea Level)
79
104
129
154
204
254
304
354
Plan Area
Park
Baylands
Railroad

FIGURE 4.8-2

PALO ALTO AIRPORT FAR PART 77 HEIGHT RESTRICTIONS

- Any use which would generate smoke or water vapor, or which would attract large concentrations of birds, or which may otherwise negatively affect safe air navigation within the area.
- Any use which would generate electrical interference that may be detrimental to the operation of aircraft and/or aircraft instrumentation, communication or navigation equipment."[2]

4. Local Regulations

a. City of East Palo Alto General Plan

The City of East Palo Alto General Plan has the following goals and policies pertaining to hazards and hazardous materials (Table 4.8-1).

b. City of East Palo Alto Emergency Operation Plan

The City of East Palo Alto responds to emergencies following the guidelines in its 2011 Emergency Operation Plan. [3] The Plan identifies resources for emergency response and establishes coordinated action plans for specific emergency situations and disasters such as hazardous materials incidents and specifies emergency evacuation routes. These include University Avenue and Bay Road. The Plan incorporates the City of East Palo Alto into the National Incident Management System, California Standardized Emergency Management System, and Incident Command System.

c. Menlo Park Fire Protection District

The Menlo Park Fire Protection District responds to hazardous or toxic spill incidents in the East Palo Alto area. The District has a Hazardous Materials Area Plan that guides emergency response procedures for hazardous materials incidents.

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[2] Santa Clara County Airport Land Use Commission, 2008. *Palo Alto Airport Comprehensive Land Use Plan*, page 4-9.

[3] City of East Palo Alto, 2011. Emergency Operation Plan. January 2011, adopted April 5, 2011

TABLE 4.8-1 ***GENERAL PLAN POLICIES RELEVANT TO HAZARDS AND HAZARDOUS MATERIALS***

Goal/Policy Number	Goal/Policy Content
Safety Element	
Goal 2.0	*Protect the community from hazards associated with aircraft overflights, hazardous materials use, fire, ground transportation accidents, and criminal activity.*
Policy 2.1	Work with the City of Palo Alto and its airport operator to reduce the risk posed by aircraft overflights.
Policy 2.2	Cooperate with responsible federal, State and County agencies to minimize amounts and reduce the risk from the use and transport of hazardous materials.
Policy 2.3	Provide fire protection to reduce the risk of fire.
Policy 2.4	Provide well-designed City roadways to reduce the risk of ground transportation accidents.
Policy 2.6	Minimize exposure of the community to hazardous materials by discouraging establishment of businesses that increase risk.
Goal 3.0	*Improve the ability of the City to respond to natural and human-caused emergencies.*
Policy 3.1	Support the development of local preparedness plans and multi-jurisdictional cooperation and communication for emergency situations.
Policy 3.2	Educate residents and businesses regarding appropriate actions to safeguard life and property during and immediately after emergencies.

Source: City of East Palo Alto 1999 General Plan.

B. Existing Conditions

The following assessment includes a review of local, State, and federal environmental record sources, standard historical sources, aerial photographs, fire insurance maps, and physical setting sources. It also included a reconnaissance of the Plan Area to review site use and current conditions to check for the storage, use, production or disposal of hazardous or potentially hazardous materials. This research was carried out by ENGEO in 2009 for the Existing

Conditions Report and sources are as documented in that report, unless otherwise footnoted.

A large portion of the Plan Area has historically been used for agricultural or industrial practices. Accordingly, a number of properties have been identified as having some level of contamination. The reconnaissance and records research found documentation and evidence of potential soil and groundwater impairments associated with the current or past use of the Plan Area.

The information in this assessment is based on documentation that was readily available to the public as of November 2009. It may not identify all sites in the Plan Area that are impacted by hazardous materials. In addition, it may not reflect the current remediation status of each parcel.

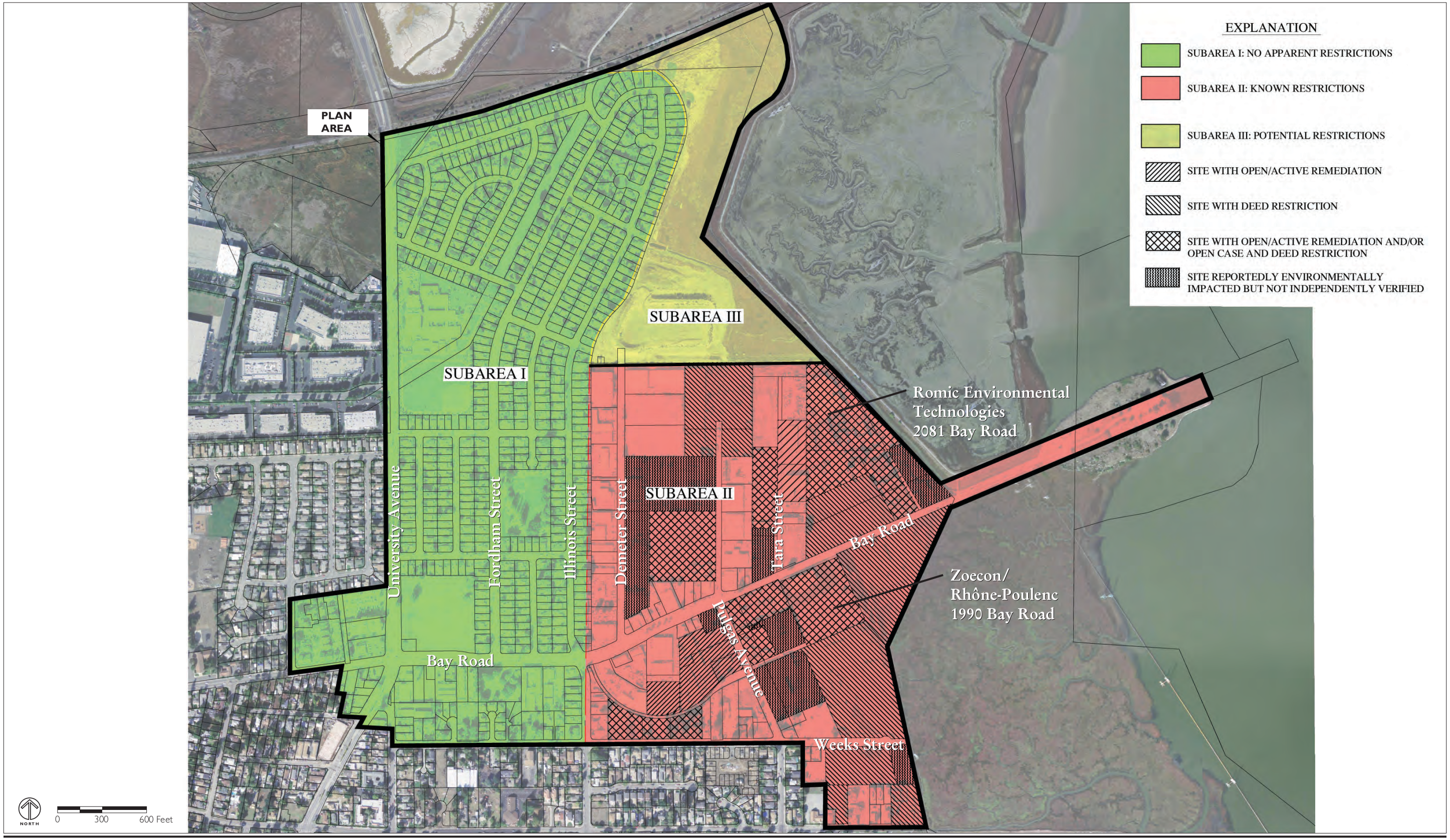
1. Historic Hazardous Materials

This section details the historic and current uses of the Plan Area and its potential to contain hazardous materials. To facilitate this discussion, the Plan Area has been divided into three general sections as described below and shown in Figure 4.8-3.

a. Subarea I

This subarea is roughly 150 acres. It consists of the western portion of the Plan Area; Illinois Street/Clarke Avenue is the eastern boundary of this subarea. It generally encompasses the University Village neighborhood as well as 4 Corners. This subarea is primarily composed of residential development, including single-family residential structures, a school, and a park.

The 4 Corners intersection area (University Avenue and Bay Road) includes commercial and governmental land use. Hetch Hetchy Aqueduct extends underground in a southwest-northeast direction through Subarea I. The Aqueduct enters the subarea near a school property and trends northeast between Georgetown and Fordham Street until it exits the Plan Area.



Source: USGS Terraserver, 2004.

FIGURE 4.8-3

LAND USE RESTRICTIONS

There are few evident environmental concerns or limitations within this subarea. Notable historic conditions include the following:

- 1601 Bay Road was a former gasoline station from approximately the 1950s until the 1970s. Based on a review of environmentally related databases, the property is a listed brownfield and was acquired by San Mateo County in 1977 as part of a road-widening project.
- Vacant/open space on the northeast corner of the intersection of University Avenue and Bay Road was once a shopping center. This facility was built in the 1950s and was demolished in the 1980s.
- East Palo Alto's City Hall, located northwest of the 4 Corners intersection, is situated on land previously cultivated for agricultural purposes.

b. Subarea II

This subarea is roughly 145 acres, begins near the center of the Plan Area, and extends toward its southeastern boundary. It generally encompasses the Ravenswood Business District. This area is predominately comprised of commercial and industrial operations. Previous and current industrial operations have included steel fabrication, auto services, chemical processing, a cement batch plant, and other industrial practices. Current tenants include PG&E and the City of East Palo Alto.

Figure 4.8-3 shows a distribution of key industries around the end of Cooley Landing within the Specific Plan area and Figure 4.8-4 shows site photographs of some of these sites.

Based on ENGEO's data research, there are several properties with some level of contamination in this subarea. Additional information is provided in Sections B.2 and B.3 below.

c. This subarea is roughly 40 acres and is located to the north of the primarily industrial Subarea II and east of Illinois Street and has the address of 391 Demeter Street. This area is mostly open space and tidal marshland. There are no apparent limitations, with the following exceptions:

STANFORD FILL AREA LOOKING WEST

STOCKPILE NORTH OF 1985 BAY ROAD

1175 WEEKS STREET

BORMANN STEEL-2450 PULGAS AVENUE

Source: ENGEO, 2009.

FIGURE 4.8-4

PHOTOGRAPHS OF KEY HAZARDOUS MATERIALS SITES

- Uncontrolled fill generated during past construction projects has been stockpiled with approximate dimensions of 650 feet in length, 400 feet in width, and a height of approximately 20 feet. This has been referred to as the "Stanford Fill area." Based on a review of aerial photographs, the fill was placed in this area beginning in the late 1980s. This soil has purportedly been analyzed and concentrations of hazardous chemicals including dichlorodiphenyldichloroethylene (DDE), polychlorinated biphenyls (PCBs), metals, and fluoride have been found.[4,5]
- A railroad right-of-way is located on the western side of Subarea III. A remedial action was recently completed at this property.

d. Current Use of Adjoining Properties

The adjoining properties to the north of the Plan Area are currently occupied by wetlands and salt ponds. The adjoining properties to the east are currently occupied by wetlands and open space. The adjoining properties to the west are occupied primarily by residential and commercial land uses. The adjoining properties to the south are devoted to residential and commercial land uses.

2. Hazardous Materials Records Review

The GeoTracker[6] website maintained by the State Water Resources Control Board (SWQCB), and the EnviroStor[7] website maintained by the Department

[4] PSC Associates, Inc., 2001, *Geotechnical Engineering Feasibility Study, Proposed Baywood Park Housing Development at the End of Demeter Road, East Palo Alto, California*.

[5] Reference to this report was made in an administrative draft Specific Plan document that was used in this data compilation. The original PSC 2001 report was not available to ENGEO or The Planning Center | DC&E for review. For the purposes of this analysis it is assumed that these substances are present, but their spatial distribution and concentrations are not known.

[6] California Department of Water Resources Geotracker, http://www.geotracker.swrcb.ca.gov, accessed on October 30, 2009.

[7] California Department of Toxic Substances Control EnviroStor website, http://www.envirostor.dtsc.ca.gov, accessed on October 30, 2009.

of Toxic Substances Control (DTSC), were reviewed for information pertaining to impacted properties within the Plan Area.

The source of the Stanford Fill placement in Subarea II at 391 Demeter Street was determined from a review of background documents. In the mid- to late-1980s, excess soil generated by construction activities at Stanford University and Santa Clara Valley Medical Center was imported to the site. Laboratory analyses of soil samples indicate concentrations of DDE, PCBs, metals, and fluorideare present in the fill imported to the site in the 1980s. It is not known if this fill placement was permitted or resulted in an enforcement action.[8,9]

In addition, the following impacted properties have been identified in the Plan Area, as shown in Figure 4.8-3:

- **Railroad Spur, East of Illinois Street –** A railroad spur was located on an easement to the east of homes along Illinois Street. The spur served industrial properties within the Plan Area until the late 1980s/early 1990s. Arsenic-impacted soil was identified within the right-of-way. A remedial program consisting of excavation/removal of impacted soil was performed and clean fill was replaced. The work was completed and the case was closed by the Regional Water Quality Control Board (RWQCB) on June 11, 2009.
- **Railroad Spur, South of Bay Road –** Similar to the railroad spur to the east of Illinois Street, there is a continuation of this spur south of Bay Road that served industrial properties in the block bounded by Bay

[8] PSC Associates, Inc., 2001, *Geotechnical Engineering Feasibility Study, Proposed Baywood Park Housing Development at the End of Demeter Road, East Palo Alto, California*.

[9] Reference to this report was made in an administrative draft Specific Plan document that was used in this data compilation. The original PSC 2001 report was not available to ENGEO or The Planning Center | DC&E for review. For the purposes of this analysis it is assumed that these substances are present, but their spatial distribution and concentrations are not known.

Road, Clarke Avenue, Weeks Street, and Pulgas Avenue until the late 1980s/early 1990s. Arsenic-impacted soil was identified within the right-of-way. Remediation of arsenic-impacted soil in this area is reportedly pending.[10]

- **160 Demeter Street** – A subsurface remedial program was performed following a release from an underground storage tank (UST). Following remediation, trace petroleum hydrocarbon concentrations remained in soil (including 30 mg/l total petroleum hydrocarbons as gasoline (TPH-g)) as well as in groundwater (450 micrograms per liter (µg/l) TPH-g, 370 µg/l total petroleum hydrocarbons as diesel (TPH-d), and 9.1 µg/l benzene. San Mateo Health Services Agency provided No Further Action status on August 30, 2004; however, it stated that if a land use change for the property were to be contemplated, the Agency would reserve the right to re-examine the case and determine if the residual concentrations would pose a threat to potential land users.

- **255 Demeter Street** – A subsurface investigation was performed at 255 Demeter Street in January 2007. Seven borings were advanced to collect soil and groundwater samples; the recovered samples were analyzed for a range of analytes. Two borings exhibited trichloroethylene (TCE) concentrations of 19 and 20 µg/l, respectively. Although these exceeded the respective regulatory levels, given that the site's groundwater is considered poor, domestic water is provided by a municipal source, and the concentrations do not pose a health risk, the site was granted No Further Action status on January 19, 2007.

- **2519 Pulgas Avenue** – This site is the former Saturo Iwasaki nursery. The site is currently vacant, with the exception of one single-family home. A public notice issued by RWQCB indicated the site has been identified as having pesticide impacts (mainly dieldrin) in soils and groundwater. Additionally, former USTs had been previously removed;

[10] Keyser Marston Associates, 2009, *Report to the City Council for the Amendments to the Existing Redevelopment Plans for the Gateway 101 Redevelopment Project; University Circle Redevelopment Project; and the Ravenswood Industrial Area Redevelopment Project.*

residual impact in soil and groundwater were identified, but it was anticipated these would be mitigated through natural attenuation processes. The remedial plan indicated that near-surface impacted soil was to be removed. A geotextile was to be placed to encapsulate deeper impacted soil. Additionally, a deed restriction was to be placed on the property regarding future subsurface excavation as well as a restriction to commercial/industrial land use in the future. The site remains an open remediation case.

- **2535 Pulgas Avenue –** A release from a leaking UST was discovered in 1990. Soil and groundwater were affected. The case was closed in January 1996. The extent of residual subsurface impact (if any) could not be determined during this study.
- **2447 Pulgas Avenue –** A release from a leaking UST was discovered in 1994. Soil and groundwater were affected. The case was closed in September 2002. The extent of residual subsurface impact (if any) could not be determined during this study.
- **2479 Pulgas Avenue –** A release from a leaking UST was discovered in 1990. Soil and groundwater were affected. The case was closed in March 1997. The extent of residual subsurface impact (if any) could not be determined during this study.
- **2477/2485/2470 Pulgas Avenue, 1860/1950 Bay Road –** These parcels have been used for a variety of agricultural and industrial uses for the past several decades. Pesticide, arsenic, TPH, and volatile organic compounds (VOCs) impact has been identified. RWQCB representatives confirmed that a remediation program was performed to address impacted soil and groundwater.[11] Properties to the west of Pulgas Avenue were remediated with the goal of achieving an unrestricted land use designation; properties to the east of Pulgas Avenue were to be remediated and capped, allowing for a commercial/industrial use. Vapor barriers will be incorporated into structures during site development, and deed restrictions will be filed per-

[11] Telephone call between Jeff Adams, ENGEO, and Mark Johnson, San Francisco RWQCB, November, 28, 2011.

taining to the vapor barriers, restrictions of subsurface activity, and forbidding residential or sensitive use for the parcels east of Pulgas Avenue. These sites remain as open cases.

- **2540 Pulgas Avenue –** A release from a leaking UST was discovered in 1990. Soil and groundwater were affected. The case was closed in May 1997. The extent of residual subsurface impact (if any) could not be determined during this study.
- **2555/2565 Pulgas Avenue –** Soil and groundwater was impacted by total petroleum hydrocarbons as motor oil (TPH-mo) due to historic on-site activities. Case closure was granted in January 2008. A deed restriction was filed in June 2007 indicating that due to the presence of TPH-mo, no wells could be constructed at the property to use groundwater as a domestic source.
- **965 Weeks Street –** Because of historic agricultural practices, soils were impacted with pesticides to a depth of approximately 2 feet below the ground surface. As part of a redevelopment of the parcel into a residential use, impacted soils will be segregated and used as fill within non-accessible, non-residential areas, such as interior streets. Clean fill will be used in other surface areas. A deed restriction will be issued to place limitations on future subsurface activity.
- **1060 Weeks Street –** Because of historic agricultural practices, soils were impacted with pesticides. As part of a redevelopment of the parcel, impacted soils were consolidated and placed under open space and streets. The materials were capped, and a deed restriction was filed prohibiting disturbance of the protective cap. Limitations were also placed on future subsurface activity.
- **1802-1804 Bay Road –** Because of historic automotive activities, soil and groundwater had been impacted with petroleum hydrocarbons at the site. A remedial work plan consisting of the excavation and removal of impacted soil was performed between February and April 2009. Although groundwater impacts were detected, it was anticipated these would be mitigated through natural attenuation processes. A No Further Action

letter was issued by RWQCB in May 2009. Although the RWQCB GeoTracker website indicates that the site remains an open case, the RWQCB Case Officer has confirmed that the case has been closed.[12]

- **1805 Bay Road** – A release from a leaking UST was discovered in 1994. RWQCB granted case closure in April 2009.
- **1985 Bay Road** – Because of historic automotive activities, soil and groundwater have been impacted with petroleum hydrocarbons. The case opened in 1994 and has reportedly been under remediation, with the latest publicly recorded activity in 2005. The site remains an open case.
- **1990 Bay Road** –This federal Superfund site is currently vacant except for one warehouse. The property was historically used for pesticide formulations for over 70 years. The property was purchased by Rhône-Poulenc in 1994 and leased to Catalytica Energy Systems. Catalytica reportedly manufactured chemicals and pharmaceuticals prior to ceasing operations in 2001. Significant concentrations of arsenic and other heavy metals were detected in soils and groundwater. Remediation operations have been underway since 1981. The complex remediation plan includes removal of impacted soil, capping of soil, and the use of deed restrictions. Several deed restrictions have been filed for the property as well as nearby properties, including:
  - *1990 Bay Road, 2470 Pulgas Avenue, the PG&E yard, 1175 Weeks Street, and 1200 Weeks Street* – restrictions to commercial/industrial use, no residential use, restrictions on subsurface work and boring/well installation (the frontage road at 1990 Bay Road must remain for roadway use)
  - *2017 Bay Road* – required notification to on-site workers
  - *1275 Runnymede Avenue* – restrictions on subsurface work

[12] Telephone call between Jeff Adams, ENGEO, and Mark Johnson, San Francisco RWQCB, November, 28, 2011.

Additionally, for groundwater protection, the installation of a 1,275-foot-long subsurface barrier wall to a depth of approximately 20 feet has been completed, and an extensive monitoring program remains ongoing. The site remains an open case.

- **2017 Bay Road** – Because of historic automotive activities and the presence of leaking USTs, soils and groundwater were impacted with petroleum hydrocarbons. The site was granted case closure by RWQCB in 1998 and by the San Mateo County Environmental Health Services Agency in 2001. A land use covenant was filed, requiring agency notification prior to any proposed change in land use. Additionally, activities that could disturb the remedial and monitoring systems were prohibited without approval, and agency notification was required upon discovery of any damage to remedial and monitoring systems. In the event of a property transfer, RWQCB is to be notified.

- **2081 Bay Road** – The property, formerly the Romic facility, remains an open remediation site with reported land use restrictions in place. RWQCB indicated potential contaminants of concern include perchloroethylene (PCE), trichloroethylene (TCE), hexavalent chromium, pesticides/herbicides, petroleum hydrocarbons, and VOCs. According to DTSC, Hird Chemical Corporation began operations at the site in 1954. Romic Chemical Corporation began its operation at the site in 1964. Due to repeated violations and non-compliance, DTSC ordered Romic to close in 2007. A two-phase de-commissioning program has commenced. Phase 1 consists of the closure of all of the above-ground hazardous waste management equipment and structures. Phase 2 will consist of a site-wide investigation of the subsurface contamination and cleanup to be led by US EPA after closure activities of Phase 1. As of September 2009, Phase 1 closure activities have been completed.

- **2395 University Avenue** – A release from a leaking UST was discovered in 1992. Soil and groundwater were affected. The case was closed in June 2001. The extent of residual subsurface impact (if any) could not be determined during this study.

- **151 Tara Street** – This site, once part of the 1985 Bay Road property, was impacted due to historic automotive operations at the Property. Soils had been impacted by petroleum hydrocarbons and heavy metals, and groundwater had been impacted by petroleum hydrocarbons, including MTBE. A soil remediation program addressed some soil impact; materials were excavated and removed from the property. Additionally, the site grade was reportedly raised approximately 2 to 4 feet for future development. A cap/containment system will be implemented to encapsulate/prevent exposure to impacted soils. Impacted groundwater will be mitigated through natural attenuation processes. A deed restriction will be filed for the property forbidding residential or sensitive use, forbidding the installation of a domestic well and/or use of groundwater, and will include restrictions on future subsurface activity. This property remains an open remediation case.

Figure 4.8-3 also identifies properties where contamination has been reported to be present, but where ENGEO has not independently verified the documentation of contaminants. These properties will be studied further as the Specific Plan process continues.

3. Hazardous Materials Site Reconnaissance

ENGEO conducted a reconnaissance of the Plan Area on October 22, 2009. The reconnaissance was limited to publicly accessible areas such as roadways and paths. Photographs taken during the site reconnaissance are presented in Figure 4.8-4.

a. Exterior Observations

i. Structures

Structures are located throughout the Plan Area. As described above, Subarea I predominately consists of single-family detached residential structures with some commercial and governmental structures, including a school. Subarea II consists mostly of commercial and industrial structures. Some multi-family residential structures were observed within Subarea II. Interior reconnais-

sance and observation of the structures within the Plan Area was outside of the scope of this study.

ii. Hazardous Substances and Petroleum Products in Connection with Identified Uses

Because access was prevented to private property, it was not possible to directly observe properties where hazardous substances and/or petroleum products are used. However, based on the observed current and historical land use within Subarea II, it is inferred that numerous facilities use either potentially hazardous materials or petroleum products in the course of their operations.

iii. Storage Tanks

Due to limited access, it was not possible to directly observe private properties within the Plan Area. Other than facilities in corporation yards and gasoline service stations, no USTs were observed from public vantage points; however, it is considered likely that several facilities within the Plan Area may have USTs that contain hazardous materials or petroleum products.

iv. Odors

No odors indicative of hazardous materials or petroleum material impacts were noted at the time of the reconnaissance.

v. Pools of Potentially Hazardous Liquid

No pools of potentially hazardous liquid were observed within the Plan Area at the time of the reconnaissance.

vi. Drums and Other Hazardous Substance and Petroleum Product Containers

Due to limited access issues, it was not possible to directly observe private properties within the Plan Area. No drums or other containers were observed from public vantage points; however, it is considered likely that several facilities within the Plan Area may utilize or store drums or containers that contain hazardous materials or petroleum products.

vii. Polychlorinated Biphenyls

Multiple pole-mounted transformers were observed within the Plan Area along major thoroughfares at the time of the reconnaissance. These transformers have the potential to contain polychlorinated biphenyls (PCB). Although several units appeared to be in a mild state of disrepair, no apparent leakage from the observed units was noted.

viii. Pits, Ponds, and Lagoons

Aside from naturally curing wetlands along the eastern portion of the Plan Area, no pits, ponds, or lagoons were observed within the Plan Area at the time of the reconnaissance.

ix. Stained Soil/Pavement

Due to access issues, it was not possible to observe private property for the presence of areas of stained soil. Other than typical small, isolated areas of stained soil and pavement that would be expected in an urban environment, no evidence of large-scale surface staining was observed.

x. Stressed Vegetation

No obvious signs of stressed vegetation associated with environmental concerns were observed within the Plan Area at the time of the reconnaissance.

xi. Solid Waste/Debris

Several sites with suspected undocumented fill or dumping were observed within the site, most noticeably the north terminus of Demeter Street including the Stanford Fill area, and along the railroad right-of-way.

xii. Wastewater

Other than typical urbanized wastewater conveyance, no wastewater conveyance systems were observed at the Plan Area during the reconnaissance. The wastewater collected by the East Palo Alto Sanitary District is treated at the Palo Alto Regional Water Quality Control Plan.

xiii. Wells

Several groundwater monitoring wells were noted within publicly accessible areas during the site reconnaissance. These wells were predominately located within Subarea II. No domestic water wells were directly observed within the Plan Area during the site reconnaissance. However, a database search identified two federal USGS wells within ½-mile of the Plan Area.

xiv. Septic Systems

No septic systems were directly observed within the Plan Area during the site reconnaissance.

b. Asbestos-Containing Materials and Lead-Based Paint

An asbestos and lead-based paint survey was not conducted as part of this assessment. Given the age of many of the existing structures, it is conceivable that asbestos-containing materials and lead-based paint materials may exist within the structures.

c. Indoor Air Quality

An evaluation of indoor air quality, mold, or radon was not included as part of the contracted scope of services. The California Department of Health Services has conducted studies of radon risks throughout the state, sorted by zip code. Results of the studies indicate that 20 tests were conducted within the Plan Area ZIP code, with no tests exceeding the current EPA action level of 4 picocuries per liter (pCi/L).[13]

4. Cooley Landing

The 11.5-acre peninsula of Cooley Landing is part of the Specific Plan area, but being developed as a park as part of another project.[14] Most of the land was created by dumping refuse into the Bay from 1932 through 1957 when it

[13] California Department of Health Services, Division of Drinking Water and Environmental Management – Radon, http://ww2.cdph.ca.gov/HealthInfo/environhealth/Documents/Radon/CaliforniaRadonDatabase.pdf, accessed on November 9, 2009.

[14] Cooley Landing Initial Study.

was used as a County dump. A well used for irrigation purposes is located there. In 2006 the property was transferred from the Peninsula Open Space Trust (POST) to the City of East Palo Alto. A deed restriction prevents industrial or residential use or activity on the parcel, except for a caretaker on the premises. The fill soils imported during its operation as a landfill are of unknown origin and have potential to contain hazardous substances. Metals, polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), organochlorine pesticides (OCPs) and total petroleum hydrocarbons (TPH) in excess of commercial and residential environmental screening levels (ESLs) are present in several areas of the site, including areas that will be used recreationally when the area becomes a park. Methane and other potentially explosive gases do not appear to be present at levels of concern under existing buildings.

5. Schools and Other Sensitive Receptors

There are three schools located within the Specific Plan area or within a quarter mile.

- Costaño Elementary School at 2695 Fordham Street, is a K-4 school with 2009-2010 enrollment of 391 children.
- East Palo Alto Charter School at 1286 Runnymede Street, is a K-9 school with 2009-2010 enrollment of 420 children just south of the southern boundary of the Specific Plan Area.

The Ravenswood Family Health Center is located at 1798 Bay Road near Illinois Street and proposed for expansion.

6. Palo Alto Airport

As discussed in Regulatory Setting above, the Santa Clara County Airport (Palo Alto Airport) is located immediately south of the Plan area on the Palo Alto Baylands and the southern part of the Specific Plan area is within the airport Traffic Pattern Zone.

7. Wildland Fires

The California State Wildlands Fire map shows the Specific Plan as an area of moderate to high threat to development from wildland fires.[15] A small proportion of the area south of Bay Road is shown as having a very high threat to development.

C. Standards of Significance

Hazards and hazardous materials impacts associated with the Plan would be considered significant if the Plan would:

a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

b. 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.

c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within ¼-mile of an existing or proposed school.

d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment.

e. For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area.

[15] This information is also available from the Association of Bay Area Governments: ABAG Geographical Information Systems – Wildland Urban Interface (WUI) Fire Threat. Available at http://quake.abag.ca.gov/wildfires/. Accessed July 28, 2011.

f. For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area.

g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

h. Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

D. Impact Discussion

This section describes the environmental impacts from hazards and hazardous materials that would result from implementation of the Ravenswood/4 Corners TOD Specific Plan.

a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. ***(LTS)***

The Plan Area already has a substantial area of land designated as industrial, among which is interspersed several vacant parcels, and a few public/institutional parcels (see Figure 4.10-1, Existing Land Use). There is one area of single-family residential homes just north of Weeks Street, amidst industrial uses. Under current conditions, there is routine use of hazardous materials in this area. There is routine transport of chemicals used at these facilities, and disposal from the active remediation sites (such as Romic Environmental Technologies at 2081 Bay Road, referred to as Romic, and Zoecon/Rhone-Poulenc at 1990 Bay Road, referred to as Zoecon) along the truck route of Bay Street and University Avenue.

Development under the Specific Plan would bring about these changes to the distribution of potential sources of hazardous chemicals, and concentrations of residents who would be most affected by accidents during their use and transportation. The development has the following components. It would:

- Change the designation of land closest to the wetlands and tidal marshes of Ravenswood Open Space Preserve from industrial to office. (Much of this area comprises the Romic contaminated site.)
- Consolidate the area of R&D/Industrial land uses to the area north of Bay Street between Demeter Street and one block east of Tara Street, and south of Bay Street between Pulgas Avenue and one block south of Weeks Street.
- Locate Mixed Use projects or office uses along Bay Road replacing predominantly industrial uses, or, in the west of the Plan area, replacing multi-family residential.
- Place an area of R&D/Industrial on the vacant "triangle" north of the main R&D/Industrial area in the location of the "Stanford Fill."

Redesignating the land closest to the Bay as Office rather than Industrial would re-use some previously contaminated land, thus promoting cleanup and reducing the future risk of hazardous chemical release to the surface waters of the Bay. This is a ***beneficial*** impact.

Overall, the Plan would intensify land use in the area and increase the living and working population in an area that has been, and would continue to be, dominated by industry. In the past, the area has attracted industries that used hazardous chemicals and caused some accidental releases to air, soil, and ground and surface waters. However, the population of the immediate area has been relatively low, minimizing human exposure to these chemicals. The increase in the temporary and permanent population in the Plan Area would bring more people into the vicinity of hazardous chemical use.

However, several existing General Plan policies reduce the risk. General Plan Policy 2.2 requires the City of East Palo Alto to cooperate with responsible federal, State, and City agencies to minimize amounts and reduce the risk from the use and transport of hazardous materials. General Plan Policy 2.4 seeks to provide well-designed City roadways to reduce the risk of ground transportation accidents. General Plan Policy 2.6 seeks to minimize exposure

of the community to hazardous materials by discouraging the establishment of businesses that increase risk. Implementation of the Specific Plan consistent with these policies would reduce the risk to ***less than significant.***

The placement of mixed use (office or residential) along Bay Road, with the Industrial/R&D uses set back from Bay Road, would increase the chance that accidents at the industrial sites themselves, or during transportation to and along Bay Road, would impact office workers or residents of the mixed-use buildings. City review of Use Permits can prevent the establishment of businesses involving large quantities of chemicals, or highly dangerous chemicals, immediately adjacent to residences or offices. However, releases to air could affect an area of several square miles downwind of accident sites, and not just the immediately adjacent area. Although this is an existing risk, the location of the mixed-use areas proposed by the Plan would increase the risk from accidents.

Implementation of General Plan Policy 2.4, which seeks to provide well-designed City roadways to reduce the risk of ground transportation accidents, would reduce this risk. Application of **Specific Plan Policy LU-6.1** would reduce the risk of exposure to accidents at adjacent industrial sites by controlling the density of development in sites immediately adjacent to industries using hazardous chemicals. Application of **Specific Plan Policy LU-6.2** would restrict the type and quantity of chemical use by businesses located adjacent to mixed-use sites. In addition, adherence to all existing federal, State, and City regulations would reduce the risk from placing mixed-use development along Bay Road and increasing the number of people in closer proximity to industrial uses, including hazardous chemical use, to a ***less-than-significant*** level.

Development of contaminated land, such as the "Stanford Fill" area, at 391 Demeter Street, is discussed under Criterion b., below.

b. 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. ***(LTS)***

There are several potential hazards from activities already occurring in the zone from: a) industrial chemical use, b) their use in a flood-prone area, and c) remediation and development of contaminated sites. Hazards from industrial chemical use, and accidents from chemical and contaminated soil transport are discussed above under Criterion a. Location of industries using hazardous materials within the 100-year flood plain and in a zone that would be affected by sea-level rise, is discussed in Section 4.9, Hydrology & Water Quality. The effects of development under the Specific Plan and the hazards from development of contaminated sites are discussed below.

There are several contaminated sites within the Plan Area that are being either monitored or actively cleaned up under the guidance of regulatory agencies. Several have active groundwater remediation systems, including wells and subsurface barriers. Almost all of these are in Subareas II and III as shown on Figure 4.8-3. These were listed above under Section B, Existing Conditions. They fall approximately into the following categories, based on their former uses and released contaminants:

- **Underground storage tanks** and other automotive uses that have leaked petroleum products. These form the majority of the cases in the Plan Area.
- **Other industrial uses**, notably chemical and pharmaceutical company operations, that have lead to different kinds of releases, volatile organic compounds being the most common, with some hexavalent chromium and heavy metals.
- **Imported fill soil** contaminated with concentrations of DDE, PCBs, metals and fluoride (the "Stanford Fill" area).
- **Railroad** areas containing arsenic.
- **Agricultural land/nurseries** that are contaminated by pesticides.

As the Plan Area is so close to the Bay, groundwater is very shallow and remnant chemical contamination is harder to remediate successfully and more likely to be spread if adjacent sites are excavated disturbing the local groundwater flow directions. Sites close to the Bay are particularly sensitive as there is a high risk that contamination will flow into the tidal zone and out into open Bay waters. One example of this is the contamination from the Romic site at the Specific Plan boundary, which has been found in the slough adjacent to the site.[16]

As described in Section B, Existing Conditions, several properties in the Plan Area are actively being investigated by regulatory agencies, such as the RWQCB or DTSC, to assess the extent and nature of contamination and are classified by them as open assessment or remediation cases. In summary these are:

- 2519 Pulgas Avenue
- 2477/2485/2470 Pulgas Avenue
- 965 Weeks Street
- 1802-04 Bay Road
- 1860/1950 Bay Road
- 1985 Bay Road
- 1990 Bay Road
- 2081 Bay Road
- 151 Tara Street

Additionally, as also described in Section B, Existing Conditions, several properties have deed restrictions or land use covenants that have been filed or will be filed. These specify conditions such as: a prohibition on the installation of wells on the property; restrictions on subsurface excavation and/or disturbance to clay caps placed on top of contaminated areas; prevention of future residential use of the site; regulatory agency notification upon discov-

[16] U.S. EPA, 2008. *U.S. EPA selects final Cleanup Plan for Former Romic East Palo Alto Facility. July 2008.* Factsheet downloaded from: http://www.epa.gov/region9/waste/romic-eastpaloalto/pdf/Romic-Final-Decision-FactSheet-Eng-0708.pdf

ery of damage to remediation/monitoring systems and on property transfer. The following properties are affected:

- 2519 Pulgas Avenue
- 2555/2565 Pulgas Avenue
- 2477/2485/2470 Pulgas Avenue
- 965 Weeks Street
- 1060 Weeks Street
- 1175 Weeks Street
- 1200 Weeks Street
- 1802-04 Bay Road
- 1860/1950 Bay Road
- 1985 Bay Road
- 1990 Bay Road
- PG&E Yard, Bay Road
- 2017 Bay Road
- 151 Tara Street
- 1275 Runnymede Street

Development of sites in the Plan Area could cause contamination in the soil and groundwater to be released to ground or surface water or to air. However, implementation of **Specific Plan Policy LU-7.1** would ensure that a Phase I Environmental Site Assessment (ESA), a possibly a follow-up Phase II ESA are carried out for all new development in Subareas II and III as defined by Figure 4.8-3, in the 4 Corners area, or on the south side of Bay Road. This research involves review of the site history through file review, interviews, and possibly additional groundwater and soil sampling and analysis. The Phase I/Phase II ESA would make recommendations for additional cleanup under the guidance of regulatory agencies.

These mechanisms are considered adequate to ensure that contamination is detected, and cleaned up. This would ensure that the impact from release of contamination to the environment from development of a contaminated site would be ***less than significant***.

Excavation and de-watering could disturb groundwater flow directions and interfere with groundwater remediation systems at adjacent properties. **Specific Plan Policy LU-7.2** would require notification of new development projects to the lead agency in charge of remediation, or monitoring at an adjacent site. If relevant agencies are alerted to possible conflicts, and the impact would be ***less than significant***.

c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within ¼-mile of an existing or proposed school. ***(LTS)***

Costaño Elementary School is located in a single-family residential area that would remain as residential in the Specific Plan. A number of existing industrial uses are within a quarter mile of the school. Development under the Specific Plan would develop 391 Demeter Street as Industrial/Office Flex within approximately one quarter mile from the school.

East Palo Alto Charter School is in a residential area that would remain residential under the Plan. However, it is less than 400 feet south of a vacant parcel that would be redesignated as light industrial under the Plan.

Industrial development with hazardous materials uses and emissions could increase within close proximity of existing schools under the Specific Plan. Specific Plan Policy LU-6.3 would require CEQA review of approval of new industrial facilities within a quarter mile of an existing school to ensure that potential impacts are mitigated. Possible mitigations include restricting these locations to companies that have no hazardous air emissions, or requiring the project applicant to relocate the schools. This would reduce the impact to ***less than significant.***

d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment. *(LTS)*

Several known hazardous materials sites are located within the Plan Area, as described under Section B, Existing Conditions. However, they are either monitored and/or under active remediation by government agencies, or they have been remediated.

It is possible that unknown contamination would be discovered during excavations for redevelopment. **Specific Plan Policies LU-7.1** and **LU-7.2** would require sampling and analysis of a development site if there is any reason to suspect contamination. With adherence to these policies, the impact would be ***less than significant.***

e. For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area. ***(LTS)***

As shown on Figure 4.8-1, the Plan Area is within 2 miles northeast of the Palo Alto Airport. A small area of the southern portion of the Plan Area is within the Traffic Pattern Zone (TPZ) of the 2008 Palo Alto Airport Land Use Compatibility Plan (LUCP). As described in Section B, Existing Conditions, parts of the Plan Area that lie to the southwest of the blue circle shown on Figure 4.8-1. As East Palo Alto is in San Mateo County and not therefore subject to the restrictions imposed by the Palo Alto Airport CLUP, these are advisory. **Specific Plan Policy LU-8.1** would prohibit land uses with a high concentration of people from the TPZ and restricts future building heights to the limits established in the LUC.P. Provision of open space as per the LUCP is described in Section 4.10, Land Use. Adherence to **Specific Plan Policy LU-8.1** would limit the risks from aircraft to ***less than significant.***

f. For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area. ***(NI)***

The Specific Plan is not located within 2 miles of a private airstrip; therefore, there would be ***no impact***.

g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. ***(LTS)***

Development under the Specific Plan would make only minor changes to the existing road network although it would bring more people to the area and more congestion on existing streets.

The City of East Palo Alto has prepared an Emergency Operation Plan[17] that shows that the main communication routes include State Route 84 and SR 104 (University Avenue) and Bay Road. Traffic levels of service on University Avenue and Bay Road are analyzed in Section 4.14, Traffic, and the reader is referred to that discussion. Impacts on police and fire response times are described in Section 4.13, Public Services and Recreation. Potential interference with an emergency access or evacuation plan would be a prevented by adherence to **Specific Plan Policy LU-8.3** which requires Menlo Park Fire Protection District (MPFPD) review of roadway modifications and building plans, and the impact would be ***less than significant.***

h. Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands. ***(LTS)***

Although the California Department of Forestry and Fire Protection shows some areas of the Plan Area as with a moderate threat to development, the Plan Area is located adjacent to wetlands and urban areas and is several miles from the closest wildland area where fires could start. There would be a ***less-than-significant*** impact from wildland fires.

2. Cumulative Impacts

This cumulative analysis considers the Plan in the context of the General Plan, which takes into account the entire incorporated area of East Palo Alto, including the Plan Area. According to the General Plan, most of the industrial areas are located within the Plan Area and, overall, it is likely to result in an increase in use of hazardous materials. However, all new use, storage, transport, and activities associated with remediation of contaminated sites are subject to local, State, and federal regulation, and risks are evaluated on a parcel-specific basis. There would therefore be ***no additional cumulative impacts*** due to hazardous materials and contaminated sites. Issues of flooding are discussed in Section 4.9, Hydrology and Water Quality.

[17] City of East Palo Alto, 2011. Emergency Operation Plan. January 2011. Adopted April 5, 2011.

4.9 HYDROLOGY AND WATER QUALITY

This chapter describes the existing hydrology and water quality conditions in the Ravenswood/4 Corners Transit-Oriented Development Specific Plan area and evaluates the potential impacts of the Plan on hydrology and water quality. A summary of the relevant regulatory setting and existing conditions is followed by a discussion of Plan-specific and cumulative impacts.

A. Regulatory Framework

This section describes the regulatory setting as it relates to hydrology and water quality in the Ravenswood/4 Corners Transit-Oriented Development Specific Plan area.

There is a well-established regulatory framework of federal and State laws for floodplain management and protection of water quality, which would apply to development or redevelopment proposed for the Plan Area. These regulations establish requirements for development in flood-prone areas and water quality criteria for the protection of human health and the environment, including stormwater discharges to surface water. The regulations are discussed below.

1. Federal Agencies, Programs, and Regulations

a. Federal Emergency Management Agency

The Federal Emergency Management Agency (FEMA) issues Flood Insurance Rate Maps (FIRMs) that identify which land areas are subject to flooding. These maps provide flood information and identify flood hazard zones in the community. The design standard for flood protection is established by FEMA. FEMA's minimum level of flood protection for new development is the 100-year flood event, also described as a flood that has a 1-in-100 chance of occurring in any given year. The FIRM map for the Plan Area reproduced in Figure 4.9-1 shows the outer part of the Plan Area as a Special Flood Hazard Areas inundated by the 100-year flood, and designates it as Zone AE (base flood elevations determined), and the inner part as Zone X (areas outside the 500-year flood plain). Two small isolated pockets are Zone A (no base flood elevations determined). The end of Cooley Landing is designated as VE

(coastal flood with velocity hazard/wave action; base flood elevations determined). The most recent map was issued in 1999 and there have been 61 amendments to this map since it was published.[1]

FEMA also administers the National Flood Insurance Program (NFIP) to provide subsidized flood insurance to communities that comply with FEMA regulations limiting development in floodplains. East Palo Alto participates in the National Flood Insurance Program (NFIP) that makes available federally backed flood insurance for all structures, whether or not they are located within the floodplain.

The FEMA Zone designation affects the flood insurance premium. The areas of special flood hazard were identified in a study in 1984 that was published along with the FIRM map.[2] The study and all subsequent amendments and/or revisions were adopted by reference into Section 15.52 of East Palo Alto's Municipal Code.

Development in the floodplain is subject to certain management standards as a consequence of the NFIP. Among these are requirements and procedures for evaluating earthen levee systems and mapping the areas affected by those systems.[3] Levee systems are evaluated for their ability to provide protection from 100-year flood events and the results of this evaluation are documented in the FEMA Levee Inventory System (FLIS). Levee systems must meet minimum freeboard standards and must be maintained according to an offi-

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[1] FEMA website. Current FEMA Issued Flood Maps. http://msc.fema.gov/webapp/wcs/stores/servlet/CategoryDisplay, accessed September 13, 2011.

[2] FEMA, 1984. Flood Insurance Study (FIS) (dated March 19, 1984) and Flood Insurance Rate Map (FIRM) (dated September 19, 1984). These are on file at the Community Development Department.

[3] Federal Emergency Management Agency (FEMA), 2003, Guidelines and Specifications for Flood Hazard Mapping Partners. Can be downloaded from http://www.fema.gov/library/viewRecord.do?id=2206.

cially adopted maintenance plan. Other FEMA levee system evaluation criteria include structural design and interior drainage.

b. U.S. Environmental Protection Agency (EPA), U.S. Army Corps of Engineers and Clean Water Act (CWA)

The U.S. Environmental Protection Agency (EPA) is the lead federal agency responsible for water quality management. The Clean Water Act (CWA) of 1972 is the primary federal law that governs and authorizes water quality control activities by the EPA as well as the states. Various elements of the CWA address water quality, and they are discussed below. Wetland protection elements administered by the U.S. Army Corps of Engineers under Section 404 of the CWA, including permits to dredge or fill wetlands, are discussed in Section 4.4, Biological Resources, of this EIR.

Under Section 401 of the CWA, an applicant for a Section 404 permit to discharge dredged or fill material into waters of the United States must first obtain a certificate from the appropriate State agency stating that the fill is consistent with the State's water quality standards and criteria. In California, the authority to either grant water quality certification or waive the requirement is delegated by the State Water Resources Control Board (SWRCB) to the nine Regional Water Quality Control Boards (RWQCBs).

Under federal law, the EPA has published water quality regulations under Volume 40 of the Code of Federal Regulations (40 CFR). Section 303 of the CWA requires states to adopt water quality standards for all surface waters of the United States. As defined by the CWA, water quality standards consist of two elements: (1) designated beneficial uses of the water body in question and (2) criteria that protect the designated uses. Section 304(a) requires the EPA to publish advisory water quality criteria that accurately reflect the latest scientific knowledge on the kind and extent of all effects on health and welfare that may be expected from the presence of pollutants in water. Where multiple uses exist, water quality standards must protect the most sensitive use. In California, the EPA has designated the SWRCB and its RWQCBs with au-

thority to identify beneficial uses and adopt applicable water quality objectives.

c. National Pollutant Discharge Elimination System

The National Pollutant Discharge Elimination System (NPDES) permit program was established by the CWA to regulate municipal and industrial discharges to surface waters of the United States from their municipal separate storm sewer systems (MS4s). NPDES permit regulations have been established for broad categories of discharges, including point-source municipal waste discharges and nonpoint-source stormwater runoff. The Plan Area is covered under the San Mateo Countywide NPDES water quality permit and the San Mateo Countywide Water Pollution Prevention Program (SMCWPPP), to which the City of East Palo Alto is a co-permittee.

NPDES permits generally identify effluent and receiving water limits on allowable concentrations and/or mass emissions of pollutants contained in the discharge; prohibitions on discharges not specifically allowed under the permit; and provisions that describe required actions by the discharger, including industrial pretreatment, pollution prevention, self-monitoring and other activities.

2. State Plans, Policies, and Regulations

a. Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Porter-Cologne Act) of 1969 is California's statutory authority for the protection of water quality. Under the Act, the State must adopt water quality policies, plans and objectives that protect the State's waters for the use and enjoyment of the people. The Act sets forth the obligations of the SWRCB and RWQCBs to adopt and periodically update water quality control plans (Basin Plans). Basin Plans are the regional water quality control plans required by both the CWA and Porter-Cologne Act in which beneficial uses, water quality objectives and implementation programs are established for each of the nine regions in California. East Palo Alto falls under the San Francisco Bay Region Hydrologic Basin Planning Area Map.

The Act also requires waste dischargers to notify the RWQCBs of their activities through the filing of Reports of Waste Discharge (RWD) and authorizes the SWRCB and RWQCBs to issue and enforce waste discharge requirements (WDRs), NPDES permits, Section 401 water quality certifications, or other approvals.[4]

b. State Regulatory Agencies

In California, the SWRCB has broad authority over water quality control issues for the State. The SWRCB is responsible for developing statewide water quality policy and exercises the powers delegated to the State by the federal government under the CWA. Other State agencies with jurisdiction over water quality regulation in California include the California Department of Health Services (DHS) for drinking water regulations, the California Department of Pesticide Regulation, the California Department of Fish and Game (DFG), and the Office of Environmental Health and Hazard Assessment.

Regional authority for planning, permitting and enforcement is delegated to the nine RWQCBs. The regional boards are required to formulate and adopt water quality control plans for all areas in the region and establish water quality objectives in the plans. East Palo Alto is within the jurisdiction of the San Francisco Bay RWQCB.

The Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) is the Board's master water quality control planning document. It designates beneficial uses and water quality objectives for waters of the State, including surface waters and groundwater. It also includes programs of implementation to achieve water quality objectives. The Basin Plan established water quality objectives for total dissolved solids (TDS), mineral constituents, and turbidity on a watershed-by-watershed basis within the Region, while objectives for

[4] Porter-Cologne Water Quality Act's website. http://ceres.ca.gov/wetlands/permitting/porter.html, accessed September 8, 2009.

total and fecal coliform bacteria, nutrients (total nitrogen and total phosphorus), pH, dissolved oxygen, and un-ionized ammonia are set on a region-wide basis.

Additionally, water quality objectives for toxic organic and toxic inorganic constituents are established by the corresponding State and federal drinking water standards for waters designated as municipal supply. The RWQCB also implements the Federal California Toxics Rule Water Quality Standards for Toxic Pollutants (CTR) established by the U.S. EPA in Title 40, Section 141.38 of the Code of Federal Regulations. The California Toxics Rule establishes numeric criteria for cyanide, metals, and toxic organic constituents.

Under section 303(d) of the Clean Water Act, States, territories, and authorized tribes are required to develop lists of impaired waters. These are waters that are too polluted or otherwise degraded to meet the water quality standards set by the relevant regulatory agency. The law requires that these jurisdictions establish priority rankings for waters on the lists and develop a calculation of the maximum amount of a pollutant that the impaired water body can receive and still safely meet water quality standards.[5] This calculation is called a Total Maximum Daily Load (TMDL). The TMDL approach provides a framework for evaluating pollution control efforts and for coordination between federal, State and local efforts to meet water quality standards. TMDLs are adopted as amendments to the Basin Plan. A TDML project is currently underway on San Francisquito Creek that runs immediately south of the Plan Area in East Palo Alto.[6] The Basin Plan also establishes a limited number of numerical groundwater quality objectives for groundwater.

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[5] U.S. Environmental Protection Agency (EPA). *Impaired Waters and Total Maximum Daily Loads*, http://www.epa.gov/OWOW/tmdl/, accessed on February 25, 2010.

[6] http://www.swrcb.ca.gov/sanfranciscobay/water_issues/programs/TMDLs/. Accessed August 19, 2011.

c. California Fish and Game Code

The CDFG protects streams, water bodies and riparian corridors through the streambed alteration agreement process under Section 1601 to 1606 of the California Fish and Game Code. The Fish and Game Code stipulates that it is "unlawful to substantially divert or obstruct the natural flow or substantially change the bed, channel or bank of any river, stream or lake" without notifying the Department, incorporating necessary mitigation and obtaining a streambed alteration agreement. CDFG's jurisdiction extends to the top of banks and often includes the outer edge of riparian vegetation canopy cover.

d. Assembly Bill 162 (Local Planning)

Assembly Bill 162 (AB 162) was approved by the Governor in 2007, amended Sections 65302, 65303.4, 65352, 65584.04, and 65584.06, and added Sections 65300.2 and 65302.7, to the Government Code. The new and amended sections require cities and counties to address flood management in the Land Use, Conservation, Safety and Housing Elements of their General Plans. This ensures that flood management is addressed in General Plans in the following ways:

- Requires that areas subject to flooding, as identified by federal and State maps of floodplains, are identified in the Land Use Element for annual review.
- Requires that rivers, creeks, streams, flood corridors, riparian habitat and land that may accommodate floodwater for specified purposes are identified in the Conservation Element, upon the next Housing Element review on or after January 1, 2009.
- Requires that flood hazard zones are identified and policies to avoid or minimize the unreasonable risks of flooding are established in the Safety Element, by the next Housing Element review on or after January 2009.
- Permits areas where the flood management infrastructure is inadequate and housing development impractical to be excluded from the determination of land suitable for urban development in the Housing Element analysis.

e. Assembly Bill 70 (Flood Liability)

Assembly Bill 70 was approved by the Governor in 2007 and added Section 8307 to the Water Code. The Section was developed to distribute responsibility for flood control damage among State and local entities and it requires local governments to contribute their fair share to a flood's cost when they make unreasonable development decisions.

3. Regional and Local Programs and Regulations

a. Regional Water Quality Control Board (San Francisco Bay Region)

i. NPDES Construction General Permit

Construction activities that disturb one acre or more of land, and construction on smaller sites that are part of a larger project, must comply with a Construction General Permit that regulates stormwater leaving construction sites. Site owners must notify the state, prepare and implement a Stormwater Pollution Prevention Plan (SWPPP), and monitor the effectiveness of the plan. The plan, which must also address control of pollutants in stormwater post-construction, does not have to be submitted to the Regional Board but must be on site and available to inspectors. A SWPPP must include "Best Management Practices" (BMPs) designed to reduce potential impacts to surface water quality through the construction and life of the project.

On September 2, 2009, the California State Water Resources Control Board (SWRCB) adopted a new NPDES general permit pertaining to construction (Order No. 2009-0009 DWQ). The "General Construction Permit," formally titled the "General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities," expands the regulatory requirements pertaining to the treatment and control of stormwater effluent resulting from demolition, construction, and development activities.

ii. NPDES Industrial Storm Water Permit

NPDES permits are also required for point source discharges of stormwater from specified types of industrial and commercial operations that discharge either directly to surface waters or indirectly through municipal separate storm sewers. These activities include manufacturing operations, transporta-

tion facilities where vehicles are maintained, landfills, hazardous waste sites, and other operations. The SWRCB is the permitting authority and has adopted a statewide General Permit for Discharges of Storm Water Associated with Industrial Activities (General Industrial Permit, SWRCB, 1997). Regulated facilities must submit a Notice of Intent, prepare and implement a SWPPP specifying Best Management Practices (BMPs) to control pollution in stormwater discharges, and monitor to demonstrate compliance with the permit.

iii. NPDES Post-Construction Stormwater Quality

San Mateo County has the authority to uphold its NPDES permit and currently exercises this authority in its recently adopted Provision C.3 requirements. The provisions require the installation of post-construction BMPs for new development as part of the federal NDPES program, and set standards for their implementation. The intent of these regulations is to rigorously control the quality and quantity of stormwater runoff from any new development that creates or replaces impervious area over 10,000 square feet, so that receiving waters downstream are not adversely impacted.

To comply with these requirements, new projects are required to install water quality stormwater runoff BMPs that filter or treat rainfall runoff generated from storm events up to approximately the 85th percentile rainfall event (or approximately the 1-inch storm event) before discharging into storm drains or natural drainage systems. Projects are required to capture 100 percent of rainfall runoff from new impervious surfaces and to treat it in post-construction stormwater systems. For projects prior to December 2012, this water can be sent to the storm sewer. Projects that begin after December 2012 must reuse the water on site, unless that reuse is proven to be "infeasible." If the water is reused in irrigation, it is returned to the aquifer.

The San Mateo Countywide Stormwater Pollution Prevention Program (SMCSPPP) emphasizes the integration of stormwater management features into streets and parking lots as part of a new urban landscape and provides resources and technical guidance on how to design, permit, and maintain

post-construction stormwater controls in order to meet the current stormwater management requirements mandated in Provision C.3 of the Countywide Municipal Stormwater Permit.[7,8] An emphasis is placed on the integration of stormwater features such as grassy swales and bioretention facilities into areas such as streetscapes or parking facilities using low impact development techniques.

iv. NPDES Municipal Regional Stormwater Permit

The Plan Area will be under the regulations of the new Municipal Regional Stormwater NPDES Permit as put forth by the RWQCB. This Permit falls under Order R2-2009-0074 and was adopted on October 14, 2009. Above and beyond post-construction stormwater management practices, the permit also requires municipalities to adopt trash and street sweeping programs to regulate discharges into storm drain systems or directly into Waters of the United States.

v. Debris Management

Order R2-2009-0074 requires extensive efforts to reduce the amount of trash entering storm drain systems. Under this permit, the City of East Palo Alto is required to develop both Short-Term and Long-Term Trash Load Reduction Plans. Combined, these plans will address trash load reductions to attain a 40% trash load reduction by 2014, a 70% reduction by 2017, and a 100% reduction by 2022. In order to document trash reduction percentages, the City of East Palo Alto is required to establish the trash load baseline and the method of tracking trash load reduction. Some population-based permittees are also required to implement a minimum number of full trash capture devices within their areas. In addition to the trash load reduction procedures outlined in the Plans, identified Trash Hot Spots require annual cleaning.

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[7] San Mateo County, 2009. *San Mateo County Sustainable Green Streets and Parking Lots Guidebook*.

[8] San Mateo Countywide Stormwater Pollution Prevention Program, 2010. *C.3 Stormwater Technical Guidance: A Handbook for Developers, Builders and Project Applicants*.

vi. Municipal Operations

Under Order R2-2009-0074, the City of East Palo Alto is subject to increased water quality protection requirements governing routine maintenance activities. These requirements cover repair, maintenance, pavement washing, and graffiti removal activities for facilities such as streets, roads, sidewalks, and plazas. In addition to washing activities stormwater pump stations are subject to new regulations that include collecting bi-annual dissolved oxygen (DO) data and trash load data. Based on DO levels, corrective actions such as aeration may be required to maintain minimum DO in stormwater. Order R2-2009-0074 also contains requirements for maintenance projects adjacent to creeks or wetlands, and require SWPPPs for corporation yard projects not already covered under the State Board's Industrial Stormwater NPDES General Permit.

vii. Water Treatment Plants Discharge Permits

Sewage collected by the East Palo Alto Sanitary District (EPASD) is treated at the Palo Alto Regional Water Quality Control Plant (PARWQCP). The PARWQCP treats wastewater from the EPASD, Los Altos, Los Altos Hills, Mountain View, Palo Alto, and Stanford University. Discharge from the PARWQCP is required to meet stringent standards to protect the health of the South Bay, where the water is discharged.[9] The PARWQCP operates under the conditions of a RWQCB discharge permit that regulates the discharge limits. The discharge permit (NPDES Permit No. CA0037834), adopted on April 8, 2009, is in effect until May 31, 2014.[10]

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[9] City of Palo Alto, 2007. *Utilities Newsletter*, pages 33 and 34.

[10] City of Palo Alto website, NPDES Permit For Discharge to San Francisco Bay, http://www.cityofpaloalto.org/depts/pwd/rwqcp.asp, accessed on December 6, 2011.

b. San Francisco Bay Area Conservation and Development Commission (BCDC)

The California Coastal Commission acts carries out its mandate locally through the San Francisco Bay Area Conservation and Development Commission (BCDC). BCDC's jurisdiction on San Francisco Bay includes all sloughs, marshlands between mean high tide and five feet above mean sea level, tidelands, submerged lands, and land within 100 feet of the Bay shoreline. The precise boundary is determined by BCDC on request.[11] For planning purposes, BCDC assumes that projects have a lifespan of at least 50 to 90 years. Consistency with policies from the BCDC master planning document, the *Bay Plan*, is analyzed in Section 4.10 Land Use.[12]

Since the issuance of the Governor's Executive Order S-13-08 on November 2008, BCDC has followed other Natural Resource Agencies in planning for two sea level rise scenarios: 16 inches by mid-century and 55 inches by the end of the century. In April 2009, BCDC published its report with maps indicating zones that could be flooded due to sea level rise and that were based on existing elevations.[13] In May 2011, BCDC published a revised draft of its proposed amendments to its master planning document, the *Bay Plan.* This received considerable public review and environmental review, and was

[11] BCDC jurisdiction over the Plan Area as shown in Figure 3-4 is likely to include (from north to south): some of the northern part of the loop road, a portion of the Industrial/Office flex on the 391 Demeter Street Property, the northern part of the Industrial/R&D and Office Flex designations, and an outside band around 100 feet in width running through the Office, Industrial/R&D, Light Industrial Specific Plan development. Water pipes north of Tara Road, the water tank, and at the easternmost points on Bay Road and Weeks Street; the storm drainage channel excavations to the O'Connor pump station; and the sanitary sewer upgrades inside the levee are also probably in BCDC jurisdiction.

[12] BCDC, 2011. *San Francisco Bay Plan.* Available online at: http://www.bcdc.ca.gov/pdf/planning/plans/bayplan/bayplan.pdf. Accessed September 15, 2011.

[13] BCDC, 2009. *Living with a Rising Bay: Vulnerability and Adaptation in San Francisco Bay and on its Shoreline.*

adopted on October 6, 2011.[14,15] These amendments include revised findings and policies to adapt to the effects of sea level rise.

Several findings describe migration of the tidal marsh inland as a consequence of the sea level rise and the recommended adaptation. Finding o. in the new section on Climate Change states:

> *"Approaches for ensuring public safety in developed vulnerable shoreline areas through adaptive management strategies include but are not limited to: (1) protecting existing and planned appropriate infill development; (2) accommodating flooding by building or renovating structures or infrastructure systems that are resilient or adaptable over time; (3) discouraging permanent new development when adaptive management strategies cannot protect public safety; (4) allowing only new uses that can be removed or phased out if adaptive management strategies are not available as inundation threats increase; and (5) over time and where feasible and appropriate, removing existing development where public safety cannot otherwise be ensured..."*

The following policy is pertinent to this Specific Plan:

> *When planning shoreline areas or designing larger shoreline projects, a risk assessment should be prepared by a qualified engineer and should be based on the estimated 100-year flood elevation that takes into account the best estimates of future sea level rise and current flood protection and planned flood protection that will be funded and constructed when needed to provide protection for the proposed project or shoreline area. A range of sea level rise projections for mid-*

[14] BCDC, 2011. *Staff Report, Revised Preliminary Recommendation and Environmental Assessment for Proposed Bay Plan Amendment No. 1-08 Concerning Climate Change*. (For Commission consideration on September 1, 2011.)

[15] BCDC, 2011. Resolution No. 11-08. Adoption of Bay Plan Amendment No. 1-08 Adding New Climate Change Findings and Policies to the Bay Plan; And Revising the Bay Plan Tidal Marsh and Tidal Flats; Safety of Fills; Protection of the Shoreline; and Public Access Findings and Policies. Adopted October 6, 2011. Online at: http://www.bcdc.ca.gov/proposed_bay_plan/10-01Resolution.pdf.

century and end of century based on the best scientific data available should be used in the risk assessment. Inundation maps used for the risk assessment should be prepared under the direction of a qualified engineer. The risk assessment should identify all types of potential flooding, degrees of uncertainty, consequences of defense failure, and risks to existing habitat from proposed flood protection devices.

4. City of East Palo Alto

a. National Flood Insurance Program

The City of East Palo Alto has several programs to warn residents about the dangers of flooding and help them prepare for the consequences. [16] The City participates in the National Flood Insurance Program (NFIP) that makes available federally backed flood insurance for all structures, whether or not they are located within the floodplain. To qualify for the NFIP, the City designated several Special Flood Hazard Areas. [17]

b. Municipal Code Chapter 15.52

The City also maintains records of all elevation certificates that have been created for properties within the City and recommends to homeowners that if their floor level is lower that the FEMA-designated "Base Flood Elevation" (elevation of the 100-year flood, based on the FEMA maps), they should consider elevating their structure, if possible. The City's floodplain regulations are outlined within Chapter 15.52 of the East Palo Alto Municipal Code. [18,]

[16] City of East Palo Alto. Flier entitled: *Are you prepared for a flood in your neighborhood?* Available online at http://www.ci.east-palo-alto.ca.us/pdf/EPA_Flood_Brochure.pdf. Accessed August 19, 2011.

[17] http://www.ci.east-palo-alto.ca.us/EPA%20Zoning%20Regs%20-%20200 3%20Edition.pdf. Accessed August 19, 2011.

[18] http://www.ci.east-palo-alto.ca.us/municode.html.

B. Existing Conditions

1. Plan Area Setting

The Plan Area is located primarily in an established industrial and residential area. However, the Plan Area also includes portions of bay marshlands that lie in between the urban East Palo Alto fringe and the Lower South San Francisco Bay. Overall, the Plan Area contains very flat surface gradients. Ground surface elevations within the district range from approximately 5 to 25 feet above mean sea level.

2. Existing Climate

The San Francisco Bay region has a Mediterranean climate, characterized by dry, warm summers and mild winters. The area receives most of its rainfall between November and June and its warmest temperatures in July and August. The average annual rainfall for the City of East Palo Alto is approximately 15 inches.[19] Daily summer temperatures vary from 68 degrees Fahrenheit (°F) to 85°F, while winter temperatures rarely descend below freezing.

Despite moderation by cool marine breezes and coastal fog, temperatures in the Plan Area rise sharply in late spring and remain elevated through early fall. Evaporation and transpiration rates also rise in response to the warmer weather and can be considerably higher than precipitation on an annual basis, ranging from 39 to 49 inches per year, with root zone soil moisture storage typically depleted by May.[20] Growth of grasses and small forbs, or shrubs, then slows or stops completely until the first rains of the following wet season.

3. Hydrologic Setting

This section describes surface water and flooding potential in the Plan Area.

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[19] http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca6646.

[20] City of East Palo Alto, 2011. *2010 Urban Water Management Plan.* Prepared by Integrating Resource Management, Inc. Adopted June 21, 2011.

a. Surface Water Bodies

Two major surface water bodies – the Lower South San Francisco Bay and San Francisquito Creek – are significant to the hydrologic setting of the Plan Area. The San Francisco Bay, approximately 1,000 feet to the east of the eastern boundary of the Plan Area, comprises the City of East Palo Alto's eastern boundary. The Plan Area is separated from the San Francisco Bay margin by bay marshlands, with the exception of Cooley Landing which extends through the marshlands into the bay. Several drainage channels connect the outfalls of the East Palo Alto storm drain system, which discharge into the marshland, to tidal channels located approximately at mean sea level adjacent to the San Francisco Bay fringe. The Palo Alto Baylands Nature Reserve is located to the east of the southern portion of the Plan Area.

San Francisquito Creek is approximately ¾- to 1-mile south of the Plan Area. Much of the City of East Palo Alto is considered a storm drain contribution area to the San Francisquito Creek Watershed, although stormwater from the Plan Area currently drains into the Bay without entering the creek channel. However, historic data indicate that the Plan Area was located partially in the floodplain of San Francisquito Creek before the fluvial geomorphology of the area was altered by urbanization. Records indicate that flooding due to discharge from San Francisquito Creek has not occurred in the Plan Area within the last 100 years.[21]

b. Flooding

Flooding within the Plan Area has historically occurred primarily as a result of tidal flooding and an inadequate storm drain system.[22] The last major floods in East Palo Alto were in 1998, virtually isolating the City. Water in San Francisquito Creek overtopped its banks upstream in Menlo Park, and

[21] San Francisquito Creek Coordinated Resource Management and Planning, 1997, *Reconnaissance Investigation Report of San Francisquito Creek*.

[22] City of East Palo Alto, 1999. *General Plan. Safety and Noise Element.*

water gushed out of the storm drains.[23] Tidal floods in 1972 submerged streets in the University Village neighborhood in the Specific Plan Area. [24] The City has named the following neighborhoods in the Plan Area as some of the Special Flood Hazard Areas with documented flooding problems: [25]

- Weeks and Garden Neighborhoods, east of Pulgas Avenue.
- University Village Neighborhood, north of Notre Dame Avenue.
- Portion of the Ravenswood Business District closest to the Baylands.

Based on the storm drainage map prepared by BKF (formerly Brian Kangas Faulk Engineers) in 2001, the majority of the urbanized portion of the Plan Area is served by a municipal storm drain system. However, the storm drain system may be considered to be inadequate to prevent flooding from occurring during larger storm and tidal events. In general, the storm drain system for the Plan Area drains towards the San Francisco Bay tidal marshlands, with the exception of a part of the northwest portion which drains to the Ravenswood Slough. See Section 4.15, Utilities and Service Systems for a more complete discussion of East Palo Alto's stormwater drainage system.

An incomplete system of levees has been built between the Plan Area and the San Francisco Bay, including a levee located adjacent to the southeast portion of the Plan Area. Although numerous low points and openings exist in the overall levee system, allowing tides to overtop or bypass the levee system, these levees may still reduce the depth and extent of flooding during a 100-year tide. The City of East Palo Alto warns that future floods may also occur due to levee breaks.[26] San Francisquito Creek is channeled for flood control

[23] http://www.paloaltoonline.com/news_features/storm98/1998_02_03.flood2.html, accessed July 7, 2011.

[24] http://www.ci.east-palo-alto.ca.us/flood.html, accessed August 19, 2011.

[25] City of East Palo Alto. Flier entitled: *Are you prepared for a flood in your neighborhood?* Available online at http://www.ci.east-palo-alto.ca.us/pdf/EPA_Flood_Brochure.pdf.

[26] http://www.ci.east-palo-alto.ca.us/flood.html, accessed August 19, 2011.

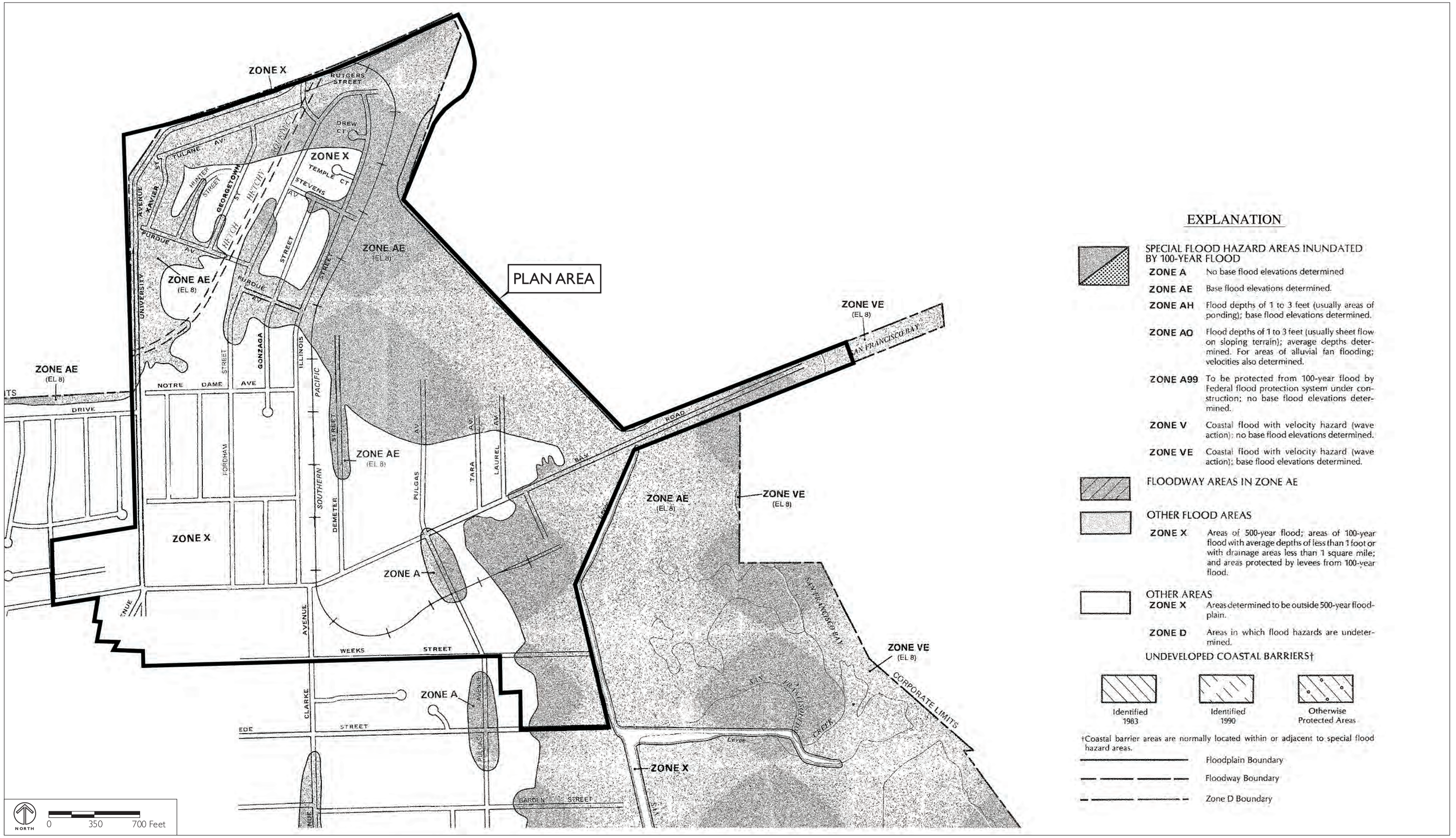
west of Highway 101. East of Highway 101, it is bounded by levees through the Palo Alto Baylands.

Figure 4.9-1 shows 100-Year Flood Zones within the Plan Area based on the FEMA Flood Insurance Rate Map for the city.[27] These are areas that are expected to be inundated in the event of a 100-year flood. Most are classified by FEMA as Zone AE meaning that a base flood elevation has been determined. In these areas, the base flood elevation is 8 feet, meaning that areas with a topographic elevation of less than 8 feet would be inundated during a 100-year flood. Some areas are classified as Zone A indicating that they would be inundated during a 100-year flood, but the base flood elevation has not been determined. Cooley Landing is designated in Zone VE, where there is an additional hazard from waves and wave erosion. A more recent digital data set has been used to make Figure 4.9-2 that shows the 100-year and 500-yr flood plain outlines superimposed on the Specific Plan Area.

c. Climate Change and Sea level Rise

A number of documents have been published recently discussing the magnitude and timing of sea level rise as a result of global climate change. According to these studies, the mean sea level will rise with a trend of increased global temperature for several reasons, including ocean thermal expansion, melting of glaciers, and melting of the ice sheets. Temperature increase may also increase the frequency of extreme sea level events such as storm surges, extreme high tides, and El Niño events that adversely affect coastal area.

[27] Federal Emergency Management Agency (FEMA), 1999, FIRM, Flood Insurance Rate Map, City of East Palo Alto, California, San Mateo County, Community Panel Number 060708 0001 B, map revised August 23.



EXPLANATION

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

- **ZONE A** No base flood elevations determined
- **ZONE AE** Base flood elevations determined.
- **ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
- **ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding; velocities also determined.
- **ZONE A99** To be protected from 100-year flood by Federal flood protection system under construction; no base flood elevations determined.
- **ZONE V** Coastal flood with velocity hazard (wave action); no base flood elevations determined.
- **ZONE VE** Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

- **ZONE X** Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

- **ZONE X** Areas determined to be outside 500-year floodplain.
- **ZONE D** Areas in which flood hazards are undetermined.

UNDEVELOPED COASTAL BARRIERS†

Identified 1983 | Identified 1990 | Otherwise Protected Areas

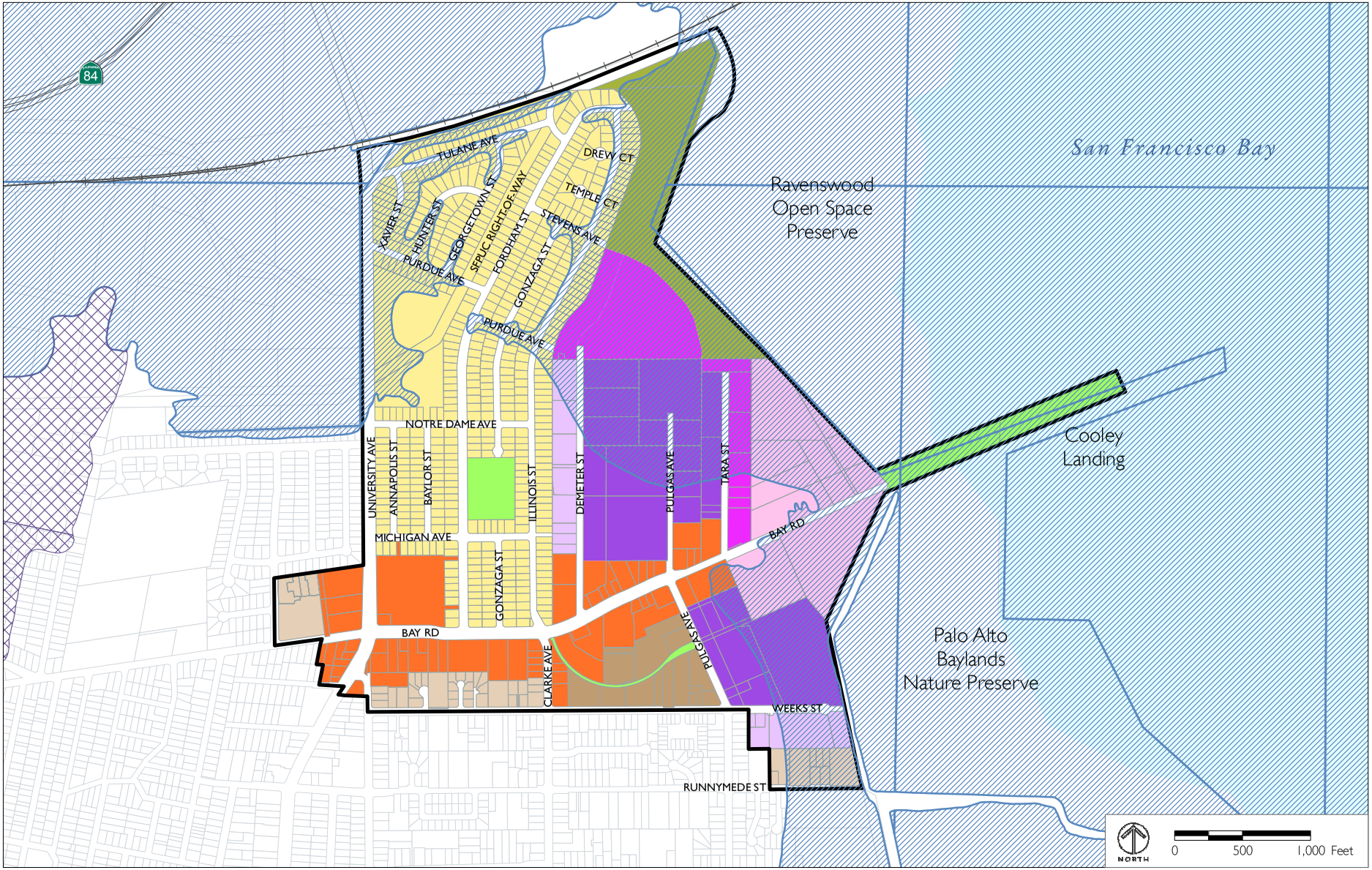
†Coastal barrier areas are normally located within or adjacent to special flood hazard areas.

- Floodplain Boundary
- Floodway Boundary
- Zone D Boundary

Source: FEMA, 1999.

FIGURE 4.9-1

DESIGNATED FEMA FLOOD AREAS



Source: Federal Emergency Management Agency, 1996.

- 100-Year Flood Zone
- 500-Year Flood Zone

Proposed General Plan Land Use Designations

- Mixed-Use
- Office
- General Industrial
- Industrial Buffer
- Industrial/Office Flex
- High Density Residential
- Medium/High Density Residential
- Low/Medium Density Residential
- Community Open Space Conservation
- Resource Management
- Plan Area
- Railroad

FIGURE 4.9-2

FEMA FLOOD ZONES

The potential consequences of climate change for the Bay Area are spelt out in several recent publications by the United States Geological Survey.[28] There are two aspects to flooding and sea level rise: Firstly, a warming climate will decrease the winter snowpack in the Sierras that is the source of a year-round water supply to the Delta. Secondly, rains will be spread year-round. These combined effects will produce a greater variety of flows into the Delta and San Francisco Bay and flooding that originates from heavy rains is likely to be more frequent and more extreme. Secondly, an average rise in global temperatures will melt ice caps and increase the volume of the oceans, flooding coastal and Bayside land.

BCDC has recently produced maps of sea level rise based on rises of 16 inches (50 cm) by 2050 and 55 inches (140 cm) by 2110. Figure 4.9-3 shows detail of the Plan area.[29]

The maps are based on elevation. The explanatory notes state that there is not necessarily a connection to the Bay between an area that is indicated as being under water in these scenarios. For example where an area is protected by a levee, the water may not reach the area and it may not be flooded. As a consequence of sea level rise, tidal marsh areas would naturally migrate inland.

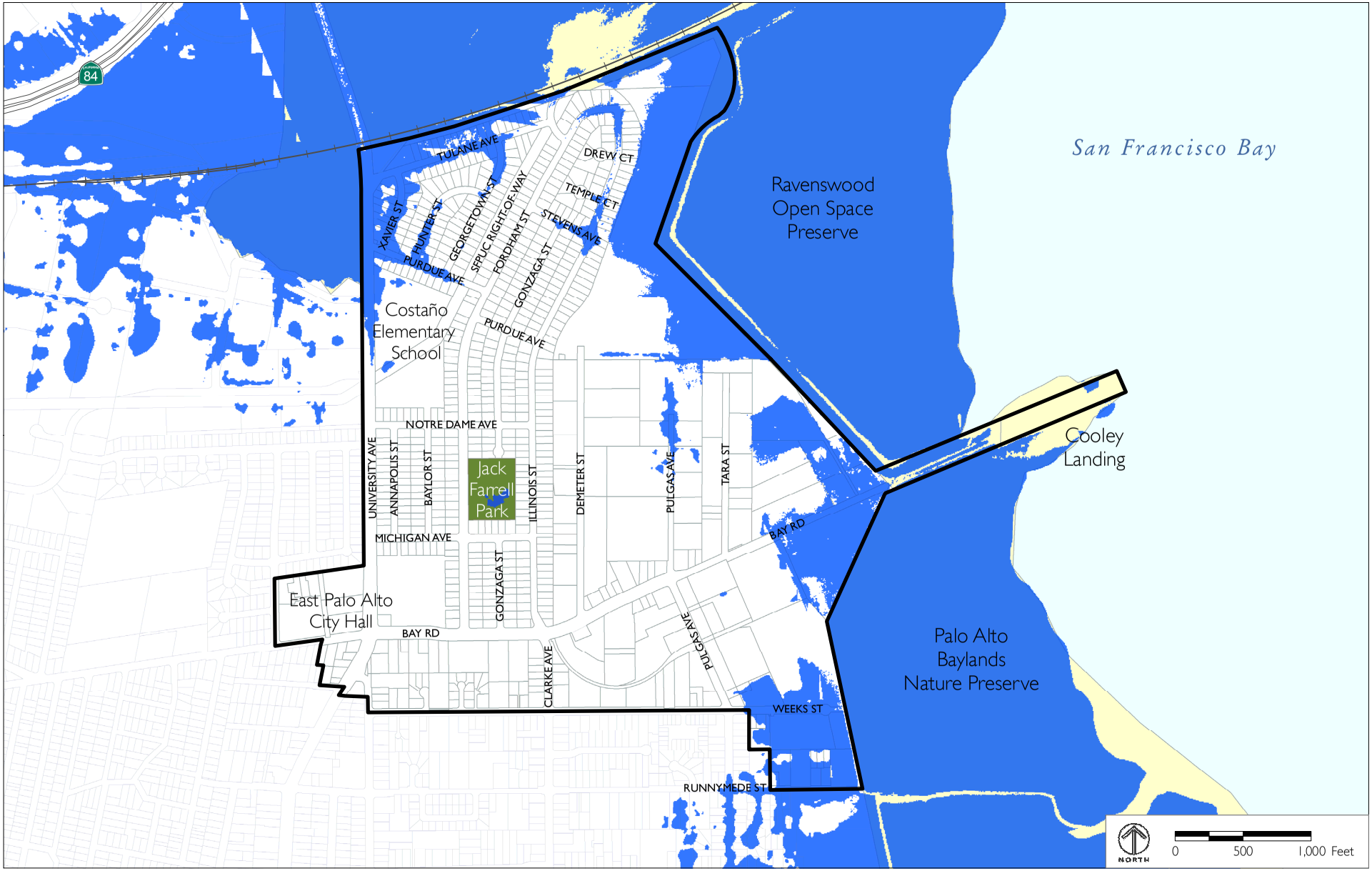
d. Groundwater

There is currently one groundwater supply well at Gloria Way and Bay Road which is around 700 feet west of the southwestern corner of the Specific Plan area.[30] The well had the capacity to produce 350 gallons per minute. Installed in 1981, the well was used for potable water until it was taken out of service

[28] http://cascade.wr.usgs.gov/data/Task2b-SFBay/index.shtm. This is a presentation by Noah Knowles with graphic representations of the Bay/Estuary hydrologic system and sea level rise in the Bay.

[29] GIS data source for Figures 4.9-4 and 5 is Knowles, Noah, 2010. *Potential Inundation due to Rising Sea Levels in San Francisco Bay Region*.

[30] City of East Palo Alto, 2010. *Water System Master Plan.*



Source: Knowles, Noah. 2010. Potential Inundation Due to Rising Sea Levels in the San Francisco Bay Region. San Francisco Estuary and Watershed Science, 8:1. Available at http://escholarship.org/uc/search?entity=jmie_sfews;volume=8;issue=1. Data from websi

Plan Area — Railroad

Baylands — 20 inch Sea Level Rise by 2050

FIGURE 4.9-3

20 INCH SEA LEVEL RISE SCENARIO BY 2050

in 1989 due to odor complaints (although samples passed the California Department of Public Health State drinking water standards at the time). The water from this well has since only been used for non-potable purposes such as street cleaning, dust-control, and sewer-line flushing.

A groundwater well at Cooley Landing could produce non-potable water but is not currently in use. It would be used for irrigation in the redevelopment of Cooley Landing as a community park.[31]

e. Tsunamis and Seiches

According to maps produced by the Association of Bay Area Governments (ABAG),[32] the zone of possible tsunami inundation extends over the Ravenswood Open Space Preserve and Palo Alto Baylands, and very slightly inland over the Specific Plan Area.

f. Dam Inundation

According to ABAG maps, the area is not in a mapped Dam Failure Inundation Area.[33]

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[31] City of East Palo Alto, 2010. *Initial Study Cooley Landing.*

[32] California Emergency Management Agency, 2009. Tsunami Inundation Map for Emergency Planning. Redwood Point Quadrangle/Palo Alto Quadrangle. Downloaded from:

http://www.conservation.ca.gov/cgs/geologic_hazards/Tsunami/Inundation_Maps/SanMateo/Documents/Tsunami_Inundation_RedwoodPointPaloAlto_Quads_SanMateo.pdf

[33] ABAG Geographical Information Systems – Dam Failure Inundation Area. Map. March 2007. Available at http://www.abag.ca.gov/bayarea/eqmaps/damfailure/damfail.html. Accessed July 28, 2011.

C. Standards of Significance

Hydrology and Water Quality impacts associated with the Plan would be considered significant if the Plan would:

a. Violate any water quality standards or waste discharge requirements.

b. 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).

c. 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.

d. 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.

e. 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.

f. Otherwise substantially degrade water quality.

g. 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.

h. Place within a 100-year flood hazard area structures which would impede or redirect flood flows.

i. 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.

j. Inundation by seiche, tsunami, or mudflow.

D. Impact Discussion

1. Project Impacts

a. Violate any water quality standards or waste discharge requirements. ***(LTS)***

Runoff from construction in the Specific Plan Area would cause water quality degradation if sediment, or oil and grease from construction equipment are washed into the storm sewer. Construction projects that disturb over one acre or more of land would be regulated under the NPDES Construction General Permit and must prepare a SWPPP. This will describe the BMPs such as grassy swales and bioretention facilities to be used during construction to prevent impairment of stormwater quality.

After construction, stormwater pollution will be controlled under Provision C.3 of the San Mateo Countywide NPDES Permit at sites where more than 10,000 new impermeable surface has been created. The same permit requires the City to ensure that streets are swept and that trash and other debris does not impact the storm sewer or federal or State waters.[34]

Industrial discharges to the storm sewer are regulated by the NPDES Industrial Storm Water permit system. Industrial facilities developed under the Specific Plan must prepare a SWPPP specifying BMPs to prevent pollution polluting stormwater discharges and they are monitored to prevent compliance. By following these existing regulations, the impacts from the Specific Plan would be ***less than significant.***

[34] California Regional Water Control Board San Francisco Bay Region, 2009. *Municipal Regional Stormwater NPDES Permit. Order R2-2009-0074. NPDES Permit No. CAS612008.* October 14, 2009.

b. 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. ***(LTS)***

The municipal water supply to the Plan Area is provided by the American Water Services Company from the San Francisco Public Utilities Commission (SFPUC) Hetch Hetchy water supply and distribution system. There is also one groundwater supply well at Gloria Way and Bay Road which is around 700 feet west of the southwestern corner of the Specific Plan area and used for non-potable purposes.

The 2010 Water System Master Plan (WSMP) studies present and future water demands for the City of East Palo Alto, taking into account proposed development of the Ravenswood Business District. [35] A Water Supply Assessment has also been produced for the Plan Area by the same consultant using the Land Use Map from the Specific Plan that is analyzed by this EIR. The reports have similar conclusions.[36] The WSMP recommends that the City withdraws groundwater from the existing well to use as a secondary supply during droughts. It notes that with the expected growth in the City, primarily as a result of growth in the Specific Plan Area, water demand would exceed the capacity of the SFPUC to provide water to the City of East Palo Alto.

To provide the necessary supply, the reports recommend pumping more water from the existing well, and treating the water to remove iron and manganese; and building a new well. The location of the new well has not been determined and might, or might not, be located in the Specific Plan Area. According to the Water System Master Plan, a supply of 1,000 gallons per minute would be needed from the aquifer. It recommends pumping of the

[35] City of East Palo Alto, 2010. *Water System Master Plan*. Public Draft. Adopted June, 2011. Prepared by Integrated Resource Management.

[36] City of East Palo Alto, 2011. *Water Supply Assessment. Ravenswood/4 Corners Transit-Oriented Development Specific Plan*. Prepared by Integrated Resource Management.

existing well at its maximum capacity of 350 gpm on a continual basis, and installation of another well for an overall withdrawal of 1,000 gallons per minute.

Increasing the water supply by groundwater pumping is not included in the project description for this EIR. **Specific Plan Policy UTIL-2.2** states that before individual development projects are approved in the Study Area, the developer must demonstrate verifiable, enforceable proof that either they have secured new water supplies to serve the new development or that the proposed development will create no net increase in total water demand in East Palo Alto. It also requires that that environmental review is carried out for augmentations to the supply from additional groundwater pumping in the Specific Plan area and within a quarter mile radius. Issues of water supply are discussed more extensively in Section 4.15, Utilities and Service Systems.

Aquifer recharge will be affected by the Specific Plan development. Approximately 59 acres of the 350-acre Specific Plan Area consists of vacant lots, most of which are unpaved areas of groundwater recharge, located in the east of the area. Provision C.3. of the San Francisco Bay Region NPDES permit requires each new development or redevelopment creating over 10,000 square feet of impermeable space to capture 100 percent of the drainage water.[37] As of December 1, 2011, certain types of land uses, including auto service facilities, gas stations, restaurants, and uncovered parking lots, over 5,000 square feet are also subject to the Municipal Regional Permit C.3 requirements.[38] However, under current permit conditions, after initial filtering, this water can then be sent off-site in the storm drain and it is lost to the aquifer.[39] For

[37] Conditions in this permit are being contested on a regional basis.

[38] Contra Costa Clean Water Program, October 20, 2010. *Stormwater C.3 Guidebook*. Online at: http://www.cccleanwater.org/Publications/Guidebook/Stormwater C3_Guidebook_5th_Edition.pdf, accessed on November 15, 2011.

[39] California Regional Water Control Board San Francisco Bay Region, 2009. *Municipal Regional Stormwater NPDES Permit. Order R2-2009-0074. NPDES Permit No. CAS612008.* October 14, 2009.

projects with applications prior to December 1, 2011, water must be treated on-site unless this is determined to be infeasible. Treatment on-site includes re-use, infiltration, or evapotranspiration (i.e. landscaping). Some re-use options, such as low-flow toilets, result in the water going to the sanitary sewer not recharging the aquifer.

A substantial increase in the impermeable surface area, preventing groundwater penetration and subsurface outflow to the Bay could influence the salinity in Ravenswood Open Space and the Palo Alto Baylands Nature Preserve with consequences for the biological resources. However, **Specific Plan Policy LU-9.1** requires new development to minimize the area of impervious surfaces connected to the storm sewer system and thereby maximize the amount of area available for groundwater recharge.

With this policy in place, the impact from increasing impermeable surface and reducing the area of groundwater recharge would be ***less than significant.***

c. 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.

There is little topographic relief over the Plan area and implementation of the Specific Plan development would not greatly change this. However, the large number and size of new developments, each with its own drainage system, that are planned for the Specific Plan area could cause flooding. See response to d. below.

d. 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. ***(LTS)***

i. Creation of New Impermeable Surface and Expansion of Storm Drainage

There are numerous large vacant lots in the 350-acre Specific Plan area, with a combined area of approximately 59 acres, or 17 percent of the total. Most of this land is unpaved and permeable. A small percentage of that area would

probably remain as permeable green space after construction, depending on the land use. However, the loop road would account for an additional and unknown acreage that would be converted from permeable to impermeable land as a consequence of the Specific Plan.

The Plan area has inadequate drainage infrastructure and regularly floods during rain events. A report covering the infrastructure needed for the development was prepared for the study area and is summarized in the project description of the Specific Plan and Chapter 3 of this Draft EIR.[40] The report author, Wilsey Ham, has confirmed that the land uses proposed in the Specific Plan could be served by the infrastructure improvements recommended in the report, with the exception of any changes to roadway capacity.[41]

Specific Plan Policy UTIL-3.1 ensures that the storm sewer system described in the DEPLAN, or one that is functionally similar, is built as development occurs. This describes a storm sewer system for the southern half of the Specific Plan Area with stormwater capacity for peak rain events adequate for the degree of development proposed under the Specific Plan.

The Wilsey Ham report does not address upgrades to the storm drain system in the residential University Village neighborhood, which is already subject to flooding. The area north of the Plan Area, from a line that runs along approximately east-west along the southern boundary of 391 Demeter Street, drains naturally to the north and is served by a different Sanitary District. Although flooding of the existing development does not represent a new impact from implementation of the Specific Plan, placing new development on the 391 Demeter Street Property in the path of floods would be a new impact. **Specific Plan Policy UTIL-3.2** ensures that a storm sewer system for the northern part of the Specific Plan Area will be designed to provide adequate

[40] Wilsey Ham, 2008. *Draft Engineering Plan (DEPLAN) for the Ravenswood Business District (RBD)*. October 31, 2008. See also Appendix H of that document. *Basis of Design*.

[41] Email from Sean Charpentier to DC&E, January 27, 2011.

capacity for peak rain events for the 391 Demeter Street Property and the University Village neighborhood, and maintain the functionality of existing stormwater infrastructure. This system should also include construction to protect the new development from flooding due to the existing inadequate storm drainage system in the residential areas to the west. This issue of storm drainage is discussed more extensively in Section 4.15 Utilities & Service Systems.

ii. Subsidence and Raising of Land

Extensive loading of Bayside land with numerous tall buildings, could lead to compaction. This effect is also described in Section 4.6 Geology & Soils, but is relevant here in that it would also influence flooding. Although placement of appropriate fill could raise the level of the land about the flood plain, this action removes subsurface capacity to absorb and accommodate flood waters and could cause revision of the location 100-year flood hazard zone.

Specific Plan Policy LU-9.2 would ensure that each project complies with Chapter 15.52 of the East Palo Alto Municipal Code. This ensures that at the time a project is proposed in the Plan Area each proposed new structure in the 100-year flood plain as identified in the current Flood Insurance Rate Map (FIRM) is elevated so that the bottom of the lowest floor is one foot above the base flood elevation (1 BFE) for residential structures, flood-proofed to 1 BFE for non-residential structures, or a Variance is granted pursuant to the procedures outlines in Section 15.52080 (a) to (k). The policy and section of the Municipal Code minimize flood risks to each new development.

Specific Plan Policy LU-9.3 ensures that a geotechnical report calculating the building load and placement of fill is required for each development. Environmental review of this report would include an assessment of flood risks to the building itself and the impacts on neighboring structures from displacement of flood waters. The report would also consider the cumulative flood risks to other structures from the building in addition to other known, planned, and reasonably foreseeable development.

Implementation of these policies would ensure that the impact is ***less than significant.***

e. Creation or Contribution of Runoff Water or Pollution in Excess of Storm Drainage System Capacity. ***(LTS)***

San Mateo County's handbook C.3 Stormwater Technical Guidance, Version 2 was designed to help developers, builders, and project sponsors include post-construction stormwater controls in their projects, in order to meet local municipal requirements that reduce the long term impacts of development on stormwater quality and creek channels. However, given the high groundwater table within the Plan Area, infiltration of stormwater to meet SMCSPPP requirements may not be feasible. There is an existing problem with drainage across the Plan Area and floods occur as a result. See discussion under d. above. There would be ***no additional impacts.***

f. Otherwise substantially degrade water quality. ***(LTS)***

Impacts to water quality have been described under a. and b. above. Additional pumping from the existing groundwater well, or from a new well is not included in the Plan. There would therefore be ***no additional impacts*** from implementation of the Plan.

g. 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. ***(LTS)***

Flood hazard areas designated by FEMA, overlain on the Specific Plan are shown on Figure 4.9-2. Much of the eastern and northern part of the Plan area lies within the current 100-year flood hazard area. In areas inside this line notated as Zone AE, the base flood elevation has been determined as 8 feet, which means that areas with an elevation of less than 8 feet would be expected to be inundated in a flood once every one hundred years, on average. As shown on Figure 4.9-2, several areas would be within the current 100-year FEMA flood plain. These would be:

- Industrial areas: south of Bay Road and north of Weeks Street; south of Weeks Street (designated light industrial); north of Bay Road in the

northern part of the area between Demeter Street and Tara Street; and the industrial with office in the triangular area east of Ilinois Street.

- Office areas: south of Bay Road in the east of the Plan Area; north of Bay Road in the east of the Plan Area.
- Mixed use areas on Bay Road, in the east of the area.
- Residential use area south of Weeks Street in the far south of the area.

In addition, the loop road would largely be in the current 100-year flood plain. Note that it is likely that the FEMA-designated 100-year flood plain outline would be revised following this development.

Chapter 15.52 of the East Palo Alto Municipal Code requires all new construction and substantial improvement of any structure to ensure that the lowest floor, including basement, is elevated 1 foot above base flood elevation. Non-residential structures are subject to less stringent conditions so that that the floors below the floodplain are water tight and resistant to floods. A Development Permit is required before construction in an area of special flood hazards that shows the elevation of the building and the level to which a non-residential structure will be flood-proofed. An appointed "Floodplain Administrator" will grant or deny the permit. The Floodplain Administrator is tasked with ensuring that: "The proposed development does not adversely affect the carrying capacity of areas where base flood elevations have been determined but a floodway has not been designated." It further explains that adversely affects means: "that the cumulative effect of the proposed development when combined with all other existing and anticipated development will increase the water surface elevation of the base flood more than one foot at any point."

Global climate change is expected to result in sea level rise that would affect the Plan area and enlarge the zone subject to flooding and increase the chance of flooding within the existing 100-year boundary, unless the flood defense system is increased in extent and strengthened.

BCDC has adopted a series of findings and policies as revisions to its planning document the *Bay Plan* to include the effects of Climate Change.[42,43] BCDC recommends that when planning shoreline areas or designing larger shoreline projects, a risk assessment should be prepared by a qualified engineer and should be based on the estimated 100-year flood elevation that takes into account the best estimates of future sea level rise and current flood protection and planned flood protection that will be funded and constructed when needed to provide protection for the proposed project or shoreline area. A range of sea level rise projections for mid-century and end of century based on the best scientific data available should be used in the risk assessment. Inundation maps used for the risk assessment should be prepared under the direction of a qualified engineer. The risk assessment should identify all types of potential flooding, degrees of uncertainty, consequences of defense failure, and risks to existing habitat from proposed flood protection devices.

Specific Plan Policy LU-9.2 would ensure that each project complies with Chapter 15.52 of the East Palo Alto Municipal Code. This ensures that at the time a project is proposed in the Plan Area each proposed new structure in the 100-year flood plain as identified in the Flood Insurance Rate Map (FIRM) is elevated so that the bottom of the lowest floor is one foot above the base flood elevation (1 BFE) for residential structures, flood-proofed to 1 BFE for non-residential structures, or a Variance is granted pursuant to the procedures outlines in Section 15.52080 (a) to (k).

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[42] BCDC, 2011. *Staff Report, Revised Preliminary Recommendation and Environmental Assessment for Proposed Bay Plan Amendment No. 1-08 Concerning Climate Change*. (For Commission consideration on September 1, 2011.)

[43] BCDC, 2011. Resolution No. 11-08. Adoption of Bay Plan Amendment No. 1-08 Adding New Climate Change Findings and Policies to the Bay Plan; And Revising the Bay Plan Tidal Marsh and Tidal Flats; Safety of Fills; Protection of the Shoreline; and Public Access Findings and Policies. Adopted October 6, 2011. Online at: http://www.bcdc.ca.gov/proposed_bay_plan/10-01Resolution.pdf

Specific Plan Policy LU-9.3 ensures that a geotechnical report calculating the building load and placement of fill is required for each development. Environmental review of this report would include an assessment of flood risks to the building itself and the impacts on neighboring structures from displacement of flood waters. The report should consider the cumulative flood risks to other structures from the building in addition to other known, planned, and reasonably foreseeable development.

Implementation of these policies would ensure that the impact from placing housing in the 100-year flood hazard zone would be ***less than significant.***

h. Place within a 100-year flood hazard area structures which would impede or redirect flood flows. ***(LTS)***

As described above under g. and in Figure 4.9-2, numerous structures would be placed within the 100-year flood hazard area as a consequence of the Specific Plan. These include office buildings, industrial facilities, and mixed use development. This development would require associated infrastructure, including road improvements. The loop road that provides access to the core of the industrial and office area along Bay Road is a key feature of the Specific Plan design. Detailed construction plans for the road are not available at this time, and it is possible that it would be built on a levee, above the 100-year flood hazard level. If built on a level, it could protect additional areas from flooding but would also redirect flood waters and create hazards in other areas.

The placement of structures including future buildings and the proposed loop road could impede or redirect flood flows. However several Specific Plan policies would minimize these effects and reduce the risks. **Specific Plan Policy LU-9.2** would ensure that each project complies with Chapter 15.52 of the East Palo Alto Municipal Code. This ensures that at the time a project is proposed in the Plan Area each proposed new structure in the 100-year flood plain as identified in the Flood Insurance Rate Map (FIRM) is elevated so that the bottom of the lowest floor is one foot above the base flood elevation (1 BFE) for residential structures, flood-proofed to 1 BFE for non-residential

structures, or a Variance is granted pursuant to the procedures outlines in Section 15.52080 (a) to (k).

Specific Plan Policy LU-9.3 ensures that a geotechnical report calculating the building load and placement of fill is required for each development. Environmental review of this report would include an assessment of flood risks to the building itself and the impacts on neighboring structures from displacement of flood waters. The report should consider the cumulative flood risks to other structures from the building in addition to other known, planned, and reasonably foreseeable development.

Implementation of these policies would ensure that the impact from building structures in the 100-year flood zone that would impede or redirect flows, is ***less than significant.***

i. 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. ***(LTS)***

See responses to g. and h. above regarding impacts from risk to people, existing structures, and new structures, given the existing 100-year flood hazard zone position, and the potential for sea level rise. The Specific Plan area is also not within a mapped dam inundation area.[44] There would be ***no additional impacts.***

j. Inundation by seiche, tsunami, or mudflow. ***(LTS)***

The Plan Area is mostly just outside the zone shown by the Association of Bay Area Governments as at risk of tsunamis, although these areas are not known precisely. Given the buffer zone provided by the adjacent Ravenswood Open Space and Palo Alto Baylands Nature Preserve, it is unlikely that tsunamis would cause damage to the Plan Area. In addition, mudflows are

[44] ABAG Geographical Information Systems – Dam Failure Inundation Area. Map. March 2007. Available at http://www.abag.ca.gov/bayarea/eqmaps/damfailure/damfail.html. Accessed July 28, 2011.

not likely given the flat topography. There would be a ***less-than-significant*** impact.

2. Cumulative Impacts

This cumulative analysis considers the Plan in the context of development in the entire incorporated area of East Palo Alto, including the Plan Area, and the neighboring cities of Menlo Park and Palo Alto.

Development of vacant lands close to the Bay in an area within the 100-year flood hazard zone should be considered in conjunction with development of other Bayside areas. Mitigation measures recommended for the project have reduced the effects of flooding to a less-than-significant level. Each of the individual projects in the Specific Plan area would require environmental review and a flood study that includes a section requiring analysis of cumulative impacts. As these issues would be dealt with on a project-specific level, the cumulative impact would be ***less than significant.***

4.10 LAND USE AND PLANNING

This section describes the existing land uses in the Ravenswood/4 Corners Transit-Oriented Development Specific Plan (Specific Plan) area and evaluates the potential land use and planning impacts associated with the Specific Plan. A summary of the relevant regulatory setting and existing conditions is followed by a discussion of Plan-specific and cumulative impacts.

A. Regulatory Framework

This section describes the regulatory setting as it relates to land uses in the Plan Area.

1. Federal Agencies and Regulations

a. Federal Emergency Management Agency (FEMA)

The Federal Emergency Management Agency (FEMA) issues Flood Insurance Rate Maps (FIRMs) that identify which land areas are subject to flooding. More information on FEMA is provided in Section 4.9 Hydrology and Water Quality.

2. Regional Agencies and Regulations

a. Association of Bay Area Governments, Bay Trail Plan

The Bay Trail Plan proposes development of a continuous regional hiking and bicycling trail around the perimeter of the San Francisco and San Pablo Bays. Within the Plan Area, there are two gaps in the Bay Trail: an unimproved section between Weeks Street and Bay Road and a planned section between University Avenue and the northern boundary of the Ravenswood Open Space Preserve.[1]

b. Palo Alto Airport Comprehensive Land Use Plan (CLUP)

The Palo Alto Airport Comprehensive Land Use Plan (CLUP) was adopted by the Santa Clara County Airport Land Use Commission in November, 2008. However, there is no land use plan that is applicable to San Mateo Co-

[1] San Francisco Bay Trail Website, http://baytrail.abag.ca.gov/maps.html, accessed June 21, 2011.

unty and the Palo Alto Airport CLUP does not have jurisdiction over the Specific Plan area.[2]

The purpose of the CLUP is to protect the safety of the nearby residents and to ensure that the surrounding land uses are compatible with the operation of the airport. Section 21675 of the California Public Utilities Code requires all Airport Land Use Commissions to prepare a CLUP for the area surrounding a public airport.

The CLUP defines several safety zones around the airport. The outermost Airport Safety Zone, the Traffic Pattern Zone (TPZ), intersects a portion of the southeastern boundary of the Plan Area, as shown in Figure 4.8-1. Land uses prohibited within the TPZ include amphitheaters, sports stadiums, and other land uses that encourage a very high concentration of people. Schools, hospitals, nursing homes, and other land uses where the majority of occupants are children are discouraged within the TPZ. In addition, the Traffic Pattern Zone requires that 10 percent of the gross area every half mile of the zone be set aside for open space. The open space requirement is to be established at the General Plan level for sites that can accommodate open space.

c. San Francisco Bay Area Conservation and Development Commission

The California Coastal Commission carries out its mandate locally through the San Francisco Bay Area Conservation and Development Commission (BCDC). BCDC's jurisdiction on San Francisco Bay includes all sloughs, marshlands between mean high tide and five feet above mean sea level, tidelands, submerged lands, and land within 100 feet of the Bay shoreline. The precise boundary is determined by BCDC on request.[3] As a permitting au-

[2] Letter from City/County Association of Governments of San Mateo County to Sean Charpentier, June 2, 2011.

[3] BCDC jurisdiction over the Plan Area as shown in Figure 3-4 is likely to include (from north to south): some of the northern part of the loop road, a portion of the Industrial/Office flex on the 391 Demeter Street Property, the northern part of the General Industrial and Office Flex designations, and an outside band around 100 feet in width running through the Office, General Industrial, Industrial Buffer Specific

thority along the San Francisco Bay shoreline, BCDC is responsible for granting or denying permits for any proposed fill, extraction of materials or change in use of any water, land or structure within BCDC's jurisdiction.

Projects approved by BCDC must be consistent with the McAteer-Petris Act and its master planning document, the *Bay Plan*.[4] The McAteer-Petris Act provides for fill in the Bay for water-oriented uses and requires that proposed projects include maximum feasible public access consistent with the project to the Bay and its shoreline. The Bay Plan includes priority land use designations for certain areas around the Bay to ensure that sufficient lands around the Bay are reserved for important water-oriented uses such as ports, water-related industry, parks, and wildlife areas. Although the Plan Area itself is not within a priority use area under the jurisdiction of BCDC, the Don Edwards National Wildlife Refuge priority use area, adjacent to the Plan Area and north of Highway 84, is in such an area.

Relevant policies from the *Bay Plan* are listed in Table 4.10-1. In May 2011, BCDC published a revised draft of proposed amendments to the *Bay Plan*. This received considerable public review and environmental review, and was adopted on October 6, 2011.[5,6]

Plan development. Water pipes north of Tara Road, the water tank, and at the easternmost points on Bay Road and Weeks Street; the storm drainage channel excavations to the O'Connor pump station; and the sanitary sewer upgrades inside the levee are also likely to be in BCDC jurisdiction.

[4] BCDC, 2011. *San Francisco Bay Plan.* Most up-to-date version available online at: http://www.bcdc.ca.gov/pdf/planning/plans/bayplan/bayplan.pdf. Accessed September 15, 2011.

[5] BCDC, 2011. *Staff Report, Revised Preliminary Recommendation and Environmental Assessment for Proposed Bay Plan Amendment No. 1-08 Concerning Climate Change*. (For Commission consideration on September 1, 2011.)

[6] BCDC, 2011. Resolution No. 11-08. Adoption of Bay Plan Amendment No. 1-08 Adding New Climate Change Findings and Policies to the Bay Plan; And Revising the Bay Plan Tidal Marsh and Tidal Flats; Safety of Fills; Protection of the Shoreline; and Public Access Findings and Policies. Adopted October 6, 2011. Online at: http://www.bcdc.ca.gov/proposed_bay_plan/10-01Resolution.pdf.

TABLE 4.10-1 ***BCDC BAY PLAN FINDINGS AND POLICIES RELEVANT TO LAND USE AND PLANNING***

#	Policy	Consistency with Specific Plan
Part III – The Bay as a Resource Tidal Marshes and Tidal Flats		
1	Tidal marshes and tidal flats should be conserved to the fullest possible extent. Filling, diking, and dredging projects that would substantially harm tidal marshes or tidal flats should be allowed only for purposes that provide substantial public benefits and only if there is no feasible alternative.	The Specific Plan could involve minor filling of wetland in construction of the loop road and to install underground utilities. This would be analyzed under project-specific CEQA review including for consistency with this policy.
2	Any proposed fill, diking, or dredging project should be thoroughly evaluated to determine the effect of the project on tidal marshes and tidal flats, and designed to minimize, and if feasible, avoid any harmful effects.	Projects, such as the loop road, involving wetland filling would be analyzed under project-specific CEQA review including for consistency with this policy.
3	Projects should be sited and designed to avoid, or if avoidance is infeasible, minimize adverse impacts on any transition zone present between tidal and upland habitats. Where a transition zone does not exist and it is feasible and ecologically appropriate, shoreline projects should be designed to provide a transition zone between tidal and upland habitats.	It is unlikely that any transitional zone habitat would be affected by the project as existing development either extends to the tidal marsh edge, or there is already fill on the site. The Specific Plan would be consistent with this policy.
4	Where and whenever possible, former tidal marshes and tidal flats that have been diked from the Bay should be restored to tidal action in order to replace lost historic wetlands or should be managed to provide important Bay habitat functions, such as resting, foraging and breeding habitat for fish, other aquatic organisms and wildlife. As recommended in the Baylands Ecosystem Habitat Goals report, around 65,000 acres of areas diked from the Bay should be restored to tidal action. Further, local government land use	There are no plans to relocate the levee that in the Ravenswood Open Space area and provides some flood defense. The Specific Plan is not inconsistent with this policy. Areas of probable wetlands are designated as Resource Management or Community Open Space, under the Specific Plan.

TABLE 4.10-1 ***BCDC BAY PLAN FINDINGS AND POLICIES RELEVANT TO LAND USE AND PLANNING*** (CONTINUED)

#	Policy	Consistency with Specific Plan
	and tax policies should not lead to the conversion of these restorable lands to uses that would preclude or deter potential restoration. The public should make every effort to acquire these lands from willing sellers for the purpose of restoration.	
Part IV - Development of the Bay and Shoreline Managed Wetlands		
1	As long as is economically feasible, the wetlands should be maintained in their present use. Property tax policy should assure that rising property taxes do not force conversion of the wetlands to urban development.	Wetlands would be maintained in their present use with minor exceptions necessary to improve the traffic circulation to install underground utilities. The Plan is generally consistent with this policy.
2	If, despite these provisions, the owner of any managed wetland desires to withdraw any of the marshes from their present uses, the public should make every effort to buy these lands, breach the existing dikes, and reopen these areas to the Bay. This type of purchase should have a high priority for any public funds available, because opening managed wetlands to the Bay represents man's last substantial opportunity to enlarge the Bay rather than shrink it.	Purchase of any wetland areas is outside the scope of the project.
Safety of Fills		
1	The Commission has appointed the Engineering Criteria Review Board consisting of geologists, civil engineers specializing in geotechnical and coastal engineering, structural engineers, and architects competent to and adequately empowered to: (a) establish and revise safety criteria for Bay fills and structures thereon; (b) review all except minor projects for the adequacy of their specific safety provisions, and make recommendations concerning	Projects within BCDC jurisdiction resulting from development under the Specific Plan would require a permit. To obtain the permit, the fill would review the nature of the fill used. The Specific Plan would not be inconsistent with this policy.

TABLE 4.10-1 ***BCDC BAY PLAN FINDINGS AND POLICIES RELEVANT TO LAND USE AND PLANNING*** (CONTINUED)

#	Policy	Consistency with Specific Plan
	these provisions; (c) prescribe an inspection system to assure placement and maintenance of fill according to approved designs; ...(f) gather, and make available performance data developed from specific projects. These activities would complement the functions of local building departments and local planning departments, none of which are presently staffed to provide soils inspections.	
2	Even if the Bay Plan indicates that a fill may be permissible, no fill or building should be constructed if hazards cannot be overcome adequately for the intended use in accordance with the criteria prescribed by the Engineering Criteria Review Board.	Projects within BCDC jurisdiction resulting from development under the Specific Plan would require a permit. To obtain the permit, BCDC would review the nature of the fill used. The Specific Plan would not be inconsistent with this policy.
4	To prevent damage from flooding, structures on fill or near the shoreline should have adequate flood protection including consideration of future relative sea level rise as determined by competent engineers. As a general rule, structures on fill or near the shoreline should be above the wave runup level or sufficiently set back from the edge of the shore so that the structure is not subject to dynamic wave energy. In all cases, the bottom floor level of structures should be above the highest estimated tide elevation. Exceptions to the general height rule may be made for developments specifically designed to tolerate periodic flooding.	As discussed in Section 4.9, Hydrology and Water Quality, no development is planned in zones affected by wave runup. All structures would be built on fill so that they are elevated from the current 100-year flood hazard zone as determined by FEMA. FEMA is continually updating its FIRM maps and these would factor in the effects of sea level rise. As each development under the Specific Plan would require a flood study, the adequacy of flood defenses would also be considered during project-level review. The Specific Plan would be consistent with this policy.
5	To minimize the potential hazard to Bay fill projects and bayside development from subsidence, all proposed developments should be sufficiently high above the highest estimated tide level for the expected life of the project or sufficiently protected by levees to	All structures would be elevated from the current 100-year flood hazard zone as determined by FEMA. FEMA is continually updating its FIRM maps and these would factor in the effects of sea level rise. As each development under the Specific Plan would require

TABLE 4.10-1 ***BCDC BAY PLAN FINDINGS AND POLICIES RELEVANT TO LAND USE AND PLANNING*** (CONTINUED)

#	Policy	Consistency with Specific Plan
	allow for the effects of additional subsidence for the expected life of the project, utilizing the latest information available from the U.S. Geological Survey and the National Ocean Service. Rights-of-way for levees protecting inland areas from tidal flooding should be sufficiently wide on the upland side to allow for future levee widening to support additional levee height so that no fill for levee widening is placed in the Bay.	a flood study, the adequacy of flood defenses would also be considered during project-level review. The Specific Plan would be consistent with this policy.
6	Local governments and special districts with responsibilities for flood protection should assure that their requirements and criteria reflect future relative sea level rise and should assure that new structures and uses attracting people are not approved in flood prone areas or in areas that will become flood prone in the future, and that structures and uses that are approvable will be built at stable elevations to assure long-term protection from flood hazards.	All structures would be elevated from the current 100-year flood hazard zone as determined by FEMA. FEMA is continually updating its FIRM maps and these would factor in the effects of sea level rise. As each development under the Specific Plan would require a flood study, the adequacy of flood defenses would also be considered during project-level review. The Specific Plan would be consistent with this policy.
Part IV – Development of the Bay and Shoreline Public Access		
1	A proposed fill project should increase public access to the Bay to the maximum extent feasible, in accordance with the policies for Public Access to the Bay.	Minor amounts of fill may be required for development under the Specific Plan within BCDC jurisdiction, notably for construction of the loop road. Consistency with this policy would be evaluated for the loop road project.
2	In addition to the public access to the Bay provided by waterfront parks, beaches, marinas, and fishing piers, maximum feasible access to and along the waterfront and on any permitted fills should be provided in and through every new development in the Bay or on the shoreline, whether it be for housing, industry, port, airport, public facility, wildlife area, or other use,	Public access requirements for bayfront projects within BCDC jurisdiction would be assessed for each development separately during the permitting phases. The Specific Plan is not inconsistent with this policy.

TABLE 4.10-1 ***BCDC BAY PLAN FINDINGS AND POLICIES RELEVANT TO LAND USE AND PLANNING*** (CONTINUED)

#	Policy	Consistency with Specific Plan
	except in cases where public access would be clearly inconsistent with the project because of public safety considerations or significant use conflicts, including unavoidable, significant adverse effects on Bay natural resources. In these cases, in lieu access at another location preferably near the project should be provided.	
3	Public access to some natural areas should be provided to permit study and enjoyment of these areas. However, some wildlife are sensitive to human intrusion. For this reason, projects in such areas should be carefully evaluated in consultation with appropriate agencies to determine the appropriate location and type of access to be provided.	Public access requirements for bayfront projects within BCDC jurisdiction would be assessed for each development separately during the permitting phases. The Specific Plan is not inconsistent with this policy. In addition, Public access is already allowed on the levee which is to the east of proposed new developments and serves as a section of the Bay Trail.
7	In some areas, a small amount of fill may be allowed if the fill is necessary and is the minimum absolutely required to develop the project in accordance with the Commission's public access requirements.	This would be determined at the project-specific level. The Specific Plan is not inconsistent with this policy.
8	Access to and along the waterfront should be provided by walkways, trails, or other appropriate means and connect to the nearest public thoroughfare where convenient parking or public transportation may be available. Diverse and interesting public access experiences should be provided which would encourage users to remain in the designated access areas to avoid or minimize potential adverse effects on wildlife and their habitat.	Design of public access to the waterfront would be determined at the project-specific level. The Specific Plan is not inconsistent with this policy.
9	Roads near the edge of the water should be designed as scenic parkways for slow-moving, principally recreational traffic. The roadway and right-of-way design should maintain and	The loop road, if built, would be next to the tidal marsh, not open water. However, there would be no impediments to the view. Shoreline access from this road is unlikely, but would

TABLE 4.10-1 ***BCDC BAY PLAN FINDINGS AND POLICIES RELEVANT TO LAND USE AND PLANNING*** (CONTINUED)

#	Policy	Consistency with Specific Plan
	enhance visual access for the traveler, discourage through traffic, and provide for safe, separated, and improved physical access to and along the shore. Public transit use and connections to the shoreline should be encouraged where appropriate.	be decided at the project-specific level. The Specific Plan is not inconsistent with this policy.
11	The Public Access Design Guidelines should be used as a guide to siting and designing public access consistent with a proposed project. The Design Review Board should advise the Commission regarding the adequacy of the public access proposed.	Each project within BCDC jurisdiction would be subject to design review as part of the permitting procedure. The Specific Plan is not inconsistent with this policy.
Part V – Development of the Bay and Shoreline Appearance, Design, and Scenic Views		
1	To enhance the visual quality of development around the Bay and to take maximum advantage of the attractive setting it provides, the shores of the Bay should be developed in accordance with the Public Access Design Guidelines.	Each project within BCDC jurisdiction would be subject to be required to conform to the Public Access Design Guidelines and this conformance would be reviewed as part of the permitting procedure. The Specific Plan is not inconsistent with this policy.
2	All bayfront development should be designed to enhance the pleasure of the user or viewer of the Bay. Maximum efforts should be made to provide, enhance, or preserve views of the Bay and shoreline, especially from public areas, from the Bay itself, and from the opposite shore. To this end, planning of waterfront development should include participation by professionals who are knowledgeable of the Commission's concerns, such as landscape architects, urban designers, or architects, working in conjunction with engineers and professionals in other fields.	Each project within BCDC jurisdiction would be subject to be required to conform to the Public Access Design Guidelines and this conformance would be reviewed as part of the permitting procedure. The Specific Plan is not inconsistent with this policy.

TABLE 4.10-1 ***BCDC BAY PLAN FINDINGS AND POLICIES RELEVANT TO LAND USE AND PLANNING*** (CONTINUED)

#	Policy	Consistency with Specific Plan
8	Shoreline developments should be built in clusters, leaving open area around them to permit more frequent views of the Bay. Developments along the shores of tributary waterways should be Bay-related and should be designed to preserve and enhance views along the waterway, so as to provide maximum visual contact with the Bay.	View corridors are described in the Specific Plan. The Specific Plan is not inconsistent with this policy.
13	Local governments should be encouraged to eliminate inappropriate shoreline uses and poor quality shoreline conditions by regulation and by public actions (including development financed wholly or partly by public funds). The Commission should assist in this regard to the maximum feasible extent by providing advice on Bay-related appearance and design issues, and by coordinating the activities of the various agencies that may be involved with projects affecting the Bay and its appearance.	The Specific Plan is designed to eliminate the use of bayside land for heavy industrial and develop these areas with offices that benefit from the bayfront location. The Specific Plan is consistent with this policy.

Source: BCDC, 2011. *San Francisco Bay Plan.* http://www.bcdc.ca.gov/pdf/planning/plans/bayplan/bayplan.pdf. Accessed September 15, 2011.

These amendments include revised findings and policies to adapt to the effects of sea level rise.

Several findings describe migration of the tidal marsh inland as a consequence of the sea level rise and the recommended adaptation. Finding o. in the new section on Climate Change states:

> *"Approaches for ensuring public safety in developed vulnerable shoreline areas through adaptive management strategies include but are not limited to: (1) protecting existing and planned appropriate infill development; (2) accommodat-*

ing flooding by building or renovating structures or infrastructure systems that are resilient or adaptable over time; (3) discouraging permanent new development when adaptive management strategies cannot protect public safety; (4) allowing only new uses that can be removed or phased out if adaptive management strategies are not available as inundation threats increase; and (5) over time and where feasible and appropriate, removing existing development where public safety cannot otherwise be ensured..."

The following policy on sea level rise is pertinent to this Specific Plan:

When planning shoreline areas or designing larger shoreline projects, a risk assessment should be prepared by a qualified engineer and should be based on the estimated 100-year flood elevation that takes into account the best estimates of future sea level rise and current flood protection and planned flood protection that will be funded and constructed when needed to provide protection for the proposed project or shoreline area. A range of sea level rise projections for mid-century and end of century based on the best scientific data available should be used in the risk assessment. Inundation maps used for the risk assessment should be prepared under the direction of a qualified engineer. The risk assessment should identify all types of potential flooding, degrees of uncertainty, consequences of defense failure, and risks to existing habitat from proposed flood protection devices.

3. City Plans and Regulations

a. City of East Palo Alto General Plan

East Palo Alto's General Plan, adopted in 1999, is a long range plan that acts as the "constitution" for future development and conservation in East Palo Alto. As required by State law, the General Plan includes multiple "elements," or chapters, that address the following topics: Land Use, Housing, Circulation, Conservation, Open Space, Safety, and Noise. A city may also include additional elements in its General Plan as desired. East Palo Alto's General Plan includes one additional element, an Economic Development Element.

Of these elements, the Land Use and Housing Elements are the most relevant to future land uses in the Plan Area and are described below. Relevant policies of the City's General Plan are included in Table 4.10-2.

i. Land Use Element

The City's General Plan Land Use Element applies a land use designation to each parcel in the city. These land use designations specify what land uses may be established in the future, including the maximum development intensity of each use. Development intensities are specified in one of two ways: dwelling units per acre and floor-area ratio (FAR).

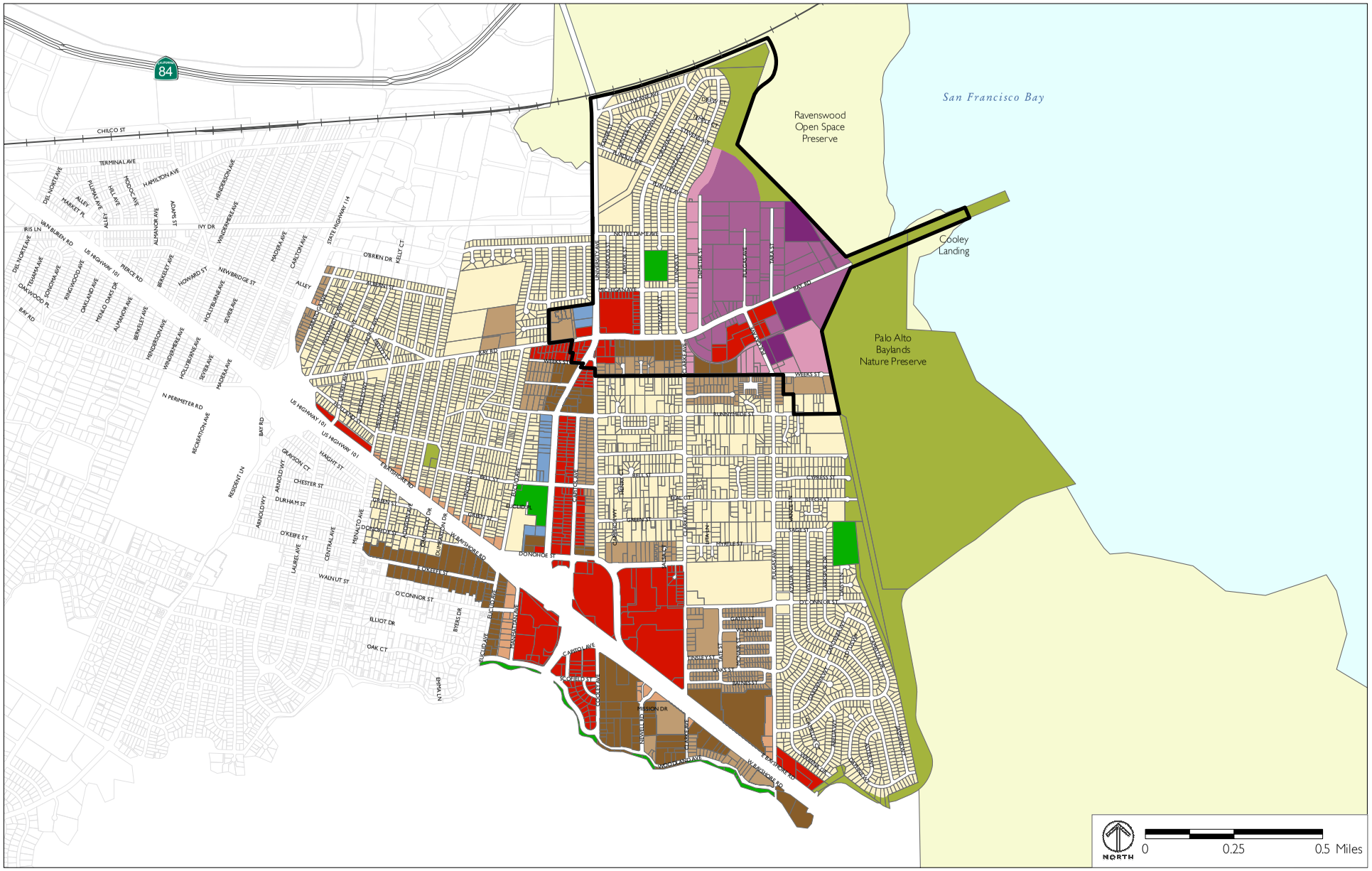
Table 4.10-3 shows the City's General Plan land use designations that make up the Plan Area, along with a summary of the land uses and built intensities that are allowed in each designation. Figure 4.10-1 shows how these land use designations have been applied in the Plan Area. It also shows potential housing sites identified in the City's General Plan Housing Element, which is described in the following section.

ii. Housing Element

The City of East Palo Alto adopted the Housing Element in June 2010, which was certified by the California Department of Housing and Community Development in May 2011. The Housing Element identifies a number of sites in East Palo Alto where new housing could be accommodated through 2014, as required by the State-mandated Regional Housing Need Allocation (RHNA) process.[7] As shown in Figure 4.10-2, these sites include several parcels at 2555 Pulgas Avenue. The Housing Element states that housing must be accommodated on these sites in order to provide opportunities for housing that is affordable to extremely-low-income, very-low-income, and low-income residents, in accordance with the City's RHNA obligations. The Housing Element requires these sites be rezoned to allow for residential or mixed-use development that provides at least 30 dwelling units per acre.[8] As of September

[7] City of East Palo Alto, 2010, *City of East Palo Alto Housing Element*, page 4-9.

[8] City of East Palo Alto, 2010, *City of East Palo Alto Housing Element*, page 4-13.

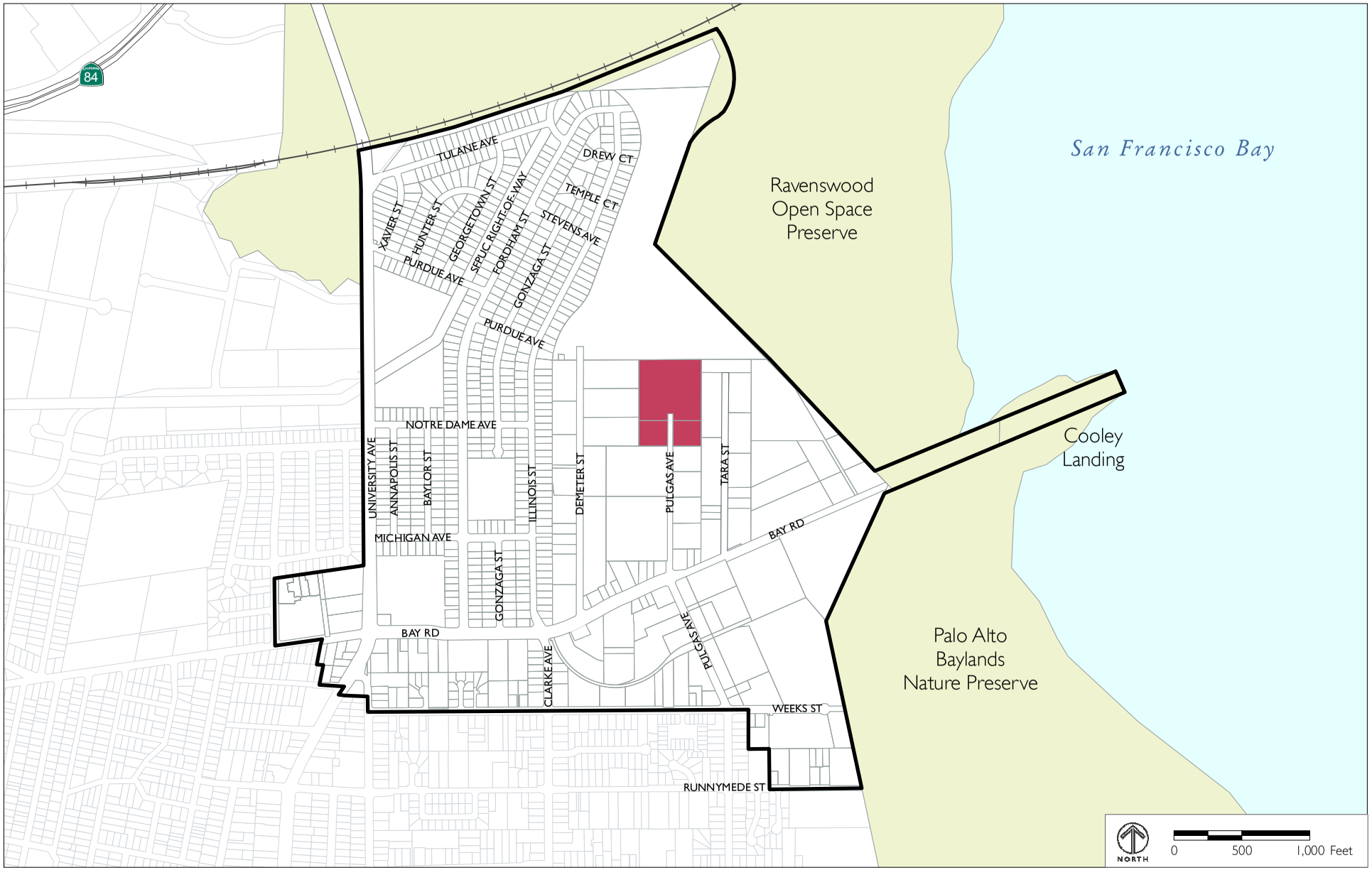


Source: City of East Palo Alto, 2009.

General Plan Land Use
- Low/Medium Density Residential
- Medium/High Density Residential
- High Density Residential
- General Commercial
- Neighborhood Commercial
- Office
- General Industrial
- Heavy Industrial
- Industrial Buffer
- Community Open Space Conservation
- Resource Management
- Plan Area
- Baylands
- Railroad

FIGURE 4.10-1

GENERAL PLAN LAND USE DESIGNATIONS



Source: City of East Palo Alto, 2009.

Railroad
Plan Area
Housing Element Opportunity Sites
Baylands

FIGURE 4.10-2

HOUSING ELEMENT OPPORTUNITY SITES WITHIN PLAN AREA

TABLE 4.10-2 ***GENERAL PLAN POLICIES RELEVANT TO LAND USE AND PLANNING***

Goal/Policy Number	Goal/Policy Content
Land Use Element	
Goal 1.0	*Develop a balanced land use pattern that meets community needs for residential, commercial, industrial, and public uses.*
Policy 1.2	Promote commercial and industrial development to improve the generation of sales tax and property tax increment revenues.
Policy 1.3	Promote mixed commercial and residential use projects to conserve land and provide additional housing opportunities and population to support commercial services and retail sales.
Policy 1.4	Provide areas within the community where public service and non-profit organizations can operate.
Economic Development Element	
Policy 1.1	Encourage development of commercial businesses which are neighborhood-based and provide jobs, goods, and services to residents within their neighborhoods.
Policy 1.2	Pursue commercial businesses which generate sales tax revenue by capturing both local and regional consumers.
Policy 2.1	Diversify the City's commercial and industrial base by targeting and soliciting firms in growth sectors such as environmental technology, high tech, bio-technology, research and development, and health care/health providers.
Goal 3.0	*Actively pursue land uses which generate employment at levels comparable to Countywide land-job productivity.*
Policy 3.2	Actively pursue targeted business and compatible industries for commercial and industrial development sites such as Gateway Center, Ravenswood Industrial, and University Circle areas.
Policy 3.3	Proactively purse and attract land uses which serve regional needs.

TABLE 4.10-2 ***GENERAL PLAN POLICIES RELEVANT TO LAND USE AND PLANNING*** (CONTINUED)

Goal/Policy Number	Goal/Policy Content
Housing Element	
Goal 1.0	*Sufficient numbers and varieties of housing units (houses, townhomes, condominiums, and apartments) needed to: meet the State's mandate to replace affordable units/bedrooms demolished due to Redevelopment Agency action; address the City's Regional Housing Needs Determination; and facilitate housing development for all incomes segments within East Palo Alto, including extremely low-, very low-, low-, moderate-, and above-moderate income housing.*
Policy 1.1	Work collaboratively with the development community to facilitate the development of a range of housing choices (by type, size, and price range) that meet the City's needs.
Goal 2.0	*Balanced development that links housing to jobs*
Policy 2.1	Promote the concept of smart growth whereby housing is concentrated around job centers and along transportation corridors in order to reduce traffic, improve air quality, conserve energy, and increase efficient land use.
Action 2.1	Develop a specific plan for the Ravenswood/4 Corners Transit Oriented Development Area to guide the conversion of the existing light and heavy industrial uses into higher density residential, commercial, and mixed-use uses that will support a future potential transit station.
Action 2.2	Evaluate development standards and identify rezoning opportunities along University Avenue's commercial nodes to increase mixed-use development along the corridor.
Policy 2.2	Encourage mixed-use and high-density residential development in the Ravenswood and University Corner/Bay Road areas to ensure that a minimum of 25 percent of these areas are devoted to residential uses.
Goal 3.0	*Available residential sites for the development of a range of housing types and prices.*
Policy 3.1	Ensure adequate residential sites are zoned at appropriate densities and available for development in order to accommodate the range of housing types and prices needed to meet the City's Regional Housing Needs Determination.

TABLE 4.10-2 ***GENERAL PLAN POLICIES RELEVANT TO LAND USE AND PLANNING*** (CONTINUED)

Goal/Policy Number	Goal/Policy Content
Action 3.2	Rezone the 4.71 acre parcel (APN: 063-121-020), the 0.92 acre parcel (APN: 063-121-210), and the 0.89 acre parcel (APN: 063-121-200) located at the north end of Pulgas Avenue to High Density Residential or General Commercial (mixed-use) and achieve a minimum density 30 dwelling units per acre. Rezoning will include a review of development standards to ensure the feasibility of development for low, very low-, and extremely low-income housing. The City will also ensure that at least 50 percent of the needed units are on sites designated for residential use only and will ensure the project review process remains ministerial. The Planning Commission may review the design merits of the project and may call for a project proponent to make design-related modifications but will not deliberate the project's merits or exercise judgment to reject or deny the "residential use" itself.
Action 3.5	Ensure that 965 Weeks (Olson Property) includes at least ten extremely low-income units, at least ten very-low income units, and that at least 5 percent of the units (3 units) are for low-income households. Per the requirements of the Low and Moderate Income Housing Set Aside Fund, the rest of the units may be priced for moderate-income households.

Source: East Palo Alto General Plan, 1999 and 2010 Housing Element.

2011, this rezoning had not occurred and the zoning remained General Industrial.

b. City of East Palo Alto Zoning Ordinance

East Palo Alto's Zoning Ordinance is part of the City's Municipal Code. It implements the City's General Plan by providing detailed requirements for the allowable land uses and development standards on each parcel. Development standards include requirements such as maximum building heights and minimum setbacks from lot lines. Similar to the General Plan's land use designations, the Zoning Ordinance includes zoning districts, which each have their own unique set of allowed uses and development standards.

TABLE 4.10-3 ***GENERAL PLAN LAND USE DESIGNATIONS***

Land Use Designation	Description
Residential	
Low/Medium Density Residential	Detached single-family dwellings. Allows up to 8 dwelling units per acre (du/acre).
Medium/High Density Residential	Single-family dwelling units and multi-family dwellings including duplexes, condominiums, townhomes, and apartments. Allows up to 17 du/acre.
High Density Residential	Single-family dwelling units and multi-family dwellings including duplexes, condominiums, townhomes, and apartments. Allows up to 40 du/acre.
Commercial	
General Commercial	Retail, office, and service-oriented business activities serving a community-wide area and population or broader market. Allows residential development integrated vertically and/or horizontally. Allows up to 2.0 FAR.
Neighborhood Commercial	Retail, office, and service-oriented business activities serving a local community area and population. Allows residential development integrated vertically and/or horizontally. Allows up to 1.0 FAR.
Office	Single-tenant or multi-tenant offices that include professional, legal, medical, financial administrative, corporate and general business offices, and other supporting commercial uses. Allows residential development integrated vertically and/or horizontally. Allows up to 2.0 FAR.
Industrial	
General Industrial	Variety of light industrial and manufacturing uses. Allowable uses include wholesale businesses, light manufacturing and processing, research and development uses, offices, warehousing and storage, distribution and sales, high technology production, retail sales and related uses. Allows up to 2.0 FAR.
Heavy Industrial	Chemical plants, petroleum refining, material recycling and similar uses. Allows up to 0.6 FAR.
Industrial Buffer	Research and development, professional and business offices, industrial sales and service offices and other uses providing a transition between residential and general/heavy industrial uses. Allows residential development integrated vertically and/or horizontally. Allows up to 0.6 FAR.

TABLE 4.10-3 ***GENERAL PLAN LAND USE DESIGNATIONS*** (CONTINUED)

Land Use Designation	Description
Community	
Community Open Space Conservation	Public recreational uses, including public parkland, open space, and associated recreational activities, such as indoor and outdoor sports/athletic facilities, community facilities and similar uses. Allows up to 0.4 FAR.
Resource Management	Preservation of environmentally sensitive open space lands in a natural condition. Allows up to 0.4 FAR.

Source: East Palo Alto General Plan, 1999.

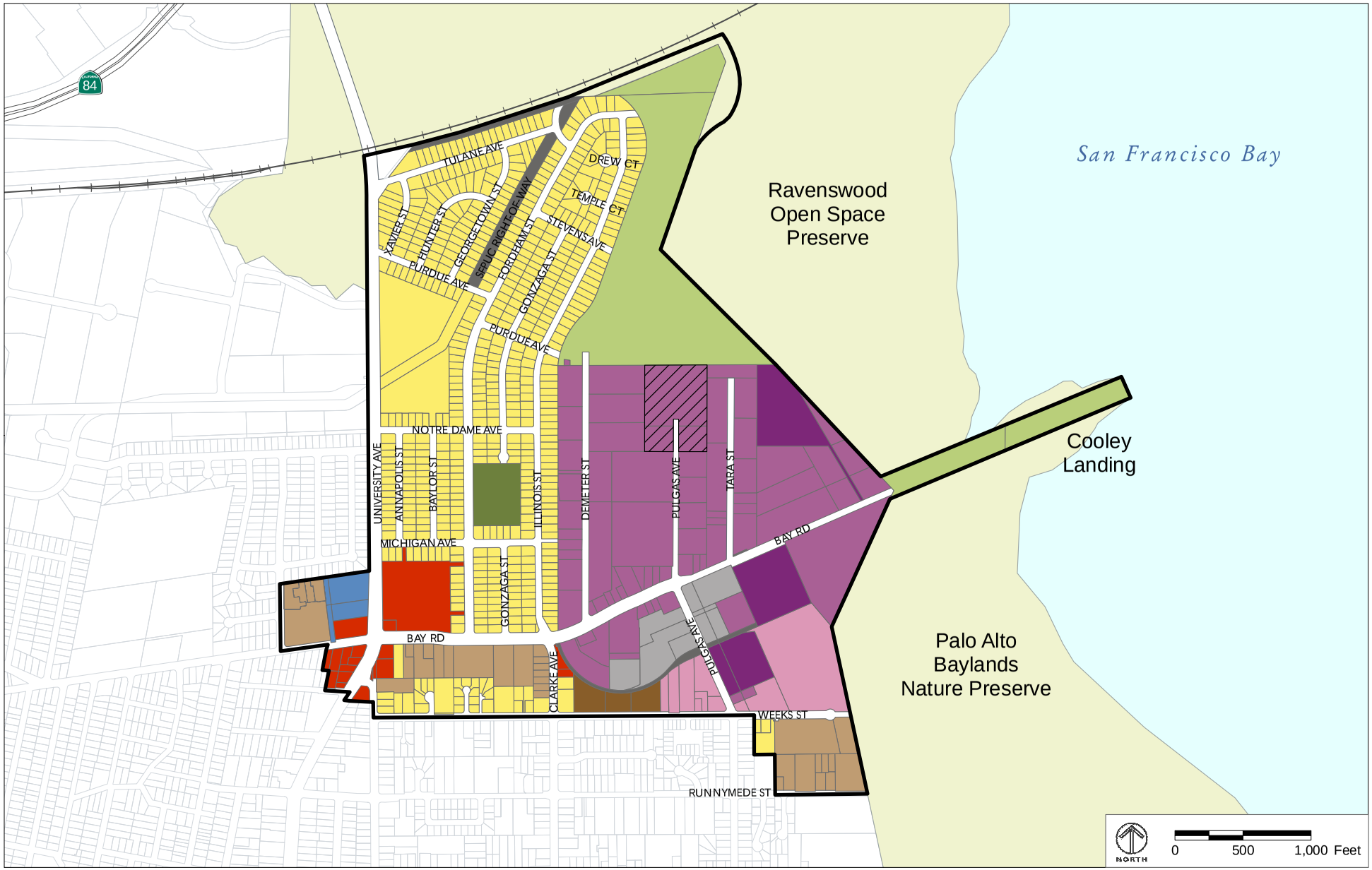
Figure 4.10-3 shows the zoning district that applies to each parcel in the Plan Area. These zoning districts correlate closely with the City's General Plan land use designations, which are described in Table 4.10-3, above.

c. City of East Palo Alto Redevelopment Plan

Most properties in the Plan Area are within the East Palo Alto Redevelopment Agency's Ravenswood Industrial Plan Area (RIPA), which was established in 1990. Figure 4.10-4 shows the boundaries of this redevelopment project area.

The Redevelopment Agency has the authority to collect "tax increment financing," which is created by increases in the assessed value of properties within its redevelopment project areas. This financing can be used to help pay for improvements to the area's infrastructure and to address conditions that limit new development, such as soil contamination from past industrial activities. A portion of the funding must also be used to pay for the construction of new affordable housing.

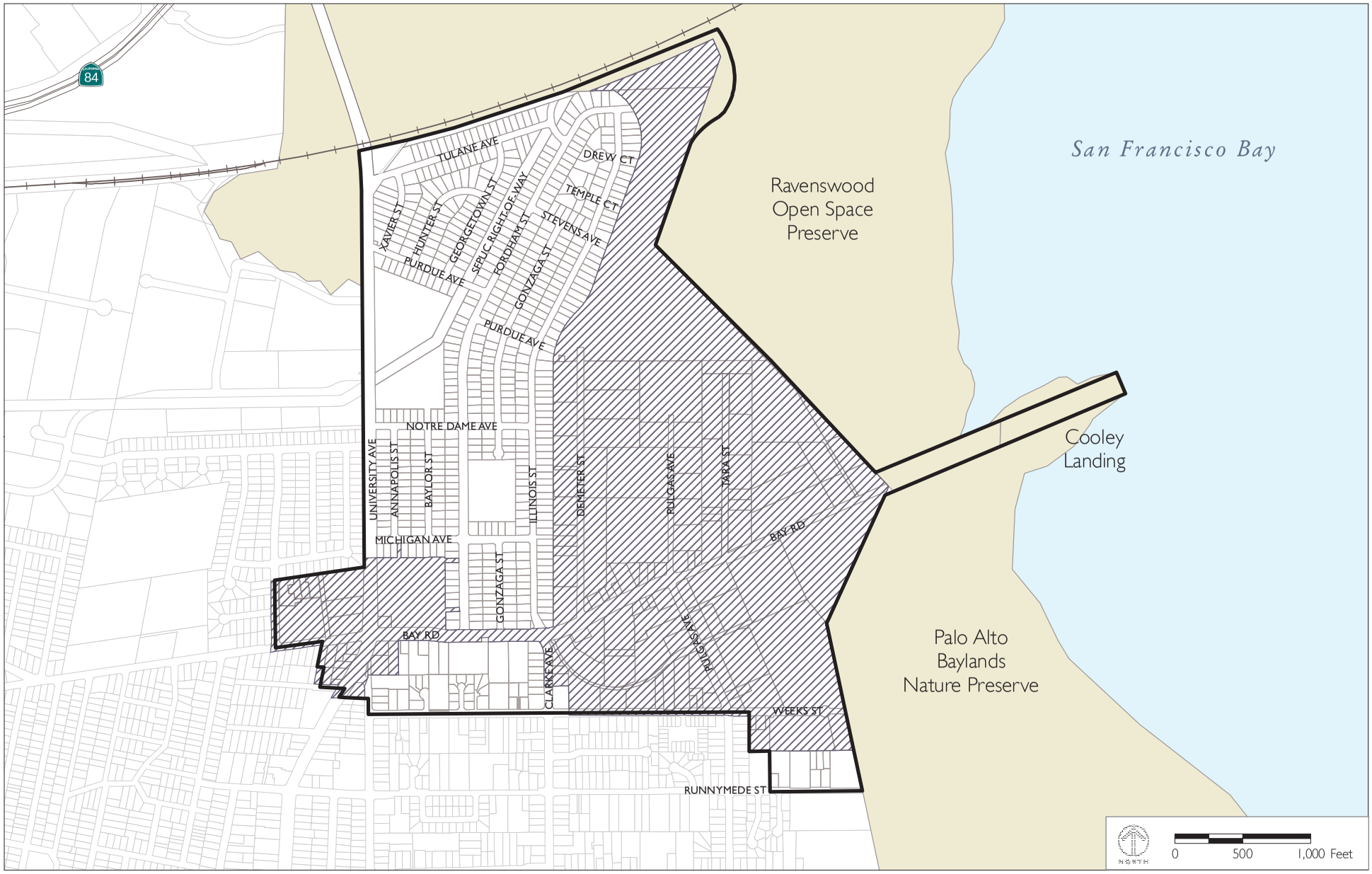
The Redevelopment Agency's 5 Year Implementation Plan, updated in 2007, identifies a variety of programs that it intends to pursue in Ravenswood through 2012. These programs include designing and building necessary infrastructure, remediating contaminated sites so they can be developed, and



Source: City of East Palo Alto, 2009.

- Plan Area
- R-1-5000 Single-Family
- R-M-1000 Multi-Family Residential
- R-M-500 Multi-Family Residential
- C-1 Neighborhood Business
- O Office
- PUD Planned Unit Development
- M-B Industrial Buffer
- M-1 Light Industrial
- M-2 Heavy Industrial
- RM Resource Management
- COSC Community Open Space
- Unzoned
- Housing Element Sites
- Baylands
- Railroad

FIGURE 4.10-3
EXISTING ZONING



Source: City of East Palo Alto, 2009.

- Plan Area
- Baylands
- Ravenswood Industrial Project Area
- Railroad

FIGURE 4.10-4

RAVENSWOOD INDUSTRIAL REDEVELOPMENT PROJECT AREA

acquiring and assembling property to facilitate development. They also include improving and creating community facilities, as well as implementing the First Source Hiring and Local Business Enterprise (LBE) programs to "entice local business activity, alleviate unemployment among residents, and improve their education and technical skills."[9]

In 2009, the Redevelopment Agency completed a fiscal merger between all of its redevelopment project areas, including Ravenswood as well as the Gateway 101 and University Circle Plan Areas. While little redevelopment had occurred in Ravenswood prior to the fiscal merger, a great deal of new development has taken place in the other redevelopment project areas since their creation, resulting in newly-available tax increment financing. As a result of the fiscal merger, the Redevelopment Agency can use revenue from these other redevelopment project areas to finance improvements in Ravenswood.[10]

d. Previous Planning Efforts

In the past, the City of East Palo Alto and other groups have undertaken several efforts to plan for the Plan Area's future, often with a special focus on the Ravenswood Business District. Some of these past efforts include:

- **The Weeks Neighborhood Plan,** a plan prepared in 1997 that provided a vision for future change in the Weeks Neighborhood. The study area for this project included much of the southeastern portion of the Plan Area, including properties located on the north side of Weeks Street. While the Plan's vision did not become formal City policy, the Weeks Neighborhood Plan later influenced the development of the East Palo Alto Revitalization Plan, as described below.

[9] East Palo Alto Redevelopment Agency, 2007, *5 Year Implementation Plan*, page 32.

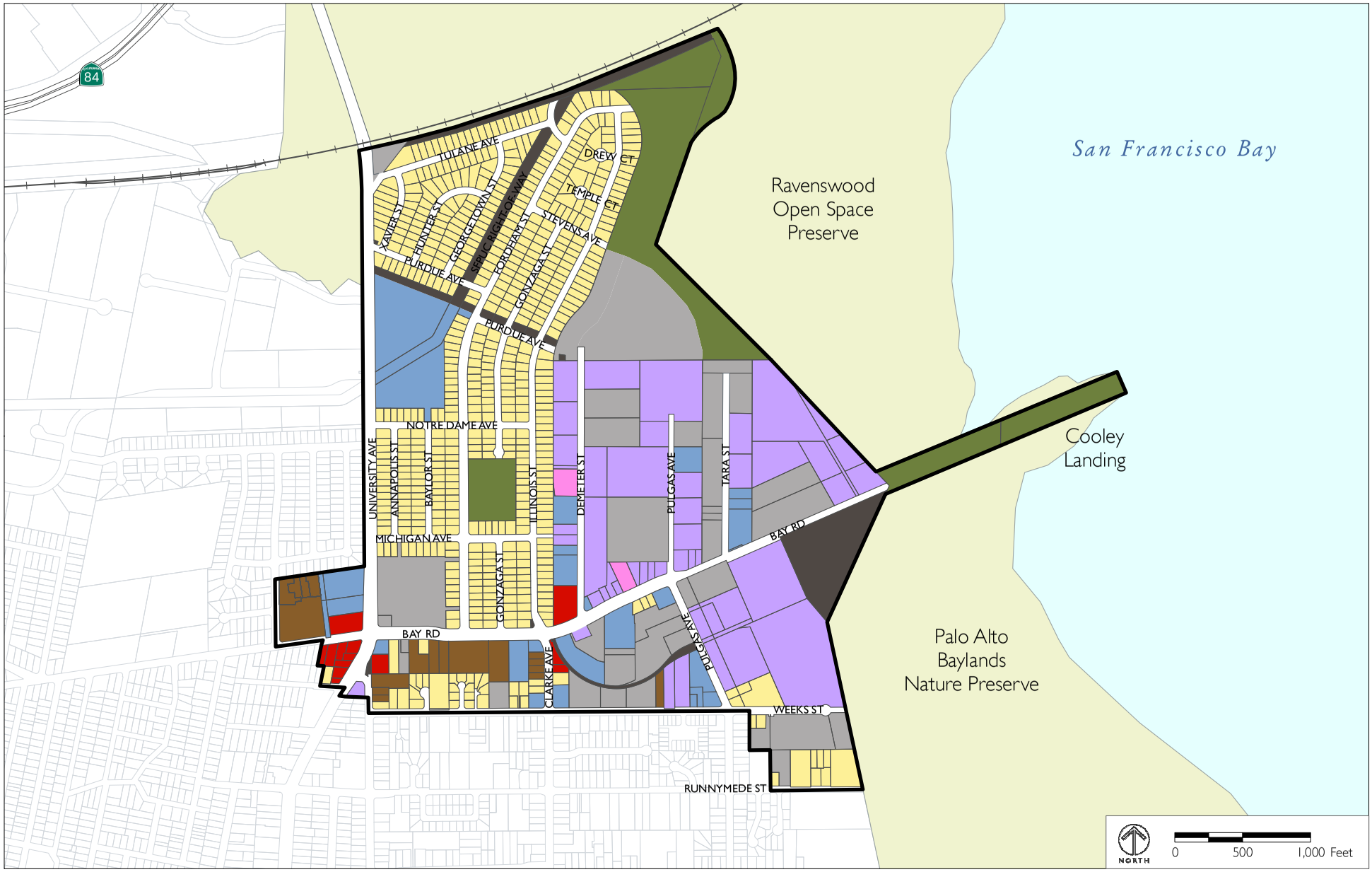
[10] Keyser Marston Associates, 2009, *Report to the City Council for the Amendments to the Existing Redevelopment Plans for the Gateway 101 Redevelopment Project; University Circle Redevelopment Project; and the Ravenswood Industrial Area Redevelopment Project*, page 1.

- **The East Palo Alto Revitalization Plan**, a plan prepared in 2000 that explored potential development strategies and regulations for Ravenswood, 4 Corners, and other areas of the City. In 2005, preliminary work took place to adopt this Plan's recommendations for Ravenswood, but this work was not completed and the Plan was never officially adopted.
- **A Community Vision for the Bay-Clarke-Weeks-Pulgas Plan Area,** a 2003 community effort to identify development goals for the large block in Ravenswood bounded by Bay Road, Clarke Avenue, Weeks Street, and Pulgas Avenue. The community's vision included a mix of housing and retail stores, with additional space for nonprofit groups. As a result of the Plan, RFPs were issued, and two projects were entitled with accompanying General Plan and Zoning Ordinance amendments.
- **The Dumbarton Dialogue Project,** a project in 2006 and 2007 that invited residents of many cities on the peninsula, including East Palo Alto, to identify possible solutions to traffic impacts created by the Dumbarton Bridge and Highway 101 corridor.

These previous efforts took place in a much different economic climate than East Palo Alto faced in 2009, and the priorities of the city's residents and decision-makers have changed in the years since these efforts took place. In addition, these land use plans were never officially adopted and the environmental impacts were never analyzed. Nevertheless, implementation of portions of the Bay-Clarke-Weeks-Pulgas planning effort resulted in changes to the City's General Plan or Zoning Ordinance, which are the documents that fundamentally govern development in East Palo Alto.

B. Existing Conditions

The Plan Area has a wide variety of existing land uses, as shown in Figure 4.10-5. This section describes the existing land uses that were found in the Plan Area during field reconnaissance completed in October 2009.



Source: City of East Palo Alto, 2009; DC&E, 2009.

Plan Area
Single-Family Residential
Multi-Family Residential
Retail
Office
Public/Institutional
Industrial
Park/Open Space
Infrastructure
Vacant
Baylands
Railroad

FIGURE 4.10-5
EXISTING LAND USE

1. Single-Family Residential

Single-family residential uses in the Plan Area are concentrated most heavily in the University Village neighborhood, north of Bay Road and east of University Avenue. A smaller number of single-family homes are located along the south side of Bay Road, three of which are clustered just west of Pulgas Avenue. Single-family dwellings are also clustered along Weeks Street, particularly between Cooley Avenue and Clarke Avenue. Another cluster of single-family residential uses is located in the southeastern corner of the Plan Area, on the north side of Runnymede Street.

2. Multi-Family Residential

Multi-family residential uses, which include duplexes, triplexes, apartment buildings, condominiums, and townhomes, are generally concentrated along Bay Road. One notable example is the Bay Oak Apartments on the north side of Bay Road at Gloria Way. Several multi-family apartment buildings are clustered on the south side of Bay Road, between University Avenue and Clarke Avenue.

3. Retail

Retail uses in the Plan Area include corner stores, salons, restaurants, cell phone stores, clothing stores, and other small, neighborhood-serving businesses. Retail is most heavily concentrated in the 4 Corners area, near the Bay Road/University Avenue intersection.

4. Office

Office uses are sparse in the Plan Area, with one small office building located on Demeter Street and another located on the north side of Bay Road.

5. Public/Institutional

Public and institutional uses include social services, houses of worship, schools, hospitals and other health facilities, and government buildings. Public and institutional uses are widespread throughout the Plan Area and are not concentrated in any particular area. One notable public use in the Plan Area is the San Mateo County East Palo Alto Government Center, located on the

west side of University Avenue just north of Bay Road. The building includes East Palo Alto's City Hall, the City Council chambers, a community meeting room, and a public library. A second large public use is the Costaño Elementary School, located in the University Village neighborhood. Police facilities and the East Palo Alto Maintenance Division headquarters and corporation yard are located in Ravenswood on Demeter Street and Tara Street, respectively. Section 4.13 Public Services and Recreation, includes more information about many of these uses.

6. Industrial

Industrial uses include manufacturing businesses, repair shops, warehouses that distribute goods, storage facilities, and other similar uses. These uses are generally located in the Ravenswood Business District in the eastern half of the Plan Area. The majority of these uses are concentrated along Bay Road, Demeter Street, Pulgas Avenue, and Tara Street.

7. Park/Open Space

Parks and open spaces include areas that are designated and constructed for passive or active recreation and open to the public, as well as natural, undeveloped open spaces. Jack Farrell Park, located in the University Village neighborhood, is the only existing park located in the Plan Area. It contains a variety of amenities, including a softball field, playground equipment, a basketball court, a walking path, a restroom facility and lawn areas. Open space is found at the bay's edge, where development is prohibited or unlikely to occur. This open space includes Cooley Landing, which the City plans to develop as a park. Section 4.13 Public Services and Recreation, includes information about this proposed park.

8. Infrastructure

Utility infrastructure includes rail corridors, utility corridors, electrical substations and similar equipment. A major electrical substation is located at the east end of Bay Road, near Cooley Landing. Utility transmission infrastructure is also present in the Plan Area. Most notably, Pacific Gas & Electric

(PG&E) towers and transmission lines are highly visible along Purdue Avenue in the University Village neighborhood.

Another major infrastructure feature in the Plan Area is the Hetch Hetchy Aqueduct, owned by the San Francisco Public Utilities Commission (SFPUC), which carries water from Yosemite National Park to San Francisco and other cities on the peninsula, including East Palo Alto. The pipes runs southeast through an easement beneath the University Village neighborhood and the Costaño Elementary site. The portion located between Georgetown and Fordham Streets is under a site that is otherwise vacant and is fenced off from its surroundings. Active and former rail corridors are located along the northern boundary of the Plan Area and through the interior of the block bounded by Bay Road, Clarke Avenue, Pulgas Avenue, and Weeks Street.

9. Vacant

Vacant land includes properties that are undeveloped and contain no usable structures. Vacant properties are widespread in the Plan Area, the largest and most concentrated of which are located in the eastern half of the Plan Area. Some are former industrial sites; others appear to have never been developed. The most visible vacant site in the Plan Area, a former shopping center that has been demolished, is located at the northeast corner of the Bay Road/University Avenue intersection.

C. Standards of Significance

Land use impacts associated with the Specific Plan would be considered significant if the Specific Plan would:

a. Physically divide an established community.

b. 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, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.

c. Conflict with any applicable habitat conservation plan or natural community conservation plan.

D. Impact Discussion

1. Project Impacts

This section discusses the impacts of the Specific Plan on land use issues of the Plan Area.

a. Physically divide an established community. ***(NI)***

Implementation of the Specific Plan would add physical structures or features (e.g. multi-story buildings, roadway improvements) intended to enhance the community's cohesion and improve connections within and around the Plan Area.

The Specific Plan would carry out the intent of the City's General Plan for Ravenswood/4 Corners area, as it would provide a development plan that would allow for a mix of office, retail, R&D/industrial, single-family and multi-family residential, civic/community, and parks and open space uses within the Plan Area. The Specific Plan seeks to promote mixed-use and infill development throughout the Plan Area, while enhancing the Ravenswood/4 Corners area as the core of the City and protecting existing lower-density residential neighborhoods and industrial areas within and around the Plan Area.

For example, as outlined in the Specific Plan, the established residential neighborhoods and other nonresidential areas in the Plan Area are expected to remain in the future much as they are today (shown as uncolored areas in Figure 3-4). This is not to say that these areas will not change at all in the future, but that the uses on these properties are likely to be the same as they are now or similar to the uses on surrounding properties. The Mixed Use, Light Industrial, and Industrial/Office Flex land use designations (see Figure 3-4) would be added to provide transition and buffer areas/uses between existing single-family residential areas generally bounded by Bay Road, University

Avenue and Illinois Street and heavier industrial land uses that would be developed within the Industrial land use designation north of Bay Road and East of Demeter Street.

Additionally, the existing single- and multi-family residential communities north and south of Bay Road on the western end of the Plan Area (see Figure 4.10-5) would not be divided as the land uses (e.g. residential, retail) that would be developed under the Mixed-Use land use designation would be compatible with the existing residential uses and would also be designed and developed to provide a sense of cohesion and connectivity. Similarly, the existing industrial uses north and south of Bay Road on the eastern end of the Plan Area (see Figure 4.10-5) would also not be divided as the land uses (e.g., retail, office) that would be developed under the Mixed Use land use designation would be compatible with the existing industrial uses.

Furthermore, the area-wide improvements that would be implemented as a part of the Specific Plan (e.g., roadway, landscape, sidewalk, pedestrian and bicycle paths and trails, and transit improvements) would further help provide connectivity within and outside the Plan Area. For example, as shown in Figure 3-5, street improvements are slated for Bay Road and Fordham Street, while new vehicle connections and a new loop road to the north and east of University Village would connect University Avenue to Ravenswood. Figure 3-5 also depicts a new pedestrian/bicycle trail that would be created alongside Purdue Avenue under the high-voltage electrical lines. The trails would extend west to University Avenue next to the Costaño Elementary School property and east to the Bay Trail on a new right-of-way along the north edge of Ravenswood.

Therefore, while new development, improvements and intensification of the Plan Area would occur under the Specific Plan, implementation of the Specific Plan would not physically divide an established community and there would be ***no impact***.

b. 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, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect. ***(NI)***

As described in Chapter 3 Project Description, the Specific Plan would permit a mix of office, retail, R&D/industrial, single- and multi-family residential, civic/community, and parks and open space uses within the Plan Area. Table 3-1 in Chapter 3 shows development estimates for future buildout of the Specific Plan. Figure 3-4 illustrates the proposed land uses for the Plan Area.

i. General Plan Consistency Analysis

As discussed in Chapter 3, the Specific Plan includes adoption of amendments to the East Palo Alto General Plan and Zoning Ordinance, changing the current land use designations in the Plan Area, and establishing new development standards to replace some of the current zoning provisions applicable to the Plan Area. These amendments must be completed to ensure consistency between the Specific Plan, General Plan, and Zoning Ordinance. The City would adopt these amendments as required by State law.

As shown in Figure 3-4, the Specific Plan would re-designate properties using existing designations already identified in the General Plan, with the exception of two new designations, Mixed Use and Industrial/Office Flex. These two new land use designations are described in detail in Chapter 3.

Additional General Plan Amendments required to implement the Specific Plan and to assure General Plan consistency would include:

- Update to Bike Map
- Revisions to the General Plan Roadway Map
- Revisions to the Rail Transit Concepts Map
- Revisions to the Truck Route Map

A detailed analysis of the Specific Plan's consistency with the applicable goals, policies, and actions of the various elements of the City's General Plan is provided in Table 4.10-4. The analysis contained in Table 4.10-4 concludes that the Specific Plan would be consistent with most of the applicable goals, policies and actions of the General Plan, with the exception of Action 3.2 of the Housing Element. This discrepancy is described in the section below. There would therefore be a ***less-than-significant*** impact for inconsistency with the General Plan.

ii. Housing Element Opportunity Sites Consistency Analysis

As previously stated, the City's Housing Element identifies a number of sites in East Palo Alto where new housing could be accommodated through 2014. As shown in Figure 4.10-2, these sites include several parcels at the northern end of Pulgas Avenue in the Plan Area. The Housing Element states that housing must be accommodated on these sites in order to provide opportunities for housing that is affordable to extremely-low, very-low- and low-income residents, in accordance with the City's RHNA obligations. The Housing Element requires these sites to be rezoned to allow for residential or mixed-use development that provides at least 30 dwelling units per acre.[11]

The Specific Plan would develop a wide range of high-quality rental and for-sale housing, including single-family, townhouses, duplexes, four-plexes, and a wide range of multi-family apartment buildings. Additionally, the mixed-use areas would generally consist of ground-floor retail and upper-floor residential or office. The quantity, variety and density of housing to be developed in the Plan Area would accommodate a broad range of income levels and lifestyles and respond to local and regional housing needs.

[11] City of East Palo Alto, 2010, *City of East Palo Alto Housing Element*, page 4-13.

TABLE 4.10-4 ***GENERAL PLAN CONSISTENCY ANALYSIS***

Applicable General Plan Goals, Policies, and Actions	Specific Plan Consistency
Land Use Element	
Goal 1.0: Develop a balanced land use pattern that meets community needs for residential, commercial, industrial, and public uses.	**Consistent:** The Specific Plan would allow for a mix of office, retail, R&D/Industrial, single- and multi-family residential, civic/community, and parks and open space uses within the Plan Area. The introduction of the new Mixed Use and Industrial/Office Flex designations would allow future flexibility to serve potential market demand. As such, the Specific Plan would provide a balanced land use mix that would meet the needs of the Plan Area community and surrounding communities.
Policy 1.2: Promote commercial and industrial development to improve the generation of sales tax and property tax increment revenues.	**Consistent:** As detailed in Chapter 3, Table 3-1, the net development potential for new commercial and industrial development within the Specific Plan are would be 1,268,500 square feet of office, 112,400 square feet of retail and 351,820 square feet of R&D. Additionally, the area-wide improvements that would be implemented as a part of the Specific Plan (e.g., roadway, landscape, and transit improvements) would further help promote commercial and industrial business to locate within the Plan Area, which in turn would help the City improve the generation of sales tax and property tax increment revenues.
Policy 1.3: Promote mixed commercial and residential use projects to conserve land and provide additional housing opportunities and population to support commercial services and retail sales.	**Consistent:** As described in the Specific Plan, Bay Road would function as an active and vibrant spine with mixed-use areas, which are indicated in orange in Figure 3-4. The provision of dense, mixed-use multi-story development would help conserve land by developing vertically and not horizontally.

TABLE 4.10-4 ***GENERAL PLAN CONSISTENCY ANALYSIS*** (CONTINUED)

Applicable General Plan Goals, Policies, and Actions	Specific Plan Consistency
	Additionally, as detailed in Chapter 3, Table 3-1, the net development potential for residential uses in the Plan Area is 19 single-family dwelling units and 816 multi-family dwelling units. Therefore, in addition to the existing residences in the Plan Area that will remain, development of additional residences will help support commercial services and retail sales not only in the Plan Area, but Citywide.
Policy 1.4: Provide areas within the community where public service and non-profit organizations can operate.	**Consistent:** The Specific Plan outlines several potential locations for civic/community uses within the Plan Area. These civic/community uses include schools, libraries, government offices, performing arts centers, recreation centers, shelters, health clinics, or social services, among others. Additionally, an enhanced Civic Center is slated for the northwest corner of the 4 Corners area, which could include an enhanced library and perhaps a new City Hall. Redevelopment of the large parcel at the northeast corner of the Bay Road/University Avenue intersection could also include a new community center.
Economic Development Element	
Policy 1.1: Encourage development of commercial businesses which are neighborhood-based and provide jobs, goods, and services to residents within their neighborhoods.	**Consistent:** A variety of mixed-use buildings would occur throughout the Specific Plan Area, particularly at 4 Corners and along Bay Road. The Specific Plan calls for most of these buildings to contain ground-floor retail uses with residential or office uses above. More specifically, the Specific Plan calls for a net development potential of 112,400 square feet of retail square footage (see Table 3-1 in Chapter 3). As shown in Table 3-1, the commercial square footage buildout assumptions of the Specific

TABLE 4.10-4 ***GENERAL PLAN CONSISTENCY ANALYSIS*** (CONTINUED)

Applicable General Plan Goals, Policies, and Actions	Specific Plan Consistency
	Plan would add 4,851 jobs to the City's employment base. Additionally, the provision of retail uses in the Plan Area would not only provide jobs, goods, and services to the residents of the Plan Area, but also to residents in surrounding neighborhoods.
Policy 1.2: Pursue commercial businesses which generate sales tax revenue by capturing both local and regional consumers.	**Consistent:** As noted above, the Specific Plan calls for most of the buildings in the mixed-use areas (indicated in orange in Figure 3-4) to contain ground-floor retail uses with residential or office uses above. Although the mix and type of retail businesses that could operate out of these areas is not known at this time, they would include a wide array that will generate sales tax revenue by capturing both local and regional consumers. For an example or permitted commercial uses in the Plan Area, refer to Table 6-1, Allowed Uses in Land Use Districts, of Chapter 6, Land Use Regulations and Development Standards, of the Specific Plan. Additionally, the vision of Bay Road developing into an active and vibrant spine with mixed-use areas would serve as a focal point for Ravenswood and 4 Corners, as well as for East Palo Alto and the region.
Policy 2.1: Diversify the City's commercial and industrial base by targeting and soliciting firms in growth sectors such as environmental technology, high tech, bio-technology, research and development, and health care/health providers.	**Consistent:** See responses to Economic Development Element Policy 1.2. Additionally, the area-wide improvements that would be implemented as a part of the Specific Plan (e.g., roadway, landscape, and transit improvements) would further help promote commercial and industrial business to locate within the Plan Area, which in turn would help diversify the City's commercial and industrial base.

TABLE 4.10-4 ***GENERAL PLAN CONSISTENCY ANALYSIS*** (CONTINUED)

Applicable General Plan Goals, Policies, and Actions	Specific Plan Consistency
Goal 3.0: Actively pursue land uses which generate employment at levels comparable to Countywide land-job productivity.	**Consistent:** The Plan would create 4,851 jobs in the 350-acre Plan Area over the next 25 years (2010 to 2035) at a land-job ratio of approximately 14 jobs per acre, which is comparable to the San Mateo County land-job ratio of 14.6 jobs per acre.[a] Furthermore, a ratio of 14 jobs per acre is significantly higher than the projected ratio of 4.4 jobs per acre of the existing General Plan without implementation of the Specific Plan. For a comparison of employment generation in the Plan Area as a result of the Specific Plan versus buildout of the Existing General Plan, refer to Table 5-2 of Chapter 5, Alternatives. Employment generation is further discussed in Section 4.12, Population and Housing.
Policy 3.2: Actively pursue targeted business and compatible industries for commercial and industrial development sites such as Gateway Center, Ravenswood Industrial, and University Circle areas.	**Consistent:** See responses to Economic Development Element Policies 1.2 and 2.1.
Policy 3.3: Proactively purse and attract land uses which serve regional needs.	**Consistent:** See responses to Economic Development Element Policies 1.2 and 2.1.
Housing Element	
Goal 1.0: Sufficient numbers and varieties of housing units (houses, townhomes, condominiums, and apartments) needed to: meet the State's mandate to replace affordable units/bedrooms demolished due to Redevelopment Agency action; address the City's Regional Housing Needs Determination; and facilitate housing development for all incomes segments within East Palo Alto, including extremely low-, very low-, low-, moderate-, and above-	**Consistent:** As outlined in Table 3-1 of Chapter 3, Project Description, the net development potential for residential uses in the Plan Area is 835 units (19 single-family units and 816 multi-family units). The Specific Plan would develop a wide range of high-quality rental and for-sale housing, including single-family, townhouses, duplexes, four-plexes, and a wide range of multi-family apartment buildings, some of which are likely to be designed for low-income occupants. Additionally, the

TABLE 4.10-4 ***GENERAL PLAN CONSISTENCY ANALYSIS*** (CONTINUED)

Applicable General Plan Goals, Policies, and Actions	Specific Plan Consistency
moderate income housing.	mixed-use areas would generally consist of ground-floor retail and upper-floor residential or office. The quantity, variety and density of housing to be developed in the Plan Area would accommodate a broad range of income levels and lifestyles and respond to local and regional housing needs. Housing needs and consistency with the City's Housing Element are further discussed in Section 4.12 Population and Housing.
Policy 1.1: Work collaboratively with the development community to facilitate the development of a range of housing choices (by type, size, and price range) that meet the City's needs.	**Consistent:** See response to Housing Element Goal 1.0.
Goal 2.0: Balanced development that links housing to jobs.	**Consistent:** See response to Land Use Goal 1.0, Land Use Policy 1.3, Economic Development Policies 1.1 and 1.2, and Housing Element Goal 1.0. Jobs and housing needs are further discussed in Section 4.12 Population and Housing.
Policy 2.1: Promote the concept of smart growth whereby housing is concentrated around job centers and along transportation corridors in order to reduce traffic, improve air quality, conserve energy, and increase efficient land use.	**Consistent:** The location, design, and layout of the various Specific Plan land uses would provide a unique and walkable shopping, working, and living experience for residents of the community, thereby minimizing the number of vehicles on the community's and the City's roadway systems. The design and layout of the proposed land uses would also encourage safe and convenient pedestrian activity through the creation of plazas and urban and natural open spaces. Additionally, as shown on Figure 3-5, alternative transportation systems are incorporated into the circulation plan of the

TABLE 4.10-4 ***GENERAL PLAN CONSISTENCY ANALYSIS*** (CONTINUED)

Applicable General Plan Goals, Policies, and Actions	Specific Plan Consistency
	Specific Plan, including a comprehensive system of pedestrian and bicycle paths and trails. These paths and trails would connect internally and to the surrounding routes to provide an alternative mode of transportation for residents and visitors. The Specific Plan also outlines two key transit improvements that would occur in or near the Plan Area. For example, as outlined in the Specific Plan, there is a possibility that a future Dumbarton Rail passenger line may pass near the Plan Area, and a station could be located adjacent to East Palo Alto. Attracting a station to the area could positively affect Ravenswood and 4 Corners in several ways, including providing better access for current and future East Palo Alto residents and employees. Furthermore, in the event that a Dumbarton Rail station is located near the Plan Area, the Specific Plan recommends that shuttle service be implemented to transport employees from the station to their places of employment within the Plan Area. Therefore, implementation of the Specific Plan would promote the concept of smart growth and would help in reducing traffic, improving air quality, conserving energy, and increasing efficient land use.
Action 2.1: Develop a specific plan for the Ravenswood/4 Corners Transit Oriented Development Area to guide the conversion of the existing light and heavy industrial uses into higher density residential, commercial, and mixed-use uses that will support a future potential transit station.	**Consistent:** As shown in Figure 3-4, the Specific Plan re-designates some of the properties designated as General Industrial and Industrial Buffer (see Figure 4.10-1) to Mixed Use (indicated in orange in Figure 3-4). Additionally, high-density residential (indicated in light brown in Figure 3-4) would replace areas currently designated as General Commercial and Industrial Buffer

TABLE 4.10-4 ***GENERAL PLAN CONSISTENCY ANALYSIS*** (CONTINUED)

Applicable General Plan Goals, Policies, and Actions	Specific Plan Consistency
	(see Figure 4.10-1). The Mixed Use designated areas would occur along Bay Road and at the 4 Corners area of the Plan Area. As outlined in the Specific Plan, Bay Road would function as an active and vibrant spine with mixed-use areas that will serves as a focal point for Ravenswood and 4 Corners, as well as for East Palo Alto as a whole. Vibrant store-fronts and other active ground-floor uses would stretch down Bay Road within the Plan Area. Mixed uses will generally consist of ground-floor retail and upper-floor residential or office, although some ground-floor office uses will likely also be developed. Additionally, as outlined in the Specific Plan, there is a possibility that a future Dumbarton Rail passenger line may pass near the Plan Area, and a station could be located adjacent to East Palo Alto.
Action 2.2: Evaluate development standards and identify rezoning opportunities along University Avenue's commercial nodes to increase mixed-use development along the corridor.	**Consistent:** As discussed in Chapter 3, Project Description, the Specific Plan includes adoption of amendments to the City's Zoning Ordinance and establishing new development standards to replace some of the current zoning provisions applicable to the Plan Area. More specifically, the Specific Plan will modify the allowable uses and development standards in the existing Zoning Ordinance. To implement these modified standards, a zoning overlay district will be added to the existing Zoning Ordinance. As a part of the zoning overlay district, the commercial node that makes up the 4 Corners intersection (University Avenue and Bay Road) is designated as and slated for mixed use (indicated in orange in Figure 3-4).

TABLE 4.10-4 ***GENERAL PLAN CONSISTENCY ANALYSIS*** (CONTINUED)

Applicable General Plan Goals, Policies, and Actions	Specific Plan Consistency
Policy 2.2: Encourage mixed-use and high-density residential development in the Ravenswood and University Corner/Bay Road areas to ensure that a minimum of 25 percent of these areas are devoted to residential uses.	**Consistent:** See response to Housing Element Action 2.1. Additionally, as shown in Figure 3-4, a minimum of 25 percent of these areas would be devoted to residential uses.
Goal 3.0: Available residential sites for the development of a range of housing types and prices.	**Consistent:** See response to Housing Element Goal 1.0.
Policy 3.1: Ensure adequate residential sites are zoned at appropriate densities and available for development in order to accommodate the range of housing types and prices needed to meet the City's Regional Housing Needs Determination.	**Consistent:** See response to Housing Element Goal 1.0. Additionally, as shown in Figure 3-4, mixed-use and high-density residential would occur along Bay Road, Pulgas Avenue, Weeks Street, and Clark Avenue. The densities associated with these land use designations would range between 40 dwelling units per acre (du/acre) on the low end to 60 du/acre on the high end. The permitted housing units include a wide range of high-quality rental and for-sale housing, including single-family, townhouses, duplexes, four-plexes, and a wide range of multi-family apartment buildings. Additionally, the mixed-use areas would generally consist of ground-floor retail and upper-floor residential or office. The quantity, variety and density of housing that would occur in the Plan Area would accommodate a broad range of income levels and lifestyles and respond to local and regional housing needs.
Action 3.2: Rezone the 4.71 acre parcel (APN: 063-121-020), the 0.92 acre parcel (APN: 063-121-210), and the 0.89 acre parcel (APN: 063-121-200) located at the north end of Pulgas Avenue to High Density Residential or General Commercial (mixed-use) and achieve a minimum density 30 dwelling units per acre.	**Consistent: Specific Plan Policy LU-1.8** Designate adequate sites in the Plan Area to accommodate a portion of the City's Regional Housing Needs Allocation and meet Housing Element goals and objectives including sufficient sites to accommodate the uses previously designated for 2555 Pulgas Avenue. With adherence to

TABLE 4.10-4 ***GENERAL PLAN CONSISTENCY ANALYSIS*** (CONTINUED)

Applicable General Plan Goals, Policies, and Actions	Specific Plan Consistency
Rezoning will include a review of development standards to ensure the feasibility of development for low, very low-, and extremely low-income housing. The City will also ensure that at least 50 percent of the needed units are on sites designated for residential use only and will ensure the project review process remains ministerial. The Planning Commission may review the design merits of the project and may call for a project proponent to make design-related modifications but will not deliberate the project's merits or exercise judgment to reject or deny the "residential use" itself.	this policy, there would be no inconsistency.
Action 3.5: Ensure that 965 Weeks (Olson Property) includes at least ten extremely low-income units, at least ten very-low income units, and that at least 5 percent of the units (3 units) are for low-income households. Per the requirements of the Low and Moderate Income Housing Set Aside Fund, the rest of the units may be priced for moderate-income households.	**Consistent:** As shown in Figure 3-4, the north side of Weeks Street between Clark Avenue and Pulgas Avenue, which includes 965 Weeks Street, is designated as high-density residential (indicated in orange in Figure 3-4). The permitted high-density units include a wide range of high-quality rental and for-sale housing. Although the Specific Plan does not specifically outline the parameters for affordable housing in the Plan Area, the City's Inclusionary Housing Ordinance does require that a certain percentage of housing units be set aside as affordable housing. Therefore, the designation of high-density residential along the northern side of Weeks Street will allow for the provision of affordable housing. The exact amount of affordable units will be determined at the time of submittal of development plans for this property.

[a] Source: Metropolitan Transportation Commission, Draft Environmental Report for Transportation 2035 Plan for the San Francisco Bay Area, http://www.mtc.ca.gov/planning/2035_plan/EIR/draft/2_03_LandUse_DEIR.pdf, accessed on December 6, 2011.

However, as shown in Figure 3-4, the Specific Plan would designate the parcels on the northern end of Pulgas Avenue as Industrial and would therefore preclude the development of residential uses. Implementation of the Specific Plan would be inconsistent with the City's Housing Element as it would prohibit these parcels to be redesignated for and developed as housing that is affordable.

Specific Plan Policy LU-1.8 designates adequate sites in the Plan Area to accommodate a portion of the City's Regional Housing Needs Allocation and meet Housing Element goals and objectives including sufficient sites to accommodate the uses previously designated for 2555 Pulgas Ave. With inclusion of this policy, implementation of the Specific Plan would have ***no impact*** in causing inconsistency with the Housing Element.

iii. Zoning Consistency Analysis

As discussed in Chapter 3, Project Description, the Specific Plan includes adoption of amendments to the City's Zoning Ordinance and establishing new development standards to replace some of the current zoning provisions applicable to the Plan Area. More specifically, the development standards in the Specific Plan will modify the allowable uses and development standards in the existing Zoning Ordinance. To implement these modified standards, the City will adopt a Zoning Ordinance Amendment incorporating the land uses and development regulations and guidelines set forth in the Specific Plan. For those provisions not covered in the Specific Plan, the requirements in the City's existing Zoning Ordinance will apply.

The Specific Plan is a planning and regulatory tool available to local governments under California State law (Government Code 65450 et seq.). Local jurisdictions may adopt specific plans by resolution or ordinance. The Ravenswood /4 Corners Transit-Oriented Development Specific Plan would be adopted by resolution and the regulations called for in this Specific Plan will be implemented through a Zoning Ordinance Amendment. As such, the Specific Plan would act as the regulatory document that the City of East Palo Alto would use to guide development and redevelopment within the Plan

Area and systematically implement the City's General Plan. The Specific Plan, which must be consistent with the City's General Plan, is intended to provide a greater level of specificity in planning in Ravenswood and 4 Corners, and will also help maintain consistency with and carry out the goals, policies and actions of the General Plan for the Plan Area. For example, the Specific Plan is consistent with General Plan goals, policies and actions that call for long-range planning concepts to be developed for the Plan Area and for these concepts to be implemented through Zoning Code revisions.

Additionally, the Specific Plan establishes the necessary plans, development standards (e.g. parking requirements, setbacks, building heights, etc.), regulations, infrastructure requirements, design guidelines (e.g., architectural styles, landscaping, etc.), financing methods, and implementation programs on which subsequent project-related development and redevelopment activities within the Plan Area would be founded. The Specific Plan would also combine these necessary components into a single document that would be tailored to meet the needs of the Plan Area.

Furthermore, the Specific Plan provides a clear policy and regulatory framework for the review of future development projects and public improvements in the Plan Area. It is intended that local public works projects, design review plans, detailed site plans, grading and building permits, or any other action requiring ministerial or discretionary approval applicable to the Plan Area be consistent with the Specific Plan. There is, therefore, ***no impact*** from inconsistency with the zoning code.

iv. Association of Bay Area Governments (ABAG) Bay Trail Plan

As stated earlier, there are two gaps in the Bay Trail within the Plan Area: an unimproved section between Weeks Street and Bay Road and a planned section between University Avenue and the northern boundary of the Ravenswood Open Space Preserve. As shown in Figure 3-5, the Specific Plan would include a new pedestrian/bicycle trail alongside Purdue Avenue under the high-voltage electrical lines. The trail would extend west to University Avenue next to the Costaño Elementary School property and east to the Bay

Trail on a new right-of-way along the north edge of Ravenswood. Therefore, development of the Specific Plan would help implement the Bay Trail Plan and would have ***no impact***.

v. Palo Alto Airport CLUP Consistency Analysis

As shown in Figure 4.8-1, the Plan Area is approximately two miles northeast of the Palo Alto Airport. Safety regulations are outlined in the Palo Alto Airport CLUP, although they are not applicable to San Mateo County and to the Plan Area. Therefore, consistency with these regulations is not an issue for Land Use, however, this issue is discussed in Section 4.8 Hazards and Hazardous Materials.

vi. FEMA National Flood Insurance Program (NFIP)

FEMA provides flood insurance to communities that comply with FEMA regulations to limit construction in flood plains. FEMA completed a study of special flood hazard areas in East Palo Alto in 1984. The study and all subsequent amendments and/or revisions were adopted by reference into Section 15.52 of East Palo Alto Municipal Code. Compliance with FEMA management standards is therefore already ensured under the City code and there would be ***no impact*** from inconsistency with FEMA regulations.

vii. BCDC jurisdiction and Bay Plan Consistency

As previously stated, although the Plan Area is not within a priority use area under the jurisdiction of BCDC, the Don Edwards National Wildlife Refuge priority use area is adjacent to the Plan Area, north of Highway 84. Implementation of the Specific Plan would not impact this priority use area. BCDC jurisdiction over the Plan Area as shown in Figure 3-4 is likely to include (from north to south): some of the northern part of the loop road, a portion of the Industrial/Office flex on the 391 Demeter Street property, the northern part of the R&D/Industrial and Office Flex designations, and an outside band around 100 feet in width running through the Office, R&D/Industrial, and Light Industrial Specific Plan development. However, the precise boundary would be determined by BCDC.

Any proposed fill, extraction of materials or change in use of any water, land or structure within BCDC's jurisdiction that may occur under the Specific Plan would be required to be reviewed and approved by BCDC. Any such work or improvements within BCDC's jurisdiction would also be required to be consistent with the McAteer-Petris Act and the Bay Plan. These require the provision of maximum feasible public access to the Bay and its shoreline, that sufficient lands around the Bay are reserved for important water-oriented uses, and that adequate adaptations/measures to the effect of sea level rise are undertaken. Public access would be determined on a case-by-case basis as development proposals are advanced for projects that are at the edge of the tidal marshes.

Policies addressing the potential for sea level rise in bayside developments were adopted October 6, 2011. The following BCDC policy is pertinent to this Specific Plan:

> *When planning shoreline areas or designing larger shoreline projects, a risk assessment should be prepared by a qualified engineer and should be based on the estimated 100-year flood elevation that takes into account the best estimates of future sea level rise and current flood protection and planned flood protection that will be funded and constructed when needed to provide protection for the proposed project or shoreline area. A range of sea level rise projections for mid-century and end of century based on the best scientific data available should be used in the risk assessment. Inundation maps used for the risk assessment should be prepared under the direction of a qualified engineer. The risk assessment should identify all types of potential flooding, degrees of uncertainty, consequences of defense failure, and risks to existing habitat from proposed flood protection devices.*

Specific Plan policies discussed in Section 4.9 Hydrology and Water Quality, notably **Specific Plan Policy** LU-9.3, requires an environmental assessment of the flood impacts on a project-specific basis and that each evaluation would require a discussion of the cumulative impacts from all known, planned or reasonably foreseeable development.

Therefore, development of the Specific Plan would result in a ***less than significant*** impact to areas under the jurisdiction of BCDC.

For further discussion and analysis on potential impacts to hydrology and biological resources of the Don Edwards National Wildlife Refuge priority use area and other bay and shoreline areas under jurisdiction of BCDC, the reader is referred to Sections 4.9, Hydrology and Water Quality, and Section 4.4, Biological Resources.

c. Conflict with any applicable habitat conservation plan or natural community conservation plan. ***(NI)***

As stated in Section 4.4, Biological Resources, there are no habitat conservation plans or natural community conservation plans applicable to the Plan Area. Therefore, implementation of the Specific Plan would have ***no impact.***

2. Cumulative Impacts

In addition to the development that would be allowed by the Specific Plan, future growth would also occur in other areas of the City under the General Plan. Development of the Specific Plan, in conjunction with other cumulative development in accordance with the City's General Plan buildout, could cause citywide land use and planning impacts.

However, upon adoption of the Specific Plan, development of the Plan Area would be consistent with applicable plans, goals, policies, and regulations of the East Palo Alto General Plan and Municipal Code, as provided in detail above. For example, in accordance with the City's and the General Plan's goals and objectives for Ravenswood and 4 Corners, the Plan Area would be developed pursuant to the Specific Plan, which would allow for a mix of office, retail, R&D/industrial, single-family and multi-family residential, civic/community, and parks and open space uses within the Plan Area. As such, the Specific Plan would provide a balanced land use mix that would meet the needs of the Plan Area community and surrounding communities. In addition, a host of jobs, retail, office, civic/community and other support services and uses would be within walking distance of many of the existing

and future residential uses. Therefore, development of the Specific Plan would create a cohesive community of residential and other support uses, thereby contributing to the development of a sustainable urban neighborhood.

Buildout of the Plan Area under the Specific Plan (new development potential) would also be within the envelope for buildout of the City per the General Plan.

The Specific Plan's land use plan has also been developed to enable the various uses of the Specific Plan to be constructed incrementally while still achieving a unified, comprehensive development plan. Adequate infrastructure, such as water supply, sanitary sewer, and storm sewer piping, and electricity and other dry utilities, for the southern half of the Plan Area would be mostly in place prior to development, to prevent later re-sizing of pipes and additional excavation. Development of 391 Demeter Street in the northern part of the Plan Area would require separate infrastructure.

Development areas within the Plan Area would be subject to a distinct list of permitted uses and design and development standards. Implementation of cumulative development in accordance with the City's General Plan and the Specific Plan would not result in cumulatively considerable land use impacts. There would therefore be ***no cumulative impacts.***

Cumulative impacts associated with development outside of the Plan Area, could also result in impacts due to incompatible land uses, such as significant traffic increases or noise and air quality. The potential for these impacts is addressed in the chapters for these respective environmental topics. Refer to Sections 4.3, Air Quality, Section 4.7, Greenhouse Gas Emissions, and Section 4.14, Traffic and Transportation.

4.11 NOISE

This chapter describes the regulatory framework and existing conditions in the Ravenswood/4 Corners Transit-Oriented Development Specific Plan area and evaluates the potential noise impacts of the proposed Specific Plan. A summary of the relevant regulatory setting and existing conditions is followed by a discussion of Plan-specific and cumulative impacts.

A. Background

1. Fundamental Concepts of Environmental Acoustics and Vibration

Noise may be defined as unwanted sound. Noise is usually considered objectionable because it is disturbing or annoying. The objectionable nature of sound can be caused by its pitch or its loudness. Pitch is the height or depth of a tone or sound, depending on the relative rapidity, or frequency, of the vibrations by which it is produced. Higher-pitched signals sound louder to humans than sounds with a lower pitch. Loudness is intensity of sound waves combined with the reception characteristics of the ear. Intensity may be compared with the height of an ocean wave, in that it is a measure of the amplitude of the sound wave.

a. Noise Measurement

In addition to the concepts of pitch and loudness, there are several noise measurement scales that are used to describe noise in a particular location. A decibel (dB) is a unit of measurement that indicates the relative amplitude of a sound. The zero on the decibel scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Sound levels in decibels are calculated on a logarithmic basis. An increase of 10 decibels represents a ten-fold increase in acoustic energy, while 20 decibels is 100 times more intense, 30 decibels is 1,000 times more intense, and so on. There is a relationship between the subjective noisiness or loudness of a sound and its intensity. Each 10-decibel increase in sound level is perceived as approximately a doubling of loudness over a fairly wide range of intensities. Technical terms associated with sound measurement are defined in Table 4.11-1.

TABLE 4.11-1 ***DEFINITIONS OF ACOUSTICAL TERMS***

Term	Definitions
Decibel, dB	A unit describing the amplitude of sound.
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure.
A-Weighted Sound Level, dBA	Decibel level as measured using the A-weighting filter network, which de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear. This measure correlates well with subjective reactions to noise. All sound levels in this chapter are A-weighted, unless reported otherwise.
L01, L10, L50, L90	The A-weighted noise levels that are exceeded 1 percent, 10 percent, 50 percent, and 90 percent of the time during the measurement period.
Equivalent Noise Level (Leq)	The average A-weighted noise level during the measurement period.
Community Noise Equivalent Level (CNEL)	The average A-weighted noise level during a 24-hour day, obtained after the addition of 5 decibels to sound levels measured from 7:00 p.m. to 10:00 p.m. and 10 decibels to sound levels measured between 10:00 p.m. and 7:00 a.m.
Day/Night Noise Level (L_{dn} or DNL)	The average A-weighted noise level during a 24-hour day, obtained after the addition of 10 decibels to levels measured between 10:00 p.m. and 7:00 a.m.
L_{max}, L_{min}	The maximum and minimum A-weighted noise level during the measurement period.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive Noise	Noise that intrudes over and above the existing ambient noise at a given location. Relative intrusiveness depends on amplitude, duration, frequency, time of occurrence, and tonal or informational content, as well as the prevailing ambient noise level.

Source: Illingworth & Rodkin, 2009.

There are several methods of characterizing sound. The most commonly used method in California is the A-weighted sound level, or dBA. This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive.

Representative outdoor and indoor noise levels in units of A-weighted decibels (dBA) are shown in Table 4.11-2. Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be utilized. Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy as the sum of all the time-varying events. This energy-equivalent sound/noise descriptor is called Leq. The most common averaging period is hourly, but Leq can describe any series of noise events of arbitrary duration.

A sound level meter is used to measure noise. Sound level meters can accurately measure environmental noise levels within plus or minus 1 dBA, approximately. Various computer models are used to predict environmental noise levels from sources such as roadways and airports. The accuracy of the predicted models depends upon the distance between the receptor and the noise source. Near the noise source, the models are accurate to within plus or minus 1 to 2 dBA, approximately.

Sensitivity to noise increases during the evening and at night, because excessive noise interferes with the ability to sleep. Therefore, noise measurements rely upon 24-hour descriptors that add artificial noise penalties to evening and nighttime noise events. The Community Noise Equivalent Level (CNEL) is a measure of the cumulative noise exposure in a community, with a 5 dB penalty added to evening (7:00 p.m. to 10:00 p.m.) noise levels and a 10 dB penalty added to nighttime (10:00 p.m. to 7:00 a.m.) noise levels. The Day/Night Average Sound Level (L_{dn} or DNL) is essentially the same as CNEL, except that it does not add a penalty to evening noise levels.

TABLE 4.11-2 ***TYPICAL SOUND LEVELS***

Outdoor Sound (Distance from Source)	DBA	Indoor Sound	Threshold
	140		
Civil Defense Siren (100 feet)	130		
Jet Takeoff (200 feet)	120		Pain Threshold
	110		
Diesel Pile Driver (100 feet)	100	Rock Music Concert	Very Loud
	90	Boiler Room Printing Press Plant	
Freight Cars (50 feet)	80		
	70	In Kitchen With Garbage Disposal Running	Moderately Loud
Freeway (100 feet) Vacuum Cleaner (10 feet)	60	Data Processing Center	
Light Traffic (100 feet) Large Transformer (200 feet)	50	Department Store	
	40	Private Business Office	
Soft Whisper (5 feet)	30	Quiet Bedroom	Quiet
	20		
	10	Recording Studio	
	0		Threshold of Hearing

Source: Illingworth & Rodkin, 2009.

The thresholds for speech interference indoors are approximately 45 dBA if the noise is steady and 55 dBA if the noise is fluctuating. Outdoors, the thresholds are about 15 dBA higher. Steady noise of sufficient intensity (above 35 dBA) and fluctuating noise levels above about 45 dBA have been shown to affect sleep. Interior residential standards for multi-family dwellings are set by the State of California at 45 dBA L_{dn}. Typically, the highest steady traffic noise level during the daytime is about equal to the L_{dn}, and nighttime levels are 10 dBA lower. The standard is designed for sleep and speech protection, and most jurisdictions apply the same criterion for all residential uses.

Buildings can help reduce the effects of sound. The typical structural attenuation of noise is 15 dBA with open windows. With closed windows in good condition, the noise attenuation factor is around 20 dBA for an older structure and 25 dBA for a newer building. Sleep and speech interference is therefore possible when exterior noise levels are about 60 dBA L_{dn} with open windows and 65 to 70 dBA L_{dn} if the windows are closed. Levels of 55 to 60 dBA are common along collector streets and secondary arterials, while 65 to 70 dBA is a typical value for a primary/major arterial. Levels of 75 to 80 dBA are normal noise levels at the first row of development outside a freeway right-of-way. In order to achieve an acceptable interior noise environment, bedrooms facing secondary roadways typically need to have closable windows, and bedrooms facing major roadways and freeways typically need special glass windows.

Attitude surveys are used to measure a community's annoyance related to noises that intrude into homes or affect outdoor activity areas. Previous attitude surveys have determined that the causes for annoyance include interference with speech, radio and television, house vibrations, and sleep and rest. The L_{dn} as a measure of noise has been found to provide a valid correlation between the noise level and the percentage of people annoyed. However, there continues to be disagreement about the relative annoyance of noise caused by aircraft and ground transportation. When measuring the percentage of the population highly annoyed, the threshold for ground vehicle noise

is about 55 dBA L_{dn}. At an L_{dn} of about 60 dBA, approximately 2 percent of the population is highly annoyed. When the L_{dn} increases to 70 dBA, the percentage of the population highly annoyed increases to about 12 percent of the population. There is, therefore, an increase of about one percent per dBA between an L_{dn} of 60 to 70 dBA. Between an L_{dn} of 70 to 80 dBA, each decibel increases the percentage of the population that is highly annoyed by about 2 percent. In contrast, people appear to respond more adversely to aircraft noise. When the L_{dn} is 60 dBA, approximately 10 percent of the population is believed to be highly annoyed. Each decibel increase to 70 dBA adds about 2 percentage points to the number of people highly annoyed. Above 70 dBA, each decibel increase results in about a 3 percent increase in the percentage of the population highly annoyed.

b. Groundborne Vibration

Groundborne vibration is another potential source of noise-related annoyance. People's response to ground vibration has been correlated best with the velocity of the ground's vibration. The velocity of the ground is expressed on the decibel scale. The reference velocity is 1×10^{-6} inches/second root mean square (RMS), which equals 0 VdB; 1 inch/second equals 120 VdB. Although not a universally accepted notation, the abbreviation "VdB" is used in this chapter for vibration decibels to reduce the potential for confusion with sound decibels.

Typical background vibration levels in residential areas are usually 50 VdB or lower, well below the threshold of perception for most humans. Perceptible vibration levels inside residences are generally created by heating and air conditioning systems, door slams, and foot traffic. Railroad operations are other potential sources of substantial ground vibration, depending on distance from the track, the type and the speed of trains, and the type of railroad track. Other potential sources of vibration that can be perceptible inside residences include construction activities and street traffic. Table 4.11-3 illustrates some common sources of vibration and their association with human perception, as well as their potential for structural damage.

TABLE 4.11-3 ***TYPICAL LEVELS OF GROUNDBORNE VIBRATION***

Human/Structural Response	Velocity Level, VdB (re 1μinch/sec, RMS)	Typical Events (50-Foot Setback)
Threshold, minor cosmetic damage	100	Blasting, pile driving, vibratory compaction equipment
		Heavy tracked vehicles (bulldozers, cranes, drill rigs)
Difficulty with tasks such as reading a computer screen	90	
		Commuter rail, upper range
Residential annoyance, infrequent events	80	Rapid transit, upper range
Residential annoyance, frequent events		Commuter rail, typical bus or truck over bump or on rough roads
	70	Rapid transit, typical
Approximate human threshold of perception to vibration		Buses, trucks and heavy street traffic
	60	
		Background vibration in residential settings in the absence of activity
Lower limit for equipment ultra-sensitive to vibration	50	

Source: Illingworth & Rodkin, 2009, and U.S. Department of Transportation, Federal Transit Administration, 1995.

B. Regulatory Framework

This section describes the regulatory setting as it relates to environmental noise in the Ravenswood/4 Corners Transit Oriented Development Specific Plan area and provides a summary of State and local laws, policies, and regulations that apply to noise analyses.

1. Federal Regulations

The U.S. Department of Transportation has developed vibration impact assessment criteria for evaluating groundborne vibration impacts that are associated with rapid transit projects. These criteria, shown in Table 4.11-4, are based on maximum overall levels for a single event. As this table shows, there are separate criteria for frequent events, defined as those that occur more than 70 times each day, and infrequent events, which occur fewer times each day.

2. State Regulations

New multi-family housing, motels, and hotels in the State of California are subject to the environmental noise limits set forth in Chapter 12, Appendix Section 1207.11.2 of the 2007 California Building Code. The noise limit is a maximum interior noise level of 45 dBA L_{dn}. Where exterior noise levels exceed 60 dBA L_{dn}, a report must be submitted with building plans describing the noise control measures that have been incorporated into the design of the project to meet the interior noise limit.

3. Local Regulations and Policies

a. City of East Palo Alto General Plan Noise Element

The Noise Element of East Palo Alto's General Plan is intended to reduce noise impacts through proper planning and correction of noise problems. It also aims to minimize the effects of noise within the community, including noise from transportation as well as other sources. To accomplish this intent, the Noise Element contains goals and policies calling for noise control measures in new construction and appropriate siting of new land uses based on potential conflicts from noise. It also calls for the reduction of transportation-related noise impacts on sensitive land uses, such as residences.[1]

To ensure that noise producers do not adversely affect sensitive land uses, the City uses land use compatibility standards when making planning and development decisions. Table 4.11-5 summarizes the Noise Element's standards

[1] City of East Palo Alto, 1999, *City of East Palo Alto General Plan*, Noise Element, page 4.

TABLE 4.11-4 ***GROUNDBORNE VIBRATION IMPACT CRITERIA***

Land Use Category	Groundborne Vibration Impact Limits (VdB re 1 μinch/sec, RMS) Frequent Events[a]	Infrequent Events[b]
Category 1: Buildings where low ambient is essential for interior operations	65 VdB[c]	65 VdB[c]
Category 2: Residences and buildings where people normally sleep	72 VdB	80 VdB
Category 3: Institutional land uses with primarily daytime use	75 VdB	83 VdB

[a] "Frequent Events" is defined as more than 70 vibration events per day. Most rapid transit projects fall into this category.
[b] "Infrequent Events" is defined as fewer than 70 vibration events per day. This category includes most commuter rail systems.
[c] This limit is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes.
Source: U.S. Department of Transportation, Federal Transit Administration, 1995.

for various types of land uses, which are derived from Title 24 in the California Code of Regulations. The standards represent the maximum allowable noise level and are used to determine noise impacts. The noise standards act as City policy for acceptable noise levels for development.

The noise standards are the basis for the Noise Element's land use compatibility guidelines, which are presented in a matrix in Table 4.11-6. The primary purpose of the noise/land use matrix is to identify conflicts between proposed land uses and the existing and future noise environment. It achieves this purpose by establishing three zones for the regulation of projects with respect to noise. Builders of projects in East Palo Alto are required to demonstrate that the noise standards will be met prior to project approval.

If the noise level of a project falls within Zone A or Zone B, the project is considered compatible with the noise environment. Zone A implies that no

TABLE 4.11-5 ***INTERIOR AND EXTERIOR NOISE STANDARDS***

	Noise Standards[a]	
Land Use	**Interior** [b,c]	**Exterior**
Residential- single-family, multi-family, duplex, mobile home	CNEL 45 dB	CNEL 65 dB[d]
Residential - transient lodging, hotels, motels, nursing homes, hospitals	CNEL 45 dB	CNEL 65 dB[d]
Private offices, church sanctuaries, libraries, board rooms, conference rooms, theaters, auditoriums, concert halls, meeting halls, etc.	L_{eq} (12) 45 dB(A)	–
Schools	L_{eq} (12) 45 dB(A)	L_{eq} (12) 45 dB(A)[e]
General offices, reception, clerical, etc.	L_{eq} (12) 50 dB(A)	–
Bank lobby, retail store, restaurant, typing pool, etc.	L_{eq} (12) 55 dB(A)	–
Manufacturing, kitchen, warehousing, etc.	L_{eq} (12) 65 dB(A)	–
Parks, playgrounds	–	CNEL 65 dB(A)[e]
Golf courses, outdoor spectator sports, amusement parks	–	CNEL 70 dB(A)[e]

[a] CNEL = Community Noise Equivalent Level. L_{eq} (12) = The A-weighted equivalent sound level averaged over a 12-hour period (usually the hours of operation).
[b] Noise standard with windows closed. Mechanical ventilation shall be provided per UBC requirements to provide a habitable environment.
[c] Indoor environment excluding bathrooms, toilets, closets, and corridors.
[d] Outdoor environment limited to rear yard of single family homes, multifamily patios, and balconies (with a depth of 6 feet or more) and common recreation areas.
[e] Outdoor environment limited to playground areas, picnic areas, and other areas of frequent human use.
Source: East Palo Alto General Plan, 1999.

mitigation will be needed. Zone B implies that minor soundproofing of the structure may be needed to meet City noise standards.

If the noise level of a project falls within Zone C, substantial noise mitigation will be necessary to meet the noise standards. Mitigation may involve construction of noise barriers and substantial sound insulation in buildings. Project proponents must demonstrate that the noise standards will be met prior

TABLE 4.11-6 ***NOISE/LAND USE COMPATIBILITY MATRIX***

	Community Noise Equivalent Level (CNEL, dBA)						
Land Use Categories	55	60	65	70	75	80	
Residential – Single-Family, Multi-Family, Duplex	A	A	B	B	C		
Residential – Mobile Homes	A	A	B	C	C		
Transient Lodging – Motels, Hotels	A	A	B	B	C	C	
Schools, Libraries, Churches, Hospitals, Nursing Homes	A	A	B	C	C		
Auditoriums, Concert Halls, Amphitheaters, Meeting Halls	B	B	C	C			
Sports Arenas, Outdoor Spectator Sport, Amusement Parks	A	A	A	B	B		
Playgrounds, Neighborhood Parks	A	A	A	B	C		
Golf Courses, Riding Stables, Cemeteries	A	A	A	A	B	C	C
Office and Professional Buildings	A	A	A	B	B	C	
Commercial Retail, Banks, Restaurants, Theaters	A	A	A	A	B	B	C
Industrial, Manufacturing, Utilities, Wholesale, Service Stations	A	A	A	A	B	B	B
Agriculture	A	A	A	A	A	A	A

Note: Shaded areas indicate new construction or development should generally not be undertaken.

Zone A – Clearly Compatible. Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction without any special noise insulation requirements.

Zone B – Conditionally Acceptable. New construction or development should be undertaken only after detailed analysis of the noise reduction requirement is made and needed noise insulation features in the design are determined. Conventional construction, with closed windows and fresh air supply systems or air conditioning, will normally suffice.

Zone C – Normally Incompatible. New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of noise reduction requirements must be made and needed noise insulation features included in the design.

Source: East Palo Alto General Plan, 1999.

to issuance of a building permit. If the noise level falls outside of Zones A, B, and C, the project is considered clearly incompatible with the noise environment and should not be approved.

When noise-sensitive land uses are proposed within the 60 dB CNEL or greater contour, an acoustical analysis must be prepared. For a project to be approved, the analysis must demonstrate that the project is designed to attenuate noise to meet the City noise standards, as defined in Table 4.11-7. If the project is not designed to meet the noise standards, mitigation measures can be recommended in the analysis. If the analysis demonstrates that the noise standards can be met through implementation of the mitigation measures, the project can be approved with the mitigation measures required as conditions of project approval.[2]

b. Santa Clara County Airport Land Use Plan

The eastern area of East Palo Alto, including portions of the Plan Area within the Ravenswood Business District, is subject to noise of 60 dB from aircraft operations at Palo Alto Municipal Airport, located in Santa Clara County. The Santa Clara County Airport Land Use Plan (ALUP) provides development standards to minimize impacts from aircraft noise. To conform with the ALUP and the City noise standards in Table 4.11-7, the City has designated land within the 60 dB CNEL contour for non-residential uses such as industrial and commercial uses.[3]

c. City of East Palo Alto Municipal Code

Chapter 8.52, Noise Control, in the City's Municipal Code seeks to protect the citizens of East Palo Alto from unnecessary, excessive, and annoying noise; to maintain quiet in areas where noise levels are low; and to implement

[2] City of East Palo Alto, 1999, *City of East Palo Alto General Plan*, Noise Element, pages 6 through 11.

[3] City of East Palo Alto, 1999, *City of East Palo Alto General Plan*, Noise Element, page 11.

TABLE 4.11-7 ***EXTERIOR NOISE LEVEL STANDARDS FOR SINGLE- OR MULTI-FAMILY RESIDENCES, SCHOOLS, HOSPITALS, CHURCHES, AND PUBLIC LIBRARIES***

Category	Cumulative Number of Minutes in Any 1-Hour Time Period	Noise Level Standards, dBA	
		Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
1	30	55	50
2	15	50	55
3	5	65	60
4	1	70	60
5	0	75	70

Notes:

A. In the event the measured background noise level exceeds the applicable noise level standard in any category above, the applicable standard shall be adjusted in 5 dBA increments so as to encompass the background noise level,

B. Each of the noise level standards specified above shall be reduced by 5 dBA for simple tone noises, consisting primarily of speech or music, or for recurring or intermittent impulsive noises.

C. If the intruding noise source is continuous and cannot reasonably be stopped for a period of time whereby the background noise level can be measured, the noise level measured while the source is in operation shall be compared directly to the noise level standards in this table.

Source: City of East Palo Alto Municipal Code, 2009.

programs to reduce unacceptable noise. The regulations limit the amount of noise that may be created as measured at the exterior of any dwelling unit, school, hospital, church, or public library. Table 4.11-7 provides the Municipal Code's exterior noise standards. In addition, Chapter 8.52 limits the creation of noise that results in excessive noise levels within any dwelling unit. Table 4.11-8 provides the standards for interior noise in dwelling units. Ex-

ceptions to these standards are provided for activities such as special events and permitted daytime construction.[4]

C. *Existing Conditions*

Noise from transportation activity is the primary component of the noise environment in the Plan Area. Aircraft activity from the Palo Alto Municipal Airport forms the primary source of noise in the eastern portion of the Plan Area, where roadway traffic noise sources are limited. This area is located below the flight path for the Palo Alto Municipal Airport and is within the 60 CNEL noise contour for the airport, as shown in Figure 4.11-1. In addition to local airplane activity, overflight from jet aircraft is another source of noise associated with aircraft. The Union Pacific Railway tracks are located along the northern boundary of the Plan Area. These tracks were not used regularly as of November 2009, although Union Pacific reserves the right to run freight operations on these tracks. Other existing sources of noise in the Plan Area include traffic along the roadway network. This includes transportation corridors that traverse East Palo Alto, such as Highway 101; major arterial roadways, such as University Avenue and Bay Road; and collector roadways, such as Clarke and Pulgas Avenues.

Long-term noise levels within the Plan Area and surrounding areas were measured between Monday, November 9, 2009, and Wednesday, November 11, 2009, to quantify ambient noise levels in the project vicinity. These measurements included two standard business days as well as a portion of a holiday, Veteran's Day, on November 11. Short-term noise measurements were made on Wednesday, November 11, 2009, the Veteran's Day holiday, as well as Wednesday, November 18, 2009, a standard business day. Because the noise measurements include both holiday and non-holiday conditions, they

[4] City of East Palo Alto, 2009, *East Palo Alto Municipal Code*, Chapter 8.52, Noise Control.

Source: Santa Clara County ALUP, 1992.

FIGURE 4.11-1

PALO ALTO MUNICIPAL AIRPORT NOISE CONTOURS

TABLE 4.11-8 *INTERIOR NOISE LEVEL STANDARDS—DWELLING UNIT*

Category	Cumulative Number of Minutes in Any 1-Hour Time Period	Noise Level Standards, dBA	
		Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
1	5	45	40
2	1	50	45
3	0	55	50

Notes:

A. In the event the measured background noise level exceeds the applicable noise level standard in any category above, the applicable standard shall be adjusted in 5 dBA increments so to encompass the background noise level.

B. Each of the noise level standards specified above shall be reduced by 5 dBA for simple tone noises, noises consisting primarily of speech or music, or for recurring or intermittent impulsive noises.

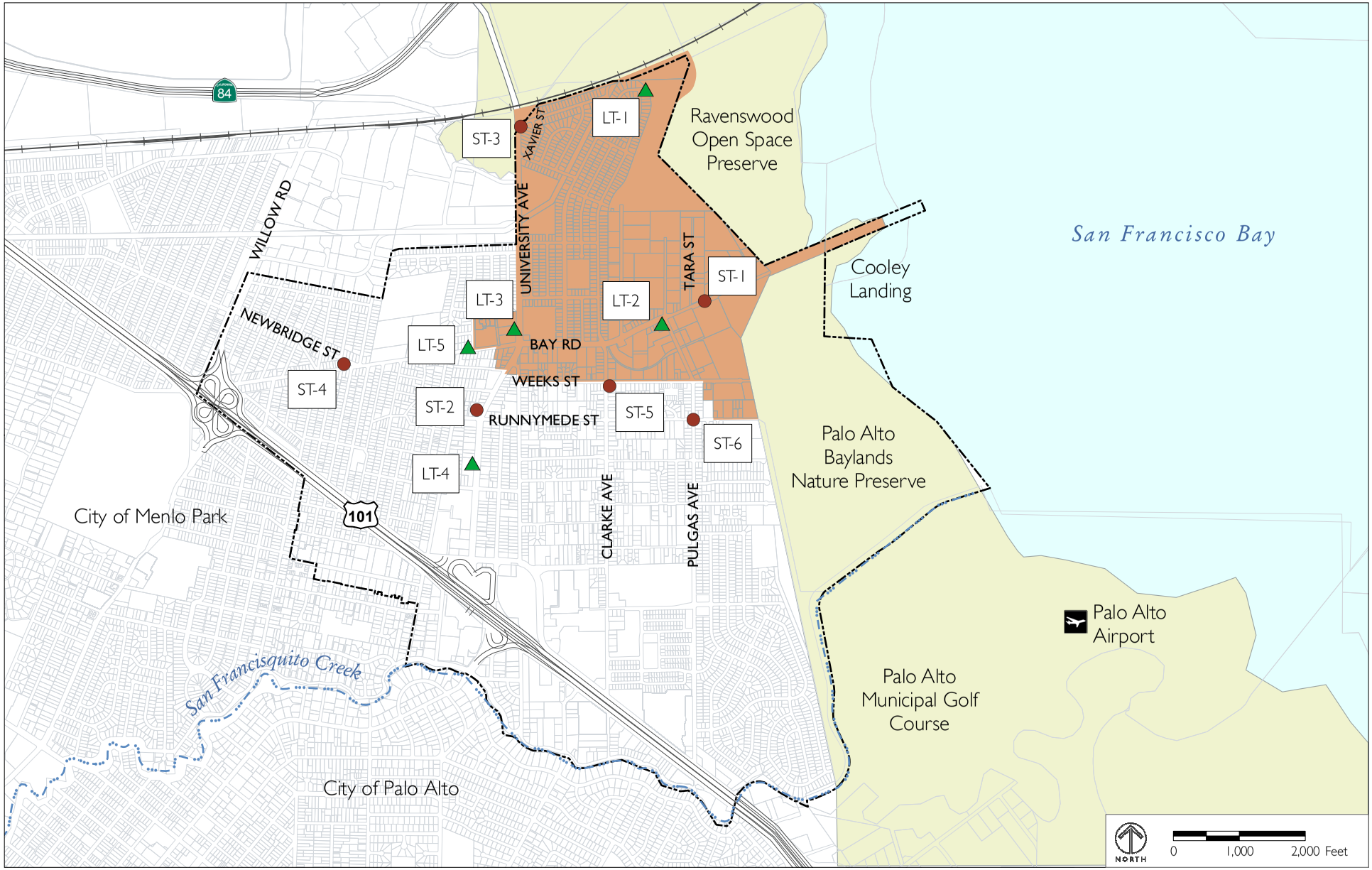
C. If the intruding noise source is continuous and cannot reasonably be stopped for a period of time whereby the background noise level can be measured, the noise level measured while the source is in operation shall be compared directly to the noise level standards in this table.

Source: City of East Palo Alto Municipal Code, 2009.

reflect a range of the noise conditions that can be expected in the Plan Area on different days throughout the year.

Long-term (LT) measurements were made at five locations, and short-term (ST) measurements were made at six locations. These measurements were collected along major arterial and collector roadways leading into and out of the Plan Area that may be affected by traffic noise, including any new traffic that results from new development in Ravenswood/4 Corners. The noise measurement locations are shown in Figure 4.11-2.

Noise measurements were made using Larson Davis Model 820 sound level meters fitted with precision microphones. The sound level measuring assemblies were calibrated prior to and immediately after the noise measurement



Source: City of East Palo Alto, 2009; Illingworth & Rodkin, 2009.

City Limits
Plan Area
Long-term Noise Measurement Location
Short-term Noise Measurement Location
Baylands
Railroad

FIGURE 4.11-2
NOISE MEASUREMENT LOCATIONS

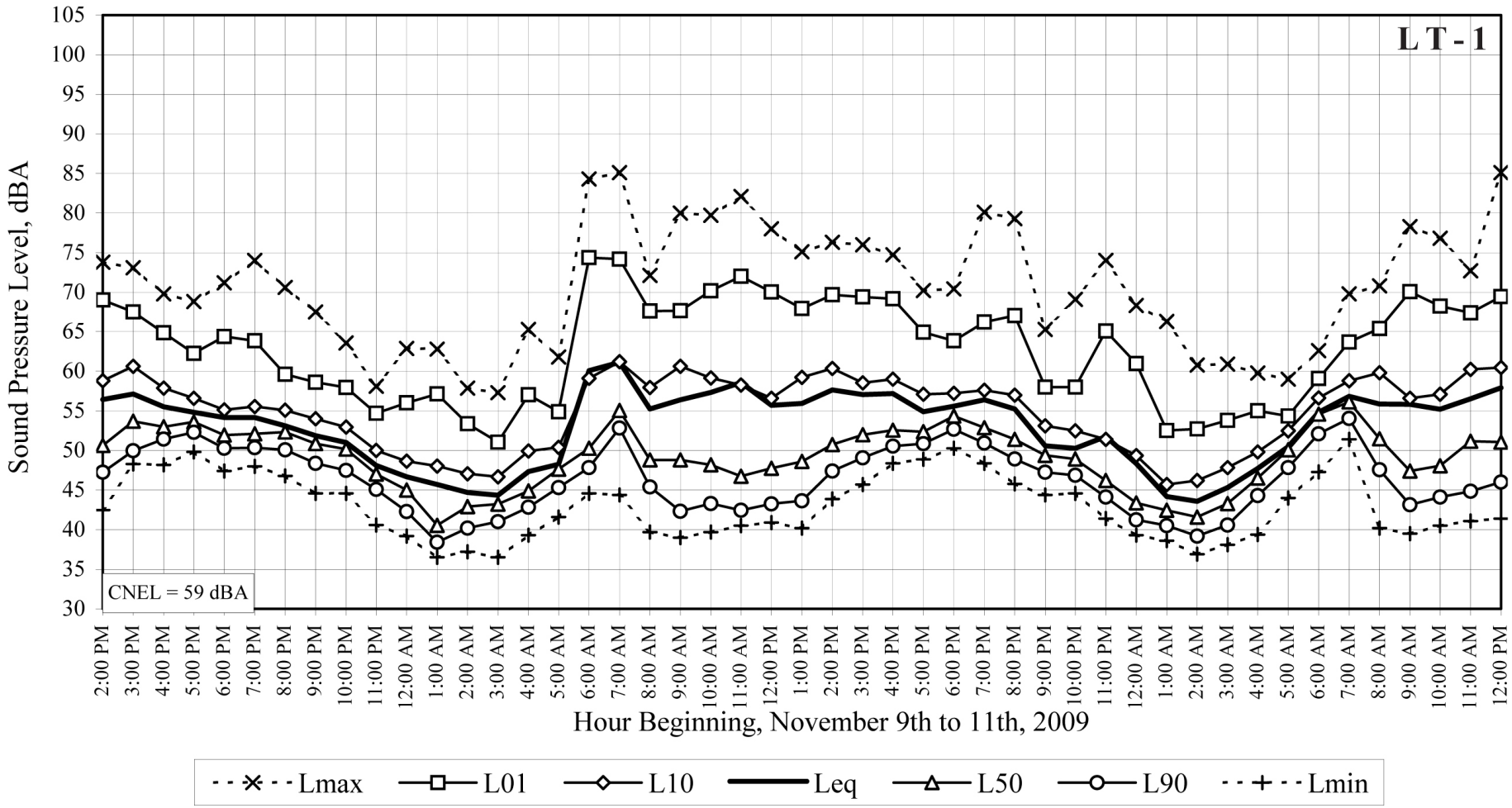
and were found to be within 0.1 dBA. Using the long-term noise measurement data, it is possible to determine the hour-by-hour distribution of noise levels allowing the 24-hour day/night average noise level (L_{dn}) to be estimated from short-term measurements made at satellite locations. Short-term measurements are conducted for 10-minute periods.

The following sections describe and discuss the noise measurement results. The daily trends in long-term noise level measurements are shown graphically in Figures 4.11-3 through 4.11-7.

a. Long-Term Noise Measurements

Long-term measurement location 1 (LT-1) was located near the intersection of Fordham Street and Illinois Street in the University Village neighborhood, at a height of approximately 12 feet above the surrounding ground level. The identified noise sources at this location were sparse local traffic on Fordham Street and Illinois Street; neighborhood activities; general aviation flights from the Palo Alto Municipal Airport; and distant noise from Highway 84 and University Avenue. Hourly L_{eq} noise levels ranged from 51 dBA to 61 dBA during daytime hours and 44 dBA to 60 dBA at night. The calculated Community Noise Equivalent Level (CNEL) at this location was 59 dBA between 2:00 p.m. on November 9 and 2:00 p.m. on November 10, a standard business day. The calculated CNEL was 58 dBA between 1:00 p.m. on November 10 and 1:00 p.m. on November 11, which included a portion of the Veteran's Day holiday on November 11. The calculated CNEL over the entire measurement period was 59 dBA. LT-1 was the only long-term measurement location in which differences were observed on the Veteran's Day holiday.

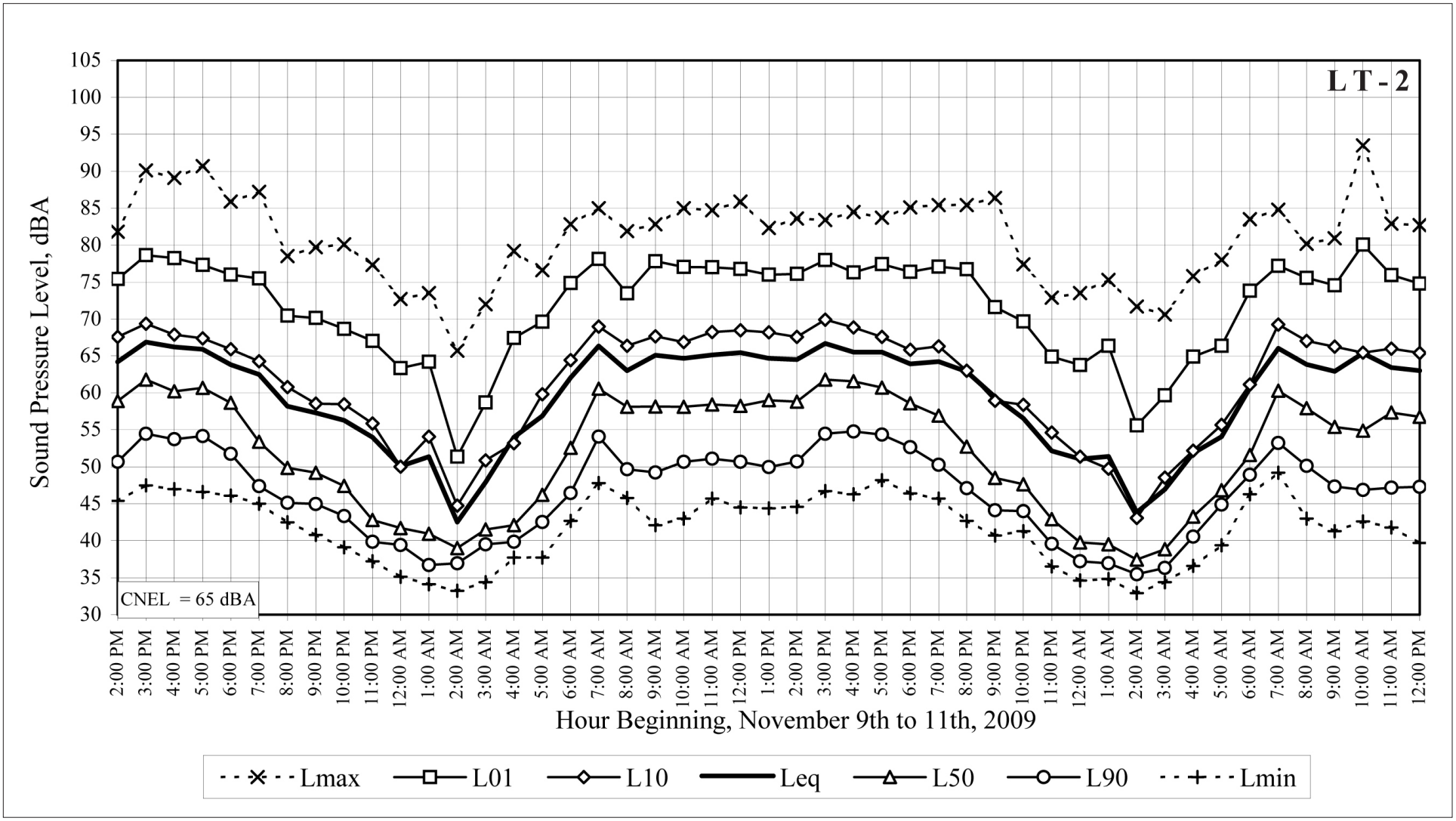
Long-term measurement location 2 (LT-2) was located along Pulgas Avenue near its intersection with Bay Road, about 35 feet from the centerline of Pulgas Avenue and about 125 feet from the centerline of Bay Road. The noise monitor was positioned at a height of approximately 10 feet above the surrounding ground. The primary noise source at this location was traffic on Pulgas Avenue and Bay Road, with general aviation flights from the Palo Alto



Source: Illingworth & Rodkin, 2009.

FIGURE 4.11-3

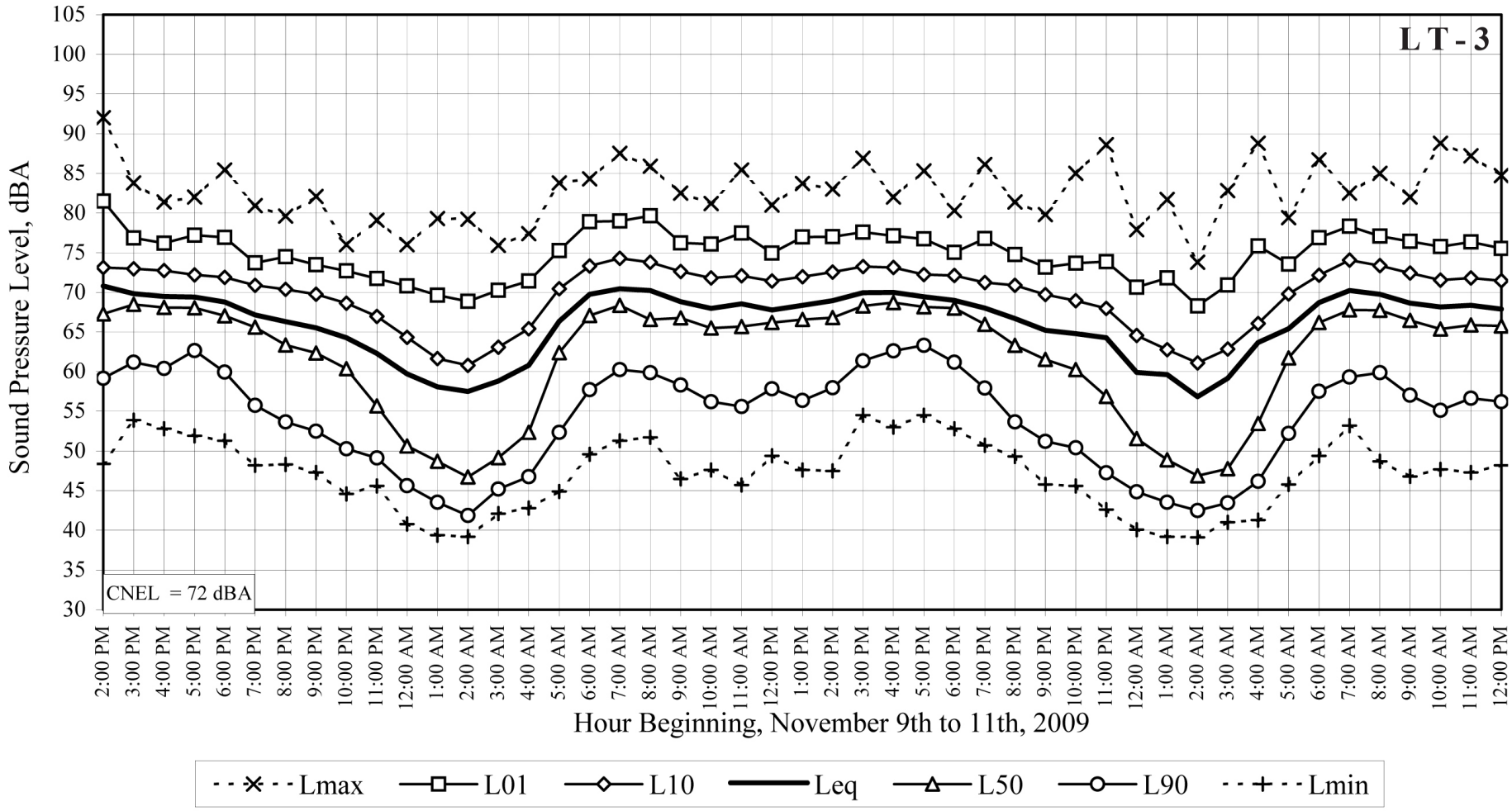
HOURLY NOISE LEVELS AT LT-1



Source: Illingworth & Rodkin, 2009.

FIGURE 4.11-4

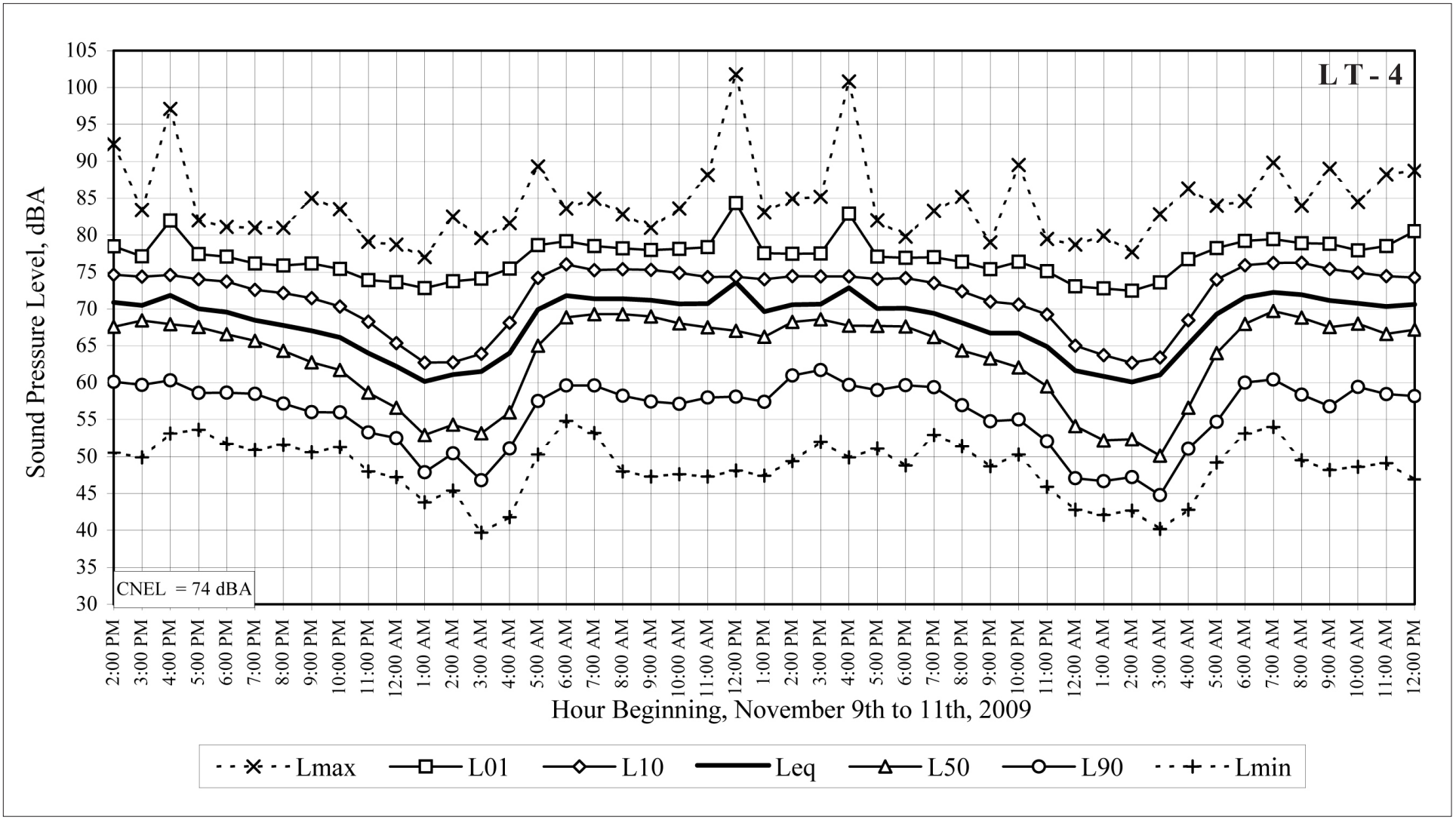
HOURLY NOISE LEVELS AT LT-2



Source: Illingworth & Rodkin, 2009.

FIGURE 4.11-5

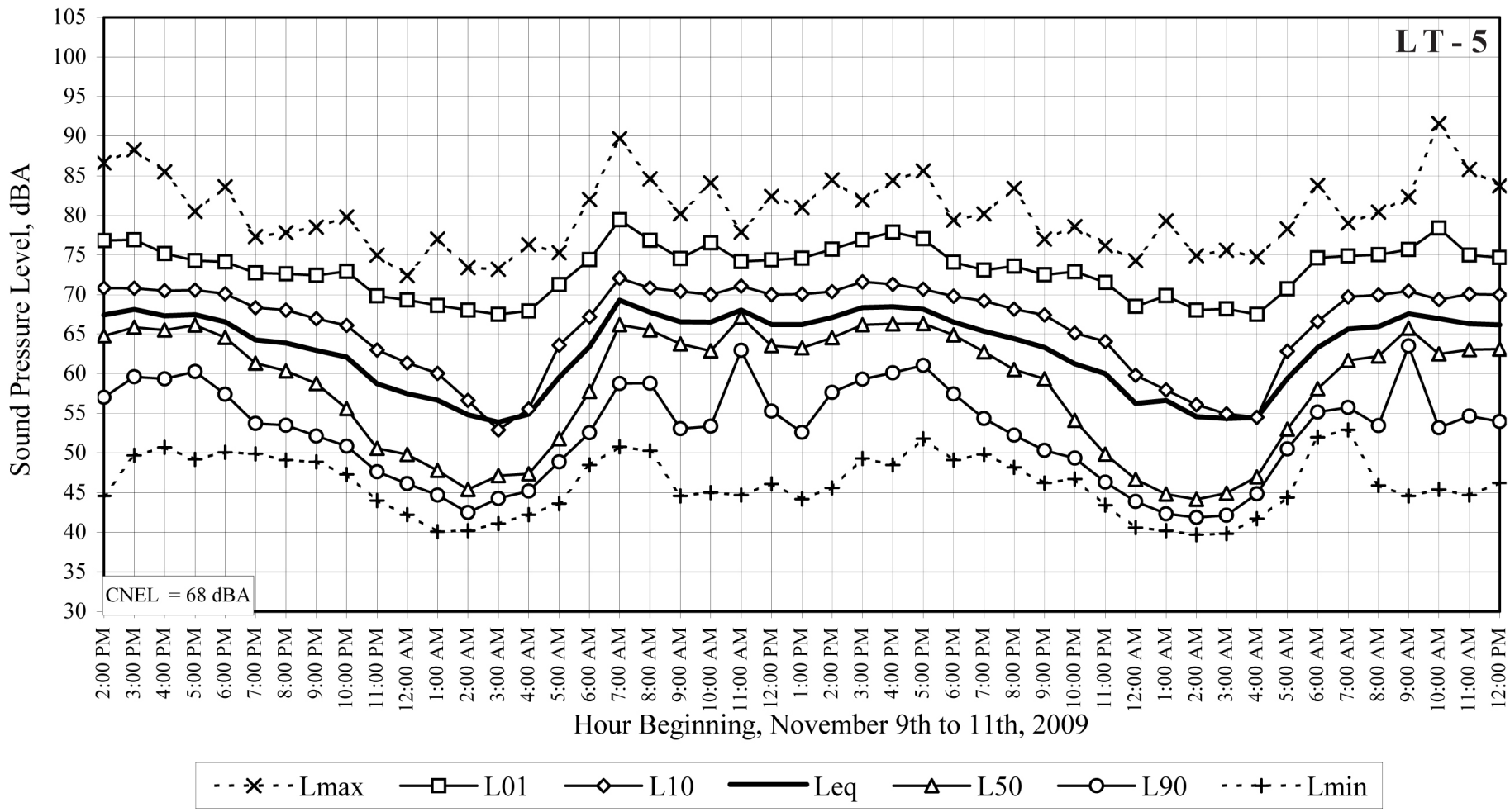
HOURLY NOISE LEVELS AT LT-3



Source: Illingworth & Rodkin, 2009.

FIGURE 4.11-6

HOURLY NOISE LEVELS AT LT-4



Source: Illingworth & Rodkin, 2009.

FIGURE 4.11-7

HOURLY NOISE LEVELS AT LT-5

Municipal Airport also acting as a significant contributor to ambient noise. Hourly L_{eq} noise levels ranged from 57 dBA to 67 dBA during daytime hours and 42 dBA to 62 dBA at night. The calculated CNEL at this location was 65 dBA through all portions of the measurement period.

Long-term measurement location 3 (LT-3) was located in front of East Palo Alto City Hall on University Avenue north of Bay Road, about 60 feet from the centerline of University Avenue, and positioned at a height of approximately 10 feet above the surrounding ground. The primary noise source at this location was traffic on University Avenue. Hourly L_{eq} noise levels ranged from 65 dBA to 71 dBA during daytime hours and 57 dBA to 70 dBA at night. The calculated CNEL at this location was 72 dBA through all portions of the measurement period.

Long-term measurement location 4 (LT-4) was located about 50 feet from the centerline of University Avenue between Runnymede and Bell Streets, in front of an existing childcare center, at a height of approximately 10 feet above the surrounding ground. The primary noise source at this location was traffic on University Avenue. Hourly L_{eq} noise levels ranged from 67 dBA to 74 dBA during daytime hours and 60 dBA to 72 dBA at night. The calculated CNEL at this location was 74 dBA through all portions of the measurement period.

Long-term measurement location 5 (LT-5) was located about 50 feet from the centerline of Bay Road, near its intersection with Gloria Way, at a height of approximately 8 feet above the surrounding ground. The primary noise source at this location was traffic on Bay Road. Hourly L_{eq} noise levels ranged from 63 dBA to 69 dBA during daytime hours and 54 dBA to 63 dBA at night. The calculated CNEL at this location was 68 dBA through all portions of the measurement period.

b. Short-Term Noise Measurements

Short-term noise measurements were made at additional representative locations during the same 10-minute midday periods on Wednesday, November

11, 2009, the Veteran's Day holiday, as well as Wednesday, November 18, 2009, a standard business day. A summary of the data measured at the short term locations are shown in Table 4.11-9. With the exception of general aviation-related noise, noise levels were largely consistent between holiday and non-holiday midweek conditions.

Short-term measurement location 1 (ST-1) was located along Bay Road near its intersection with Tara Street, at a height of about 5 feet above the ground. The primary noise sources at this location were general aviation flights and traffic on Bay Road. During the 10-minute measurement period on November 11, six automobiles passed on Bay Road, at speeds between 25 and 35 miles per hour (mph), and six general aviation flights passed the area. During the 10-minute measurement period on November 18, eight automobiles passed on Bay Road, at speeds between 25 to 35 mph, and two general aviation flights passed the area. The lower number of general aviation overflights on November 18 was likely due to the higher wind conditions on this day. The 10-minute L_{eq} on November 11 was 62 dBA, and the L_{eq} on November 18 was 58 dBA. The estimated CNEL at this measurement location is 60 dBA.

Short-term measurement location 2 (ST-2) was located about 85 feet from the centerline of University Avenue in an empty lot north of Runnymede Street, at a height of about five feet above the ground. The primary noise source at this location was traffic on University Avenue. During the 10-minute measurement period on November 11, 209 automobiles, four trucks and two buses passed on University Avenue at speeds between 30 and 40 mph. During the 10-minute measurement period on November 18, 228 automobiles, four trucks and two buses passed on University Avenue at speeds between 30 and 40 mph. The 10-minute L_{eq} on November 11 was 62 dBA, and the L_{eq} on November 18 was 63 dBA. The estimated CNEL at this measurement location is 66 dBA.

Short-term measurement location 3 (ST-3) was about 75 feet from the centerline of University Avenue, in an empty lot near the intersection of Xavier

TABLE 4.11-9 ***SUMMARY OF SHORT-TERM NOISE LEVELS MEASURED***

Site (Date/Time)	Leq, dBA	L10, dBA	L50, dBA	L90, dBA	Estimated CNEL, dBA
ST-1: Bay @ Tara					
(11/11/09, 11:10-11:20)	62	64	53	44	**60**
(11/18/09, 11:10-11:20)	58	62	54	47	
ST-2: University @ Runnymede					
(11/11/09, 11:30-11:40)	62	66	61	54	**66**
(11/18/09, 11:30-11:40)	63	66	61	53	
ST-3: University @ Rail Tracks					
(11/11/09, 11:50-12:00)	66	70	63	56	**70**
(11/18/09, 11:50-12:00)	67	71	66	54	
ST-4: Newbridge @ Bay					
(11/11/09, 12:10-12:20)	62	64	58	50	**64**
(11/18/09, 12:10-12:20)	62	66	61	53	
ST-5: Clarke @ Weeks					
(11/11/09, 12:30-12:40)	62	66	59	50	**63**
(11/18/09, 12:30-12:40)	63	67	60	52	
ST-6: Pulgas @ Runnymede					
(11/11/09, 12:50-13:00)	61	63	56	47	**62**
(11/18/09, 12:50-13:00)	60	63	56	48	

Source: Illingworth & Rodkin, 2009.

Street and Tulane Avenue in the University Village neighborhood. The primary noise source at this location was traffic on University Avenue. During the 10-minute measurement period on November 11, 174 automobiles and six trucks passed on University Avenue at speeds between 40 and 50 mph. During the 10-minute measurement period on November 18, 176 automobiles

and eight trucks passed on University Avenue at speeds between 40 and 50 mph. The 10-minute L_{eq} on November 11 was 66 dBA, and the L_{eq} on November 18 was 67 dBA. The estimated CNEL at this measurement location is 70 dBA.

Short-term measurement location 4 (ST-4) was on the vacant triangle of land between Newbridge Street and Bay Road, about 45 feet from the centerline of Newbridge Street and 100 feet from the centerline of Bay Road. The primary noise source at this location was traffic on Newbridge Street, with minor contributions from traffic on Bay Road. During the 10-minute measurement period on November 11, 65 automobiles passed on Newbridge Street at speeds between 30 and 35 mph, and five automobiles passed on Bay Road at speeds between 20 and 25 mph. During the 10-minute measurement period on November 18, 75 automobiles passed on Newbridge Street at speeds between 30 and 35 mph, and 13 automobiles passed on Bay Road at speeds between 20 and 25 mph. The 10-minute L_{eq} on both November 11 and November 18 was 62 dBA. The estimated CNEL at this measurement location is 64 dBA.

Short-term measurement location 5 (ST-5) was located at the northeast corner of the Clarke Avenue and Weeks Street intersection, 50 feet from the centerline of Clarke Avenue. The primary noise source at this location was traffic on Clarke Avenue, with minor contributions from traffic on Weeks Street. During the 10-minute measurement period on November 11, 51 automobiles passed on Clarke Avenue at speeds between 30 and 35 mph, and 10 automobiles passed on Weeks Street at speeds between 25 and 30 mph. During the 10-minute measurement period on November 18, 57 automobiles passed on Clarke Avenue at speeds between 30 and 35 mph, and five automobiles passed on Weeks Street at speeds between 25 and 30 mph. The 10-minute L_{eq} on November 11 was 62 dBA, and the L_{eq} on November 18 was 63 dBA. The estimated L_{dn} noise level at this measurement location is 63 dBA.

Short-term measurement location 6 (ST-6) was located at the southeast corner of the Pulgas Avenue and Runnymede Street intersection, 50 feet from the

centerline of Pulgas Avenue. The primary noise source at this location was traffic on Pulgas Avenue, with minor contributions from traffic on Runnymede Street, which is a dead end to the east. During the 10-minute measurement period on November 11, 37 automobiles passed on Pulgas Avenue at speeds between 30 and 35 mph, and six automobiles passed on Runnymede Street at speeds between 20 and 25 mph. During the 10-minute measurement period on November 18, 47 automobiles passed on Pulgas Avenue at speeds between 30 and 35 mph, and eight automobiles passed on Runnymede Street at speeds between 20 and 25 mph. The 10-minute L_{eq} on November 11 was 61 dBA, and the L_{eq} on November 18 was 60 dBA. The estimated L_{dn} noise level at this measurement location is 62 dBA.

c. Summary of Testing Results

The results of the long-term and short-term noise measurements show that existing CNEL levels at monitoring sites within the Plan Area ranged from between 58 and 72 dBA, while those at monitoring sites along transportation corridors outside of the Plan Area ranged from 62 to 74 dBA.

Noise levels along collector roadways both within and outside the Plan Area were found to be between 60 and 65 dBA CNEL. Based on this finding, noise levels along collector roadways would generally be considered clearly compatible with park, office, industrial, and commercial land uses and conditionally acceptable with residential, medical, and educational land uses.

Noise levels along the major arterial roadways both within and outside the Plan Area were found to be between 65 and 75 dBA CNEL. Based on this finding, noise levels along major arterial roadways would generally be considered clearly to conditionally compatible with commercial and industrial land uses and conditionally compatible with park and office land uses. Noise levels would be conditionally acceptable to normally incompatible with residential, medical, and educational land uses; if these uses were proposed along the major arterial roadways, special acoustical treatments could be required to reduce interior noise levels.

D. Standards of Significance

Noise and Vibration impacts associated with the Plan would be considered significant if the Plan would result in:

a. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

b. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.

c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.

d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

e. For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels.

f. For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels.

E. Impact Discussion

1. Project Impacts

The following discussion provides an overview of changes in the noise environment and community noise exposure that could result from implementation of the Specific Plan.

a. Exposure of persons to or generation of noise levels in excess of standards. ***(LTS with Mitigation)***

The Specific Plan proposes to develop noise sensitive mixed-use residential uses along major and local roadways and adjacent to proposed industrial uses. The Specific Plan also proposes to develop Industrial Uses and Residential Uses with Civic Use envisioned adjacent to existing and proposed residential areas. The majority of the mixed-use residential development proposed in the Specific Plan is expected to include retail or commercial uses on the ground floor with residences located on the upper stories. These residential units could be exposed to traffic or industrial noise. The majority of the proposed mixed-use residential developments in the Specific Plan Area would not be expected to include private outdoor yards, and small decks and entry porches would not be required to meet the exterior guidelines. However, where private outdoor yards and/or outdoor common use areas are proposed for residential uses located in noise environments exceeding 60 dBA CNEL noise mitigation, such as appropriate site design or sound barriers, would be required to achieve the compatibility guideline.

The existing noise environment throughout the Specific Plan Area and the surrounding community is in the range of 60 to 65 dBA CNEL along the surface streets and between 65 and 74 dBA CNEL along University Avenue and Bay Road. Noise levels along many Specific Plan roadways would, therefore, exceed those considered normally compatible with exterior residential uses (60 dBA CNEL).

Where exterior noise levels exceed 60 dBA CNEL, interior noise levels may also exceed the interior 45 dBA CNEL standard established in the City's Noise Element and the State Building Code. Typical California construction provides approximately 15 dBA of noise reduction from exterior noise sources with windows partially open, and approximately 20 to 25 dBA of noise reduction with windows kept closed. Where exterior noise levels do not exceed 65 to 70 dBA L_{dn}, interior noise can be mitigated with standard wall and window construction and the inclusion of mechanical forced air ventilation, acceptable to the City of East Palo Alto, to allow occupants the op-

tion of maintaining windows closed to control noise. Where exterior noise levels exceed 65 to 70 dBA L_{dn}, residential units would not normally be able to meet the 45 dBA L_{dn} interior standard simply through typical construction methods. This would be a ***significant*** impact.

Impact NOI-1: Future residential development in the Plan Area and existing residences bordering the Plan Area may be exposed to outdoor and indoor noise levels in excess of City and State 60 dBA CNEL outdoor and 45 dBA CNEL indoor noise limits. In addition, new residential uses proposed adjacent to existing and proposed noise-generating uses, including commercial uses could be exposed to noise levels that exceed the City's Noise Ordinance limits. ***(LTS with Mitigation)***

Mitigation Measure NOI-1: In areas where new residential development would be exposed to a CNEL of greater than 60 dBA, site-specific noise studies shall be conducted to determine the area of impact and to present appropriate mitigation measures, which may include the following:

- Minimize noise in shared residential outdoor activity areas by locating the areas behind buildings or in courtyards, or by orienting the terraces to alleyways rather than streets, wherever possible.
- Provide mechanical ventilation in conformance with UBC requirements and specified in the General Plan, in all residential units proposed along roadways or in areas where noise levels could exceed 60 dBA CNEL so that windows can remain closed at the choice of the occupants to maintain interior noise levels below 45 dBA CNEL.
- Install sound-rated windows and use appropriate construction methods to provide the requisite noise control for residential units proposed along roadways or in areas where noise levels could exceed 70 dBA CNEL.

Significance after Mitigation: With appropriate site planning and use of mechanical ventilation systems to allow windows to remain closed, and

appropriate windows and construction methods, the impact can be reduced to ***less than significant***.

The Specific Plan may also implement development of new residential uses adjacent to or within the same building as noise-generating commercial, retail, and/or industrial uses. Noise levels resulting from heating, ventilating, and air conditioning equipment, entertainment, etc., from such could exceed the City's Noise Ordinance limits. This would be a ***significant*** impact.

Impact NOI-2: Mixed-use buildings identified in the Specific Plan may include residential uses within the same building as noise-generating commercial and retail uses. Noise levels resulting from operational noise from the non-residential use may exceed the City's noise ordinance limits within the affected residences. ***(LTS with Mitigation)***

Mitigation Measure NOI-2: Incorporate appropriate noise controls in residential mixed-use buildings so that noise levels produced by the non-residential use with the building comply with the exterior and interior noise standards contained in Sections 8.52.320 and 8.52.330 of the East Palo Alto Municipal Code.

Significance After Mitigation: With use of appropriate noise controls, the impact would be ***less than significant***.

The Specific Plan also proposes to develop Industrial Uses and Residential Uses with Civic Use envisioned adjacent to existing and proposed residential areas. Noise levels resulting from the operation of these new uses could result in noise levels exceeding the City's noise element and/or ordinance limits at these existing residential uses. Noise mitigation, such as proper facility or site design, operational limits, and/or sound barriers, may be required to comply with City noise standards where these adjacencies occur. This would be a ***significant*** impact.

Impact NOI-3: Under the Specific Plan industrial uses and residential uses (with civic use envisioned) would be developed adjacent to existing and proposed residential areas. Noise levels resulting from the operation of these new uses could result in noise levels exceeding the City's Noise Element and/or Ordinance limits at these existing residential uses. ***(LTS with Mitigation)***

Mitigation Measure NOI-3: Limit exterior noise levels in noise sensitive outdoor use areas to levels specified in Section 8.52.320 of the East Palo Alto Municipal Code as specified in Table 4.11-7 of this document. Meeting these noise performance standards would be the responsibility of the developer of the proposed use. In areas where new residential development would be located adjacent to noise-generating uses, site-specific noise studies shall be conducted to determine the area of impact and to present appropriate mitigation measures, which would include the measures recommended in Mitigation Measure NOI-1.

Significance After Mitigation: If new developments meet requisite noise performance standards, the impact would be ***less than significant***.

b. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels. ***(LTS with Mitigation)***

Construction of projects under the Specific Plan would be located adjacent to existing structures. Construction activities may include demolition of existing structures, site preparation work, excavation of below grade levels, foundation work, pile driving, and framing. Demolition for an individual site may last several weeks and at times may produce substantial vibration. Excavation for underground levels may also occur on some project sites and vibratory pile driving could be used to stabilize the walls of the excavated area. Piles or drilled caissons may also be used to support building foundations.

Pile driving has the potential to generate the highest ground vibration levels and is of primary concern to structural damage, particularly when it occurs within 100 feet of structures. Vibration levels generated by pile driving ac-

tivities would vary depending on project conditions such as soil conditions, construction methods, and equipment used. Past studies have established a peak vertical particle velocity of 0.2 in./sec PPV as the limit, which could potentially cause cosmetic damage. Other project construction activities, such as caisson drilling, the use of jackhammers, rock drills and other high-power or vibratory tools, and rolling stock equipment (tracked vehicles, compactors, etc.) may also potentially generate substantial vibration in the immediate vicinity.

Depending on the proximity of existing structures to each construction site, the structural soundness of the existing buildings, and the methods of construction used, vibration levels caused by pile driving or other impact work may be high enough to damage existing structures. This is a ***significant*** impact.

Impact NOI-4: Structures in the vicinity of the Specific Plan Area could be exposed to construction-related vibration during the excavation and foundation work associated with individual development projects. ***(LTS with Mitigation)***

Mitigation Measure NOI-4a: The following measures, in addition to the best practices specified in Mitigation Measure NOI-5b, shall be followed to reduce vibration from construction activities and should be employed where feasible:

- Avoid impact pile driving, where feasible. Drilled piles cause lower vibration levels where geological conditions permit their use.
- Avoid using vibratory rollers and tampers near sensitive areas, where feasible.

Mitigation Measure NOI-4b: In areas where project construction is anticipated to include vibration-generating activities, such as pile driving, in close proximity to existing structures, site-specific vibration studies shall be conducted to determine the area of impact and to present appropriate mitigation measures that may include the following:

- Identify projects that would include vibration generating activities, such as pile driving and heavy construction equipment, which have the potential to generate high ground-borne vibration levels at, nearby vibration sensitive structures. Vibration limits appropriate to the type of use and building structure shall be applied to all vibration-sensitive structures located within 200 feet of the project. Safe vibration limits that can be applied to assess the potential for damaging a structure vary by researcher and there is no general consensus as to what amount of vibration may pose a threat for structural damage to the building.[5] However, the Federal Transit Administration's (FTA) has established guidelines for transit and related construction projects, which are deemed appropriate for the type of projects expected in the Specific Plan Area. Therefore these criteria, as shown in Table 4.11-10, should be utilized to assess potential construction vibration impacts due to project implementation. This task shall be conducted by a qualified structural engineer.

- Develop a vibration monitoring and construction contingency plan to identify structures where monitoring would be conducted; set up a vibration monitoring schedule; define structure-specific vibration limits; and address the need to conduct photo, elevation, and crack surveys to document before and after construction conditions. Construction contingencies shall be identified for when vibration levels approach the limits identified in Table 4.11-10.

- At a minimum, monitor vibration during initial demolition activities and during pile-driving activities. Monitoring results approaching the vibration thresholds shown in Table 4.11-10 may indicate the need for a more intensive measurement schedule and results significantly below the vibration thresholds may indicate a less intensive measurement schedule.

[5] California Department of Transportation, Noise, Vibration, and Hazardous Waste Management Office, Sacramento, CA *Transportation- and construction-induced vibration guidance manual.* 2004, pg.15-18

TABLE 4.11-10 ***BUILDING VIBRATION DAMAGE CRITERIA***

Vibration Level		
PPV (in/sec)	**Approx. VdB[a]**	**Building Category**
0.5	102	I. Reinforced-concrete, steel or timber (no plaster)
0.3	98	II. Engineered concrete and masonry (no plaster)
0.2	94	III. Non-engineered timber and masonry buildings
0.12	90	IV. Buildings extremely susceptible to vibration damage

[a] RMS velocity in decibels (VdB) re 1 micro-inch/second

- ♦ When vibration levels approach limits identified in Table 4.11-10, suspend construction and implement contingencies to either lower vibration levels or secure the affected structures.
- ♦ Conduct post-construction survey on structures where either monitoring has indicated high levels or complaints of damage has been made. Make appropriate repairs or compensation where damage has occurred as a result of construction activities.

Significance After Mitigation: By incorporation of these methods, construction vibration could be reduced to ***less than significant***.

c. Create a substantial permanent increase in ambient noise levels. ***(LTS)***

The implementation of the Specific Plan would result in an increase in traffic and traffic noise in the Specific Plan Area and in surrounding neighborhoods. The increase in traffic noise is calculated by comparing existing traffic volume on the street network to future traffic volumes that are projected if the Specific Plan is implemented. Traffic noise increases were calculated for the 24 intersections analyzed in the traffic report. Measurable increases ranging from less than 1 dBA to up to about 2 dBA in traffic noise are predicted to

occur along most of the streets throughout the Specific Plan Area. Traffic noise levels along Bay Road within the Specific Plan Area are calculated to increase by between 3 and 16 dBA with increases of between 3 and 5 dBA on portions of this roadway, which are current fairly well traveled (west of Pulgas Avenue), and traffic noise increases of up to 16 dBA along Bay Road east of Pulgas Avenue. Traffic noise levels would also increase by 3 to 4 dBA along Pulgas Avenue and 3 and 5 dBA along Weeks Street. With the exception of the relatively undeveloped areas in the eastern portions of the Specific Plan area, the primary noise source is due to traffic on area roadways, and thus these increases would directly correlate to increases in CNEL levels along these roadways. However, in the largely undeveloped eastern portion of the Plan area one of the primary noise sources is due to general aviation over-flights. Considering that general aviation over-flights are a major noise source in the area the traffic noise increase of up to 16 dBA along Bay Road east of Pulgas is calculated to result in an increase in the existing CNEL in this area of 5 dBA.

Typically in high noise environments (i.e. greater than 60 dBA, CNEL), an increase by more than 3 dB L_{dn} due to the project would be considered a significant impact. Where the existing noise levels are lower (i.e. less than 60 dBA, CNEL), a greater than 5 dB, L_{dn} increase would be considered a significant impact.

Specific Plan Policy TRA-2.4 requires use of "quieter" paving types such as Open-Grade Rubberized Asphaltic Concrete along Bay Road, Pulgas Avenue and Weeks Street in the Plan Area and vicinity. The use of "quiet" pavement can reduce noise levels by 2 to 5 dBA depending on the existing pavement type, traffic speed, traffic volumes, and other factors.

With this policy in place, it is unlikely that noise along these streets would be increased to the point where the impact would be significant and there would be a ***less-than-significant*** impact.

d. Create a substantial temporary or periodic increase in ambient noise levels. ***(LTS with Mitigation)***

Existing residences are located within portions of the Specific Plan Area and at portions of its periphery. Existing businesses are also located in and adjacent to the Plan Area. Residences and businesses in the vicinity of the Plan Area would be affected by construction noise during buildout of the Plan. Construction noise impacts primarily result when construction activities occur during noise-sensitive times of the day (early morning, evening, or nighttime hours), the construction occurs in areas immediately adjoining noise sensitive land uses, or when construction durations last over extended periods of time. Major noise generating construction activities would include removal of existing pavement and structures, site grading and excavation, building framing, paving, and landscaping.

The highest construction noise levels would be generated during grading excavation and foundation work, with lower noise levels occurring during building construction. Large pieces of earth-moving equipment, such as graders, scrapers, and bulldozers, generate maximum noise levels of 85 to 90 dBA at a distance of 50 feet. Typical hourly average construction-generated noise levels are about 80 to 85 dBA measured at a distance of 50 feet from the site during busy construction periods. In addition, pile driving may occur at some development sites. This type of construction activity can produce very high noise levels of approximately 105 dBA at 50 feet, which are difficult to control. The noise levels drop off at a rate of about 6 dBA per doubling of distance between the noise source and receptor. Intervening structures would also result in lower noise levels.

Although construction noise would be localized to the individual sites during construction, businesses and residences throughout the Plan Area could be intermittently exposed to elevated levels of noise throughout the years of construction. Though Noise Ordinance Policy 8.52.350-E exempts "noise associated with demolition, construction, repair, remodeling or grading of any real property, provided such activities do not take place between the hours of 8:00 p.m. and 7:00 a.m.," construction would elevate noise levels at

adjacent businesses and residences by as much as 15 to 20 dBA, and may take place over a multi-year period. Such an increase in the noise level, although it would be short-term in duration, would be a ***significant*** impact.

Impact NOI-5: Although construction noise would be localized to the individual construction sites, businesses and residences throughout the Plan Area would be exposed to high levels of noise as construction occurs in the Plan Area. Noise levels at adjacent businesses and residences could increase by 15 to 20 dBA or more for relatively short periods of time during specific construction activity. ***(LTS with Mitigation)***

Mitigation Measure NOI-5a: Implement the provisions of Section 8.52.350-E of the East Palo Alto Municipal Code that regulate construction hours.

Mitigation Measure NOI-5b: Construction equipment shall be well-maintained and used judiciously to be as quiet as practical. The following measures, when applicable, shall be required to reduce noise from construction activities:

- Ensure that all internal combustion engine-driven equipment is equipped with mufflers that are in good operating condition and appropriate for the equipment.
- Utilize "quiet" models of air compressors and other stationary noise sources where such technology exists.
- Locate stationary noise-generating equipment as far as reasonable from sensitive receptors where sensitive receptors adjoin or are near a construction project area.
- Prohibit unnecessary idling of internal combustion engines in excess of 5 minutes.
- Pre-drill foundation pile holes to minimize the number of impacts required to seat the pile.

- Construct solid plywood fences around construction sites adjacent to operational business, residences or noise-sensitive land uses.
- Erect a temporary noise control blanket barrier, if necessary, along building facades facing construction sites. This mitigation would only be necessary if conflicts occurred that were irresolvable by proper scheduling. Noise control blanket barriers can be rented and quickly erected and with proper installation can typically lower construction noise levels by 10 dBA (10 dBA represents a perceived halving of noise levels).
- Route construction-related traffic along major roadways and as far as feasible from sensitive receptors.
- Ensure that construction activities, including the loading and unloading of materials and truck movements, are limited to the hours specified in Section 8.52 of the East Palo Alto Municipal Code.
- Notify businesses, residences, and noise-sensitive land uses adjacent to construction sites of the construction schedule in writing. Designate a "construction liaison" who is responsible for responding to any local complaints about construction noise. The liaison shall determine the cause of the noise complaints (for example starting too early, or a bad muffler) and institute reasonable measures to correct the problem. Conspicuously post a telephone number for the liaison at the construction site.

Significance After Mitigation: By incorporation of these methods, construction noise could be reduce to ***less than significant***.

e. Expose people to excessive noise levels within an airport land use plan, public airport, or public use airport. ***(LTS)***

The 60 dBA CNEL noise contour due to aircraft activity at the Palo Alto Municipal Airport crosses over the eastern portion of the Specific Plan Area. Land uses proposed within the 60 dBA CNEL contour include Office and Industrial uses. According to the City's General Plan Noise and Land Use

Compatibility Matrix, such us are considered Clearly Compatible with this level of environmental noise. This is a ***less-than-significant*** noise impact.

f. Expose people to excessive noise levels within the vicinity of a private airstrip. ***(LTS)***

The project is not located in the vicinity of a private airstrip. This is a ***less-than-significant*** noise impact.

2. Cumulative Impacts

Cumulative noise impacts due to traffic on existing roadways are considered as part of the project-levels analysis since the noise analysis is based on the traffic model where input included planned and approved projects in the City (Future Conditions) plus traffic anticipated by General Plan buildout projections. Therefore, cumulative impacts along existing roadways in and around the project area would be the same as project level impacts.

In the future, the rail line at the northern edge of the Specific Plan Area, which is current inactive, may be used for passenger rail service between the East Bay and Peninsula communities. Though several studies have been conducted for this project, none has defined the number of trains per day or types of engines that may be used. However, reports completed for the project have concluded that noise and vibration impacts could occur at noise-sensitive uses adjacent to new station sites and along track locations as a result of temporary construction activities and long-term operation of the rail service.[6] Considering this, and based on experience gained from a variety of other passenger rail services, such as Caltrain, ACE and BART rail service, adjacent to existing residential uses it is expected that the implementation of the DRC would result in a significant impact on the existing residences at the northern edge of the Specific Plan Area.

The project also proposes a new Loop road, which would wrap around the northern and eastern edges of the existing single-family residential neighbor-

[6] Dumbarton Rail Corridor Project - Environmental Phase 1 Final Report, March 3, 2006

hood in the northern portion of the Specific Plan Area, connecting the University Avenue DRC transit station to the current terminus of Demeter Street. A review of conceptual Specific Plan roadway alignments shows that the centerline of this roadway may be between 60 to 70 feet from the rear property lines of the homes along Illinois Street and between 25 to 35 feet from the rear property lines of the homes along Tulane Avenue.

The new roadway alignment would also pass by areas proposed for Office Use under the Specific Plan. Based on the traffic volumes given in the Traffic Study at the two terminuses of the Loop road, and assuming that the new roadway will either be at the current grade or above the current grade on a levee structure, traffic on the Loop Road is expected to result in a noise level of up to 64 dBA CNEL at the rear property lines of homes along Illinois Street and a noise level of up to 68 dBA CNEL at the rear property lines of homes along Tulane Avenue and the end of Fordham Street. Depending on the type and frequency of rail service under the DRC project total noise levels at the rear property lines of homes along Tulane Avenue and the end of Fordham Street may exceed a CNEL of 70 dBA. This noise level would exceed the current noise environment in these area by over 5 dBA (CNEL) and the City's exterior noise and land use compatibility standard of 60 dBA CNEL. This would be a ***significant*** impact.

Impact NOI-CUM-1: If the Dumbarton Rail Service Corridor Project is implemented, and the Loop Road used according to cumulative traffic projections, the existing residences at the northern edge of the Specific Plan Area may be exposed to outdoor and indoor noise levels in excess of City and State 60 dBA CNEL outdoor and 45 dBA CNEL indoor noise limits. ***(LTS with Mitigation)***

> Mitigation Measure NOI-CUM-1: In areas where existing residential development would be exposed to a CNEL of greater than 60 dBA due to Loop Road traffic and/or Dumbarton Rail project noise, site-specific noise studies shall be conducted to determine the area of impact and to provide appropriate mitigation measures, which may include the following:

- Conduct area-specific noise studies to determine the need for sound walls, or sound walls in combination with earthen berms, to reduce noise levels to 60 dBA CNEL or less in rear yards of homes adjacent to the loop road.
- Utilize roadway and site planning in the loop road design and layout to minimize noise in adjacent residential outdoor activity areas through the use of increased distances to these areas or the placement of intervening earthen berms.
- If 60 dBA CNEL or less is not achieved in rear yards, mechanical ventilation shall be provided in the affected residences so that windows can remain closed at the choice of the occupants to maintain interior noise levels below 45 dBA CNEL as per the requirements of the City's Noise Ordinance.

Significance After Mitigation: By incorporation of these methods, construction noise could be reduce to ***less than significant***.

4.12 POPULATION AND HOUSING

This chapter describes the existing population and housing conditions in East Palo Alto and the Ravenswood/4 Corners Transit-Oriented Development Specific Plan area and evaluates the potential impacts of the Plan on population and housing. A summary of the relevant regulatory setting and existing conditions is followed by a discussion of Plan-specific and cumulative impacts.

A. Regulatory Framework

This section describes the regulatory setting as it relates to population and housing in the Ravenswood/4 Corners Transit-Oriented Development Specific Plan area.

1. City of East Palo Alto General Plan

The primary regulatory document addressing population and housing in East Palo Alto is the General Plan. Table 4.12-1 includes a list of the relevant goals and policies related to population and housing.

a. Land Use Element

The Land Use Element calls for a mix of land uses to meet the community's needs and to provide housing sites to support commercial services.

b. Housing Element

The City of East Palo Alto adopted the Housing Element in June 2010. The Housing Element identifies a number of sites in East Palo Alto where new housing could be accommodated through 2014, as required by the State-mandated Regional Housing Need Allocation (RHNA) process.[1] As shown in Figure 4.10-2, these sites include several parcels on Pulgas Avenue, in Ravenswood. The Housing Element states that housing must be accommodated on these sites in order to provide opportunities for housing that is affordable to extremely-low-income, very-low-income, and low-income residents, in

[1] City of East Palo Alto, 2010, *City of East Palo Alto Housing Element,* page 4-9.

TABLE 4.12-1 ***GENERAL PLAN POLICIES RELEVANT TO POPULATION AND HOUSING***

Goal/Policy Number	Goal/Policy Content
Land Use Element	
Goal 1.0	*Develop a balanced land use pattern that meets community needs for residential, commercial, industrial, and public uses.*
Policy 1.3	Promote mixed commercial and residential use projects to conserve land and provide additional housing opportunities and population to support commercial services and retail sales.
Housing Element	
Goal 1.0	*Sufficient numbers and varieties of housing units (houses, townhomes, condominiums, and apartments) needed to: meet the State's mandate to replace affordable units/bedrooms demolished due to Redevelopment Agency action; address the City's Regional Housing Needs Determination; and facilitate housing development for all incomes segments within East Palo Alto, including extremely low-, very low-, low-, moderate-, and above-moderate income housing.*
Policy 1.1	Work collaboratively with the development community to facilitate the development of a range of housing choices (by type, size, and price range) that meet the City's needs.
Goal 2.0	*Balanced development that links housing to jobs*
Policy 2.1	Promote the concept of smart growth whereby housing is concentrated around job centers and along transportation corridors in order to reduce traffic, improve air quality, conserve energy, and increase efficient land use.
Action 2.1	Develop a specific plan for the Ravenswood/4 Corners Transit-Oriented Development Area to guide the conversion of the existing light and heavy industrial uses into higher density residential, commercial, and mixed-use uses that will support a future potential transit station.
Action 2.2	Evaluate development standards and identify rezoning opportunities along University Avenue's commercial nodes to increase mixed-use development along the corridor.

TABLE 4.12-1 ***GENERAL PLAN POLICIES RELEVANT TO POPULATION AND HOUSING*** (CONTINUED)

Goal/Policy Number	Goal/Policy Content
Action 2.3	As a result of the fiscal merger, the affordable housing set aside will increase from 20 to 30 percent in the Ravenswood Industrial Area. Consider, as appropriate, setting aside more than 20 percent of the redevelopment tax increment funds for housing in all redevelopment areas.
Policy 2.2	Encourage mixed-use and high-density residential development in the Ravenswood and University Corner/Bay Road areas to ensure that a minimum of 25 percent of these areas are devoted to residential uses.
Goal 3.0	*Available residential sites for the development of a range of housing types and prices.*
Policy 3.1	Ensure adequate residential sites are zoned at appropriate densities and available for development in order to accommodate the range of housing types and prices needed to meet the City's Regional Housing Needs Determination.
Action 3.2	Rezone the 4.71 acre parcel (APN: 063-121-020), the 0.92 acre parcel (APN: 063-121-210), and the 0.89 acre parcel (APN: 063-121-200) located at the north end of Pulgas Avenue to High Density Residential or General Commercial (mixed-use) and achieve a minimum density 30 dwelling units per acre. Rezoning will include a review of development standards to ensure the feasibility of development for low, very low-, and extremely low-income housing. The City will also ensure that at least 50 percent of the needed units are on sites designated for residential use only and will ensure the project review process remains ministerial. The Planning Commission may review the design merits of the project and may call for a project proponent to make design-related modifications but will not deliberate the project's merits or exercise judgment to reject or deny the "residential use" itself.

Source: City of East Palo Alto 1999 General Plan and 2010 Housing Element.

accordance with the City's RHNA obligations. The Housing Element requires these sites to be rezoned to allow for residential or mixed-use development that provides at least 30 dwelling units per acre.[2]

[2] City of East Palo Alto, 2010, *City of East Palo Alto Housing Element*, page 4-13.

B. Existing Conditions

This section describes the current conditions with regard to population and housing within the Specific Plan Area. Several sources of statistics are used in this chapter (and throughout the EIR and Specific Plan): Statistics from the 2005-2009 American Community Survey provide details of community structure and were the most recent full datasets available at the time of preparation of this Draft EIR; statistics from the U.S. Department of Finance are used for the most recent overall figures for population and housing units in the City of East Palo Alto; and statistics from the Association of Bay Area Governments (ABAG) from 2009 provide the most commonly used projections for regional growth. At the time of publication of this Draft EIR, 2010 Census figures were not yet fully available.

1. Population

As of 2010, there are approximately 33,524 people in East Palo Alto.[3] Between 2000 and 2010, the population of East Palo Alto has grown by 14 percent. During this same period, the County of San Mateo total population grew by 7 percent,

The majority of households in East Palo Alto, or 72 percent, are comprised of families. Of the total households, 42 percent are married-couple households and 31 percent are single-family households.[4] Families in East Palo Alto are larger than San Mateo County families with an average family size of 4.16 people compared to an average family size of 3.32 people.

As shown on Table 4.12-2, ABAG growth projections indicate significant growth in East Palo Alto between 2010 and 2035. The population of East

[3] State of California, Department of Finance, May 2010. *E-5 Population and Housing Estimates for Cities, Counties, and the State, 2001-2010, with 2000 Benchmark*.

[4] American Community Survey, Data Set: 2005-2009 Selected Social Characteristics in the United States, San Mateo County and East Palo Alto.

TABLE 4.12-2 ***GROWTH PROJECTIONS 2010-2035***

	2010	2035	Total Change 2010-2035	% Change 2010-2035
City of East Palo Alto				
Population	32,700	43,300	10,600	32%
Households	7,780	10,260	2,480	32%
San Mateo County				
Population	733,300	893,000	159,700	22%
Households	264,400	322,620	58,220	22%

Source: ABAG 2009 Projections.

Palo Alto is expected to be 43,300, a 32 percent increase from the 2010 population. Between 2010 and 2035, the population of San Mateo County is expected to grow by 22 percent.

2. Employment

According to the Association of Bay Area Governments' 2009 Projections, there were 2,300 jobs in East Palo Alto in 2010. As shown in Table 4.12-3, the majority, or 39 percent, of the jobs were in the Health, Educational, and Recreational Service category; 20 percent of the jobs were in the Financial and Professional category; 16 percent of the jobs were in the Manufacturing, Wholesale, and Transportation category; 13 percent of the jobs were in the Other category; and 11 percent were in the Retail category.

According to the ABAG 2009 Projections, there will be 7,080 jobs in East Palo Alto in 2035. As shown in Table 4.12-3, 33 percent of the jobs will be in the Health, Educational, and Recreational Service category, 22 percent will be in the Manufacturing, Wholesale, and Transportation category; 19 percent of

TABLE 4.12-3 ***JOBS IN EAST PALO ALTO, 2010-2035***

Job Type	2010	Percent 2010	2035	Percent 2035
Manufacturing, Wholesale and Transportation	370	16%	1,570	22%
Retail	260	11%	640	9%
Financial and Professional	460	20%	1,200	17%
Health, Educational and Recreational Service	900	39%	2,350	33%
Other	310	13%	1,320	19%
Total	**2,300**	**100%**	**7,080**	**100%**

Source: ABAG 2009 Projections.

the jobs will be in the Other category; and 9 percent of the jobs will be retail-related.

3. Housing

According to the California Department of Finance, there were approximately 7,799 housing units in East Palo Alto in 2010.[5] Of the total housing units, approximately 56 percent were single family homes, 42 percent were multi-family units, and 2 percent were mobile homes. As of 2010, only 1 percent of East Palo Alto housing units were vacant while San Mateo County had a vacancy rate of 1.6 percent. According to the 2005-2007 American Community Survey, the average household size in East Palo Alto was 4.2 persons which is significantly higher than the average of San Mateo County with 2.7 persons per household.[6]

[5] State of California, Department of Finance, E-5 Population and Housing Estimates for Cities, Counties, and the State, 2001-2010, with 2000 Benchmark. Sacramento, California, May 2010.

[6] City of East Palo Alto, 2010. *Housing Element*, page 2-13.

C. Standards of Significance

Using the CEQA Appendix G thresholds, population and housing impacts associated with the Plan would be considered significant if the Plan would:

a. Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).

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

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

In addition, the City of East Palo Alto has adopted the following threshold of significance. Population and housing impacts associated with the Plan would be considered significant if the Plan would:

d. Cause the City to lose four housing units or more as a consequence of redevelopment.

D. Impact Discussion

This section discusses the potential impacts from the implementation of the Specific Plan on population and housing in the Specific Plan area. This section is organized by and responds to each of the potential impacts identified in the previous section, Standards of Significance.

a. Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure). ***(LTS)***

Implementation of the Specific Plan would add an additional 835 residential units (19 single-family houses and 816 multi-family residential units) and approximately 1.7 million square feet of commercial, industrial, or office uses over the horizon of the Specific Plan. According to buildout projections pre-

pared by The Planning Center | DC&E, the Specific Plan would result in approximately an additional 2,766 residents and approximately 4,850 additional employees by the 2035 Plan Horizon. However this growth is expected and has been planned for (e.g., growth is within ABAG's population projections as detailed in Table 4.12-2 and is less than 1 percent over ABAG's employment projections as detailed in Table 4.12-3), and the impacts have been addressed in the individual chapters in this EIR.

Furthermore, the addition of industrial, commercial, and office uses could also indirectly increase the demand for housing not only within the Specific Plan area, but throughout East Palo Alto by increasing the number of employees in the area that may want to live near work. However, as stated above, ABAG projects an additional 2,480 households in East Palo Alto by 2035 while the Specific Plan is projected to only generate 816 additional households by 2035. Hence, household growth induced by the Specific Plan is well within the growth already projected by ABAG.

Therefore, the impact of unexpected population growth associated with implementation of the Specific Plan would be ***less than significant.***

b. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere. ***(NI)***

There is the potential to displace existing housing, particularly through large scale redevelopment of already developed land and buildings within the Plan Area south of Bay Road, mainly the new proposed Mixed-Use area along the south side of Bay Road between University and Clarke Avenues. However, all redevelopment will be voluntary in nature, so housing would not be displaced without permission of the owners of the residential units.

There are some existing residential areas south of Bay Road with apartment buildings that would be re-designated for Mixed Use under the Plan. The mixed uses would be retail or office on the ground floor with office or residential uses above. It is therefore possible that, in this area, some residential uses would be displaced by non-residential uses, although it is also possible

that redevelopment could lead to an overall increase in residential density. South of this band of Mixed Uses, the single-family residential uses would become Medium/High Density Residential uses with an increase in housing density.

No land use changes are proposed for the existing single-family neighborhood north of Bay Road and west of Demeter Street, the Medium/High Density Residential area along Bay Road west of University Avenue.

The Specific Plan is closely aligned with the goals and policies of the City's General Plan including Land Use Element Policy 3.1 which calls for mixed commercial and residential use projects and Housing Element Goal 1 which calls for providing a sufficient number and variety of housing units.

Therefore, in consideration of all of the above aspects, the Specific Plan would have a ***less-than-significant*** impact on the displacement of housing units.

c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere. ***(NI)***

Although the majority of the residential development proposed by the Specific Plan would either occur in infill locations or on non-residential parcels, there is the potential to displace existing residents, particularly through large scale redevelopment of already developed land and buildings within the Plan Area south of Bay Road, mainly the new Mixed-Use area along the south side of Bay Road between University and Clarke Avenues. However, the Specific Plan would ensure that there are adequate housing sites available, as any potential housing units that would be displaced would be replaced with residential units at the same or at an increased density.

As a result, the Specific Plan is not expected to displace substantial numbers of people who either live, work, or both live and work within the Plan Area. Therefore, the Specific Plan would have ***no impact*** on the displacement of substantial numbers of people.

d. Cause the City to lose four housing units or more as a consequence of redevelopment.

Housing that could be removed by implementation of the Specific Plan is limited to some apartment buildings along Bay Road that would be re-designated as Mixed-Use development. Although Mixed-Use development is likely to include residential development above the ground floor, in some areas it could consist entirely of office. As shown in Table 3-1, buildout calculations have assumed that 75 percent of the upper floor space in most of the Mixed-Use areas would be residential, and that redevelopment under the Specific Plan is likely to lead to the addition of 816 new units, which is substantially more than would be removed.

The Specific Plan's land use regulations work to preserve housing units in areas where units exist today. This is particularly true in the case of the existing multi-family residential units along Bay Road. In this area, the Specific Plan promotes mixed-use development with housing as opposed to office. Moreover, the Specific Plan allows a lower commercial FAR and higher a residential density in this area than in other Mixed-Use areas along Bay Road, so as to encourage developers to build projects that provide more housing. The Specific Plan's land use regulations also require a conditional use permit for upper floor office uses in areas that are currently occupied by housing units in order to prevent displacement of housing. There would, therefore, be a ***less-than-significant*** impact from implementation of the Specific Plan.

2. Cumulative Impacts

This cumulative analysis considers the Plan in the context of the City's General Plan, which takes into account the entire incorporated area of East Palo Alto, including the Specific Plan Area.

Over the next 20 years, the bulk of foreseeable growth in East Palo Alto will be concentrated in the Plan Area. Most of the city is built-out, although there are some vacant or underutilized parcels distributed throughout the city. There would be little retail or commercial development beyond the Plan Area.

Projected growth in housing units and population for the Plan Area is well within ABAG's housing and population projections for East Palo Alto through 2035. Specific Plan implementation could result in the displacement of existing residents and dwelling units, however there would be a net increase of approximately 816 housing units. As growth in East Palo Alto outside the Plan Area would be minimal, the cumulative impact of the Plan in combination with other reasonably foreseeable development would be ***less than significant*** with respect to growth inducement or displacement of people and housing.

4.13 PUBLIC SERVICES AND RECREATION

This chapter describes the existing public service conditions in the Ravenswood/4 Corners Transit-Oriented Development Specific Plan area and evaluates the potential impacts of the Plan on public services. Fire protection and emergency medical response, law enforcement, schools, and parks and recreational facilities are each addressed in a separate section of this chapter. In each section, a summary of the relevant regulatory setting and existing conditions is followed by a discussion of Plan-specific and cumulative impacts.

A. Fire Protection and Emergency Medical Response

1. Regulatory Framework

a. East Palo Alto General Plan

Fire service is addressed in the Land Use and Noise Elements of the East Palo Alto General Plan. Table 4.13-1 summarizes the relevant goals and policies to fire services.

b. Menlo Park Fire Protection District

The MPFPD is guided by its Mission Statement. The Department's mission is "to protect and preserve life and property from the impact of fire, disaster, injury and illness."[1]

2. Existing Conditions

The following describes current conditions with regard to fire services in East Palo Alto, which is part of the Menlo Park Fire Protection District (MPFPD).

The MPFPD has a service area of approximately 30 square miles and serves the cities of Atherton, Menlo Park, and East Palo Alto, as well as portions of unincorporated San Mateo County. The District serves approximately 93,000

[1] Menlo Park Fire Protection District, http://www.menlofire.org/, accessed on October 16, 2009.

TABLE 4.13-1 ***GENERAL PLAN POLICIES RELEVANT TO FIRE SERVICES***

Goal/Policy Number	Goal/Policy Content
Land Use Element	
Goal 4.0	*Provide effective coordination with public facilities and services providers.*
Policy 4.1	Work closely with local public facilities and services providers to meet community needs
Policy 4.2	Participate with other public agencies providing facilities and services to East Palo Alto in cooperative efforts to address important regional issues.
Safety Element	
Goal 2.0	*Protect the community from hazards associated with aircraft overflights, hazardous materials uses, fire, ground transportation, and criminal activity.*
Policy 2.3	Provide fire protection to reduce the risk of fire.

Source: City of East Palo Alto General Plan, 1999.

people.[2] There is one fire station in East Palo Alto, which is located outside the Plan Area.

Within the MPFPD, there are four divisions: Administrative, Fire Prevention, Operations, and Training. The Administrative Division is responsible for human resources and financial management. The Fire Prevention Division provides public education and consultation about fire prevention and emergency response. The Operations Division administers all emergency response and fire suppression operations. The Training Division educates and

[2] Menlo Park Fire Protection District, http://www.menlofire.org/districtinfo.html, accessed on September 15, 2011.

trains all fire personnel on emergency response and fire suppression techniques.[3]

a. Services

MPFPD services include fire suppression, rescue and emergency medical response and response to hazardous materials incidents, vehicle accidents, severe weather incidents, and other emergency events. The MPFPD also sponsors a cadet training program; runs a Community Emergency Response Training (CERT) program, which trains community members about how to prepare and respond to emergencies and natural disasters; and provides other types of public education.[4]

b. Staffing

The MPFPD currently has 108 employees. Emergency personnel include 83 Engineers/Firefighters, three Battalion Chiefs, two Division Chiefs, one Deputy Chief, and one Fire Chief. Non-emergency personnel include two Mechanics, three Inspectors, two Fire Prevention Staff, one part-time Fire Prevention Staff, five full-time Administration Staff, one part-time Administrative Staff, one Administrative interns, two Administrative temps, and one Urban Search and Rescue part-time staff.[5]

c. Facilities and Equipment

The MPFPD has seven fire stations, which are described below. Station 2 would normally respond to fires within the Plan Area.[6]

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[3] Menlo Park Fire Protection District, http://www.menlofire.org, accessed on September 15, 2011.

[4] Menlo Park Fire Protection District, http://www.menlofire.org, accessed on September 15, 2011.

[5] Cremin, Tim. Attorney at Law, Meyers|Nave. Personal e-mail communication with Carey Stone, The Planning Center | DC&E, August 22, 2011.

[6] Cremin, Tim. Attorney at Law, Meyers|Nave. Personal e-mail communication with Carey Stone, The Planning Center | DC&E, August 22, 2011.

i. Station 1, 300 Middlefield Road, Menlo Park

Station 1 is staffed with one Engine Captain, one Truck Captain, and five firefighters per shift. In addition to emergency response personnel, the MPFPD Administration Offices, Fire Prevention offices, and classroom training facilities are located at Station 1.

The following equipment is housed at Station 1:

- Engine 1, 2005 Pierce Dash
- Truck 1, 2003 Pierce Dash 100' Heavy Duty Aerial
- Rescue 1, 1992 Pierce Dash Medium Duty Rescue
- Battalion 1, 2003 Chevy Suburban

ii. Station 2, 2290 University Avenue, East Palo Alto

Station 2, the busiest station in the District, serves the City of East Palo Alto. It is located just south of the Plan Area boundary. The three personnel at Station 2 include one Captain and two firefighters per shift. Engine, 2, a 2001 Pierce Saber, is housed at Station 2.

In October, 2010, plans to demolish and rebuild this station were in the second of three phases during which two of the existing ancillary buildings were being demolished. Phase III will involve demolition of the existing fire station and construction of a new two-story fire station, fuel area, communications tower, and parking lot. The MPFPD acquired two adjacent lots to accommodate the expansion.[7]

iii. Station 3, 32 Almendral Avenue, Atherton

Station 3 serves the Town of Atherton and the unincorporated areas of San Mateo County near Redwood City. Staff at Station 3 includes one Captain and two firefighters. Engine 3, a 2007 Pierce Dash, is housed at Station 3.

[7] City of East Palo Alto, 2009, "Environmental Staff Report: Mitigated Negative Declaration for the Demolish and Rebuild of Fire Station #2," File Number MND 09-21.

iv. Station 4, 3322 Alameda de Las Pulgas, Menlo Park

Station 4 serves west Menlo Park and west Atherton. Staff at Station 4 includes one Captain and two firefighters. Engine 4, a 2002 Pierce Dash, is housed at Station 4.

v. Station 5, 4101 Fair Oaks Avenue, Menlo Park

Station 5 serves the unincorporated community of North Fair Oaks and unincorporated areas of San Mateo County near Redwood City. The three personnel at Station 5 include one Captain and two firefighters. Engine 5, a 2000 Pierce Saber, is housed at Station 5.

vi. Station 6, 700 Oak Grove Avenue, Menlo Park

Station 6 serves downtown Menlo Park. The three personnel at Station 6 include one Captain and two firefighters. Engine 6, a 2005 Pierce Dash, is housed at Station 6.

vii. Station 7, 1467 Chilco Avenue, Menlo Park

Station 7 serves Menlo Park. The five personnel at Station 7 include one Captain and two firefighters per shift, as well as a fleet manager and a mechanic.

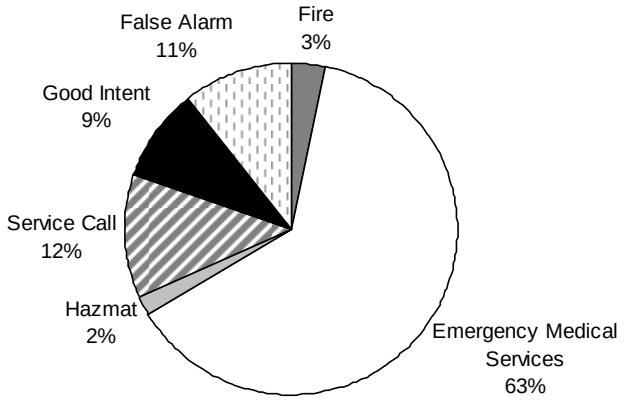
The following equipment is housed at Station 7:

- Engine 77, 2001 Pierce Saber
- Air Boat 1, 2004 American Airboat , "AIR RANGER"
- Urban Search and Rescue (USAR) Vehicles
- Other utility vehicles

d. Menlo Park Fire Protection District Incidents

Figure 4.13-1 identifies the number and types of incidents the MPFPD responded to in East Palo Alto in 2010. Medical and rescue calls represented the majority, or 63 percent, of incidents for 2010. Service calls, such as lockouts, animal rescue, police assistance, and water leaks, were the second largest incident category, represented 12 percent of all incidents in 2010.

FIGURE 4.13-1 ***MPFPD 2010 INCIDENTS***



Source: Menlo Park Fire Protection District, 2010.

e. Service Standards

The Menlo Park Fire Protection District has a targeted response time of 6.59 minutes for medical calls and eight minutes for fires.[8] Currently, the average response time is between 4 to 6.59 minutes.[9]

f. Mutual Aid Agreements

The MPFPD participates in Mutual Aid Agreements with the Cities of Palo Alto, Foster City, Redwood City Fire Departments, Belmont San Carlos Fire Department, and San Mateo County Fire Department.[10]

3. Standards of Significance

The Plan would have a significant impact on fire protection services if it would result in the provision of, or need for, new or physically altered facilities, the construction of which could cause significant environmental impacts,

[8] Menlo Park Fire Protection District, *2010 Annual Report*, page 8.

[9] Cremin, Tim. Attorney at Law, Meyers|Nave. Personal e-mail communication with Carey Stone, The Planning Center | DC&E, August 22, 2011.

[10] Cremin, Tim. Attorney at Law, Meyers|Nave. Personal e-mail communication with Carey Stone, The Planning Center | DC&E, August 22, 2011.

in order to maintain acceptable service ratios, response times, or other performance objectives.

a. Result in substantial adverse physical impacts associated with the provision of new or physically altered fire protection facilities, need for new or physically altered fire protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives.

4. Impact Discussion

a. Project Impacts

i. Result in substantial adverse physical impacts associated with the provision of new or physically altered fire protection facilities, need for new or physically altered fire protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives. ***(LTS)***

Projected buildout of the Specific Plan would result in the construction of approximately 835 new residential units, which would increase the Plan Area's population by approximately 2,766 new residents by 2035. Additionally, under the Specific Plan, commercial, office and industrial square footage is projected to increase by approximately 1.7 million square feet by 2035.

New growth resulting from the Specific Plan would increase the demand for fire protection and emergency services in East Palo Alto such that new fire protection facilities, personnel, and equipment would be needed and response times could be reduced. According to Chief Harold Schapelhouman of the MPFPD, Fire Station #2 would need to be expanded, and additional equipment and approximately 2.7 additional personnel would be needed to accommodate the growth.[11] Although the MPFPD currently has plans to expand Fire Station #2, the expansion did not take into account the Specific Plan and other recently proposed projects within the jurisdiction of the

[11] Cremin, Tim. Attorney at Law, Meyers|Nave. Personal e-mail communication with Carey Stone, The Planning Center | DC&E, August 22, 2011.

MPFPD such as the Menlo Park Downtown Specific Plan, Facebook campus, North Fair Oaks Community Plan, and Gateway Project. The proposed expansion of Fire Station #2 is estimated to cost $7.5 million and the project is not fully funded. Since the Specific Plan would contribute to the need for the expansion of Fire Station #2, the MPFPD expects new development would contribute to the expansion costs.

Given these background conditions, buildout of the Specific Plan would adversely affect the delivery of fire services in East Palo Alto. Additional personnel and equipment would be required to maintain or improve fire and emergency response times. Although the MPFPD has not identified specific funding sources for the required additional personnel upon buildout, the MPFPD will realize increased revenues as a result of the increased tax base from the Specific Plan Area. Under the terms of the MPFPD pass-through agreement with the Redevelopment Agency of the City of East Palo Alto, the MPFPD will receive increased property tax revenues from the development in the project area that will provide a source for funding the necessary additional personnel. The Fiscal Impact Analysis performed for the Specific Plan indicates that at full buildout, the Fire District will receive an additional $475,000 in property tax. This measure would ensure that the Plan is self-sufficient, and that adequate, long-term funding for the expansion of fire and emergency services would be made available and the impact would be ***less than significant.***

b. Cumulative Impacts

This cumulative analysis considers the Specific Plan, Menlo Park Downtown Specific Plan, Facebook campus, North Fair Oaks Community Plan, and Gateway Project. These projects represent a significant amount of growth within the jurisdiction of the MPFPD. While this growth is significantly more than anticipated by the Specific Plan, buildout of the Specific Plan will also result in additional property tax revenue from new development. Portions of this property tax revenue will go to the MPFPD to fund needed improvements and additional personnel. As a result, the Specific Plan would have a ***less-than-significant*** cumulative impact on fire services.

B. Law Enforcement

1. Regulatory Framework

a. East Palo Alto General Plan

Police service is addressed in the Safety and Noise Element of the East Palo Alto General Plan. Table 4.13-2 summarizes the relevant General Plan goals and policies to police services.

b. East Palo Alto Police Department Mission, Vision, and Values

The East Palo Alto Police Department is guided by its Mission, Vision, and Values statement. The Department's mission is to "work in partnership with the community to reduce crime and violence and provide quality law enforcement services." The Department's vision is to "be nationally accredited and recognized as an industry leader that is committed and responsive to the needs of [the] community." The values of the Department focus on service, teamwork, respect, integrity, vision, and excellence. [12]

2. Existing Conditions

The East Palo Alto Police Department (EPAPD) provides service to a 2.6-square-mile area serving a population of approximately 28,155 people.[13] Responsibilities of the EPAPD include street patrol, investigations, traffic patrol, and emergency services. Additionally, the EPAPD runs several

[12] East Palo Alto Police Department, Mission, Vision, and Values, http://www.ci.east-palo-alto.ca.us/police/pdf/mission-vision-values.pdf, accessed on September 16, 2011.

[13] US 2010 Census, http://factfinder2.census.gov, accessed on September 16, 2011.

TABLE 4.13-2 ***GENERAL PLAN POLICIES RELEVANT TO POLICE SERVICES***

Goal/Policy Number	Goal/Policy Content
Land Use Element	
Goal 4.0	*Provide effective coordination with public facilities and services providers.*
Policy 4.1	Work closely with local public facilities and services providers to meet community needs
Policy 4.2	Participate with other public agencies providing facilities and services to East Palo Alto in cooperative efforts to address important regional issues.
Safety Element	
Goal 2.0	*Protect the community from hazards associated with aircraft overflights, hazardous materials uses, fire, ground transportation, and criminal activity.*
Policy 2.5	Provide police protection to address criminal activity.

Source: City of East Palo Alto General Plan, 1999.

programs that aim to reduce and prevent crime, including the Parolee Reentry Program; Parolee-Job Program; Gang Resistance, Education and Training; and Police Activities League.[14]

a. Staff

The EPAPD is made up of the Operations Division, Investigations Division, and Administration Division. There are 34 sworn police officers and 11 non-sworn personnel. Additionally, the EPAPD has six part-time non-sworn personnel.[15]

[14] East Palo Alto Police Department, 2008, *East Palo Alto Summary Report,* page 3.

[15] Lam, Elizabeth. Community Service Officer, East Palo Alto Police Department. Personal e-mail with Carey Stone, The Planning Center | DC&E, June 23, 2011.

b. Facilities

A single police station, located at 141 Demeter Street, houses the administration, records, and patrol aspects of the EPAPD. In addition to the central police station, there is a police sub-station and a satellite office. The police sub-station, located at 219 Demeter Street, houses the Parolee Reentry Program and training and community events. The satellite office, located at 2415 University Avenue, is where property and evidence work is completed. All of these police facilities are located within the Plan Area and are leased from private property owners.[16]

c. Reported Crimes and Hot Spots

Overall, reported crimes in East Palo Alto decreased by 20 percent between 2009 and 2010, as shown in Table 4.13-3. However, rapes and motor vehicle thefts rose by 12 and 14 percent respectively.

There are four police beats that patrol the city. Within each police beat, the EPAPD has identified "hot spots" of criminal activity. The hot spot in Beat 2, which patrols the Plan Area, encompasses the northern portion of the University Village neighborhood. It extends north of Notre Dame Avenue to the city limits, between University Avenue and Illinois Street.[17]

d. Service Standards

Although the EPAPD does not have a standard for staffing levels, the current ratio of officers per 1,000 residents is 1.2. This is below the Federal Bureau of Investigations' recommended standard of 2 officers per 1,000 residents. The EPAPD has identified the need for additional staff as the Department has

[16] Cohen, Doris. Crime Analyst, East Palo Alto Police Department. Personal communication with Nicola Swinburne, The Planning Center | DC&E, January 6, 2011.

[17] Cohen, Doris. Crime Analyst, East Palo Alto Police Department. Personal communication with Carey Stone, The Planning Center | DC&E, November 5, 2009.

TABLE 4.13-3 ***EAST PALO ALTO CRIMES 2009 AND 2010***

Crime	2009	2010	Percent Change
Homicide	8	4	-50%
Rape	17	19	12%
Robbery	158	103	-35%
Assaults	428	321	-25%
Assaults/Firearm*	88	40	-55%
Burglary	437	382	-13%
Thefts	331	264	-20%
Auto Thefts	207	236	-14%
Total	1,586	1,329	-16%

* This category is a sub-category of "Assaults."
Source: East Palo Alto Police Department 2010 Crime Statistical Report.

fewer police officers and responds to more calls than police departments of similar size.[18]

e. Funding

Funding for the EPAPD comes mainly from the City's General Fund, approximately $8.9 million for the 2009-2010 fiscal year. The EPAPD also received $2 million in grants for the 2009-2019 fiscal year. Due to City budget constraints, the EPAPD has limited resources to expand services.

[18] East Palo Alto Police Department, 2009, *East Palo Alto Police Department 2009-2010 Proposed Budget*, page 6.

f. Mutual Aid Agreements

The EPAPD operates under a Mutual Aid Agreement with San Mateo County, which establishes a Countywide Protocol to provide mutual aid for every jurisdiction within the county. In addition, the EPAPD has agreements with agencies outside San Mateo County, including the California Highway Patrol and the City of Palo Alto Police Department, to provide mutual assistance on an as-needed basis.[19]

3. Standards of Significance

The Plan would have a significant impact on law enforcement services if it would result in the provision of, or need for, new or physically altered facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives.

a. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for 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 any of the public services: police protection, schools, parks, other public facilities.

4. Impact Discussion

a. Project Impacts

i. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for 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 any of the public services: police protection, schools, parks, other public facilities. ***(LTS)***

[19] Lam, Elizabeth, East Palo Alto Police Department. Personal e-mail communication with Sean Charpentier, City of East Palo Alto, November 30, 2009.

Projected buildout of the Specific Plan would result in the construction of approximately 835 new residential units, which would increase the Plan Area's population by approximately 2,766 new residents by 2035. Additionally, under the Specific Plan, commercial, office and industrial square footage is projected to increase by approximately 1.7 million square feet by 2035.

The Specific Plan would have a significant environmental impact if it would exceed the ability of police responders to adequately serve the Plan Area, thereby requiring construction of new facilities or modification of existing facilities. Since the East Palo Alto Police Department does not have any adopted service ratios or standard impact calculations, the Department is unable to estimate the need for additional staff, equipment, or facilities as a result of implementation of the Specific Plan.[20]

However, to provide a conservative analysis, this scenario assumes that all residents living in the new dwelling units constructed under the Plan would move to East Palo Alto from other jurisdictions. This represents a citywide increase in population of approximately 10 percent. Assuming current law enforcement needs were to increase proportionately to the population, there would be an additional need for police personnel, equipment, and/or police facilities.

General Plan Land Use Element Goal 4.0 calls for the City to work closely with public service providers to meet the community's needs and Safety Element Policy 2.5 calls for the City to provide police protection to address criminal activity. Buildout of the Specific Plan may require additional personnel and vehicles to maintain the current level of service, or the construction or expansion of facilities to house additional personnel and vehicles. However, the increase in population and the growth of businesses in the Plan Area would occur incrementally over approximately 20 years. As such, it

[20] Lam, Elizabeth. Community Service Officer, East Palo Alto Police Department. Personal e-mail with Carey Stone, The Planning Center | DC&E, June 23, 2011.

would be possible to assess the need for additional personnel and equipment and address these needs to ensure that the law enforcement needs in the community are met. It is not known at this point precisely when such facilities would be required or what the exact nature of these facilities would be. As a result, it cannot be determined what project-specific environmental impacts would occur from their construction and operation. The potential impacts would be identified during the facility planning process. Furthermore, future proposals for new police facilities would be subject to additional CEQA review. Consequently, the impact on law enforcement services would be ***less than significant***.

b. Cumulative Impacts

This cumulative analysis considers the Specific Plan in the context of the General Plan, which takes into account the entire incorporated area of East Palo Alto, including the Plan Area. Outside the Plan Area, residential growth will be predominantly single-family units in line with the General Plan. In the Plan Area however, buildout of the Specific Plan would include development at a higher intensity than currently planned for in the General Plan. As such, there will be additional need for police services as the population increases. The expansion of existing facilities or construction of new facilities would be subject to CEQA review as well as to the provisions of the General Plan and regulations adopted as part of the Municipal Code. Therefore, potential environmental impacts would be minimized and the Specific Plan would have a less-than-significant cumulative impact related to the delivery of law enforcement services. As a result, the Plan would have a ***less-than-significant*** cumulative impact.

C. Schools

This section describes the existing conditions and the potential impacts of the Plan with regard to local schools.

1. Regulatory Framework

This section describes relevant regulations and laws relating to schools. The regulatory framework for schools is determined at the school district and State level.

a. Mitigation Fee Act (California Government Code 66000-66008)

Enacted as AB 1600, the Mitigation Fee Act requires a local agency establishing, increasing, or imposing an impact fee as a condition of development to identify the purpose of the fee and the use to which the fee is to be put.[21] The agency must also demonstrate a reasonable relationship between the fee and the purpose for which it is charged, and between the fee and the type of development project on which it is to be levied. The Act came into force on January 1, 1989.

b. Senate Bill 50 and Proposition 1A of 1998

On August 27, 1998, the Governor signed Senate Bill 50 (SB 50), the Leroy F. Greene School Facilities Act of 1998, which is identified as Chapter 407, Statutes of 1998. SB 50, along with bond procedures under Proposition 1A of 1998, regulate school financing and mitigation by setting development fee caps, removing authority for denial of a development application based solely on current school capacity levels, and ensuring that impacts to schools are mitigated under CEQA.[22]

California Government Code Section 65996(a) requires developer fees to mitigate an environmental effect from the construction of new school facilities under CEQA. According to Government Code Section 65996, the payment of fees "...is deemed to be full and complete mitigation of the impacts of any legislative or act, or both, involving, but not limited to, the planning, use, or development of real property, or any change in governmental organization

[21] California Government Code, Sections 66000-66008, http://www.leginfo.ca.gov/cgi-bin/waisgate?WAISdocID=18478423424+0+0+0&WAISaction=retrieve, accessed on November 25, 2009.

[22] SB 50 (1998), http://www.sen.ca.gov/, accessed on October 15, 2009.

or reorganization."[23] These provisions are in effect until 2012 and will remain in place as long as subsequent State bonds are approved and available.

The State Allocation Board (SAB) adjusts the fees for inflation in even-numbered years. On January 27, 2010, the SAB, pursuant to Government Code Section 65995(b)(3), voted to keep the allowable amount of statutory school facilities fees (Level I School Fees) at $2.97 per square foot of assessable space for residential development of 500 square feet or more, and to keep the amount of $0.47 per square foot of chargeable covered and enclosed space for commercial/industrial development. School districts may levy higher fees if they apply to the SAB and meet certain conditions.[24]

c. East Palo Alto General Plan

Goals, policies, and programs from the East Palo Alto General Plan that are relevant to schools are included in Table 4.13-4.

2. Existing Conditions

The following describes current conditions with regard to schools in East Palo Alto. East Palo Alto is served by two school districts: Ravenswood City School District, which chiefly serves students in kindergarten through grade 8, and Sequoia Union High School District, which serves students in grades 9 through 12.

This section describes the two public school districts serving East Palo Alto, including the Plan Area.

a. Ravenswood City School District

The Ravenswood City School District (RCSD) chiefly serves students in kindergarten through grade 8 from East Palo Alto and east Menlo Park. It also

[23] California Government Code, Sections 65996, http://www.leginfo.ca.gov/cgi-bin/waisgate?WAISdocID=394722669+0+0+0&WAISaction=retrieve, accessed on November 15, 2011.

[24] http://www.edsource.org/iss_fin_sys_facilities.html, accessed November 15, 2011.

TABLE 4.13-4 ***GENERAL PLAN POLICIES RELEVANT TO SCHOOLS***

Goal/Policy Number	Goal/Policy Content
Land Use Element	
Goal 4.0	*Provide effective coordination with public facilities and services providers.*
Policy 4.1	Work closely with local public facilities and services providers to meet community needs
Policy 4.2	Participate with other public agencies providing facilities and services to East Palo Alto in cooperative efforts to address important regional issues.

Source: City of East Palo Alto General Plan, 1999.

includes one school serving kindergarten through grade 9, and another serving grades 9 through 12. As of 2011, the RCSD had a district-wide enrollment of approximately 4,560 students.[25]

i. Schools and Facilities

The names and addresses of the eleven public schools and one child development center in the district are shown in Table 4.13-6. Costaño Elementary School, the only school operated by RCSD within the Plan Area, serves students in kindergarten through Grade 8.

ii. Student Enrollment and School Capacity

Most schools in the RCSD currently have sufficient space for all enrolled students with the exception of Costaño Elementary and Brentwood Academy, as shown in Table 4.13-5.

[25] Singh, Prima. Controller, Ravenswood City School District. Personal e-mail communication with Carey Stone, The Planning Center | DC&E, April 7, 2011.

TABLE 4.13-5 ***RAVENSWOOD CITY SCHOOL DISTRICT***

Facility	Address	Grades	2010-2011 Enrollment	Capacity
Belle Haven Elementary	415 Ivy Dr., Menlo Park	K-8	566	600
Cesar Chávez Academy	2450 Ralmar Ave., East Palo Alto	5-8	268	288
Costaño Elementary	2695 Fordham St., East Palo Alto	K-8	507	501
Green Oaks Academy	2450 Ralmar St., East Palo Alto	K-4	535	583
James Flood Magnet School	2033 Pulgas Ave., East Palo Alto	K-8	274	287
Ronald McNair Academy	2033 Pulgas Ave., East Palo Alto	5-8	311	319
Willow Oaks Elementary	620 Willow Road, Menlo Park	K-8	609	610
Ravenswood Child Development Center	951 O'Connor St., East Palo Alto	Pre-K	237	240
East Palo Alto Charter School	1286 Runnymede St., East Palo Alto	K-9	472	472
East Palo Alto Stanford Elementary School (Charter)	2033 Pulgas Ave., East Palo Alto	5th Only	32	32
East Palo Alto Stanford High School (Charter)	475 Pope St., Menlo Park	9-12	253	295
Edison Brentwood Academy (Charter)	2086 Clarke St., East Palo Alto	K-5	496	494

Source: Ravenswood City School District, April 7, 2011.

iii. Facilities and Staff

As of the 2009-2010 school year, the RCSD employed 259 full-time teachers, as shown in Table 4.13-6. RCSD's overall average ratio of students per teacher is generally lower than that of San Mateo County or the State.

iv. Planned Improvements

The RCSD currently has no plans to expand, renovate, or build new schools.[26]

b. Sequoia Union High School District

The Sequoia Union High School District (SUHSD) service area includes the cities of Atherton, Belmont, East Palo Alto, Menlo Park, Portola Valley, Redwood City, Redwood Shores, San Carlos and Woodside. Depending on their address, high school students within the Plan Area would attend Carlmont High School or Woodside High School.

i. Schools and Facilities

The names and addresses of the five high schools, two continuing education high schools, and one adult school in the SUHSD are listed in Table 4.13-7. None of the SUHSD schools are located in East Palo Alto.

ii. Student Enrollment and School Capacity

As of the 2010-2011 school year, all of the SUHSD schools had sufficient space for enrolled students.[27]

iii. Facilities and Staff

As of the 2009-2010 school year, the SUHSD employed approximately 429 teachers, as shown in Table 4.13-8. The average ratio of students to teacher for high schools was lower than San Mateo County and State averages. However, the average ratio of students to teacher was higher for continuation schools compared to San Mateo County and the State.

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[26] Singh, Prima. Controller, Ravenswood City School District. Personal e-mail communication with Carey Stone, The Planning Center | DC&E, April 7, 2011.

[27] Berghouse, Susan. Director of Information and Communications, Sequoia Union High School District. Personal e-mail communication with Carey Stone, The Planning Center | DC&E, May 25, 2011.

TABLE 4.13-6 ***RCSD PUPIL-TEACHER RATIO (2009-2010)***

	Number of RCSD Schools	Full-Time Teachers	RCSD Pupil-Teacher Ratio	San Mateo County Pupil-Teacher Ratio	State Pupil-Teacher Ratio
Elementary	7	191.8	17.2	19.8	21.1
Middle	2	29.0	18.2	20.5	22.5
K-12	1	37.8	14.7	20.2	20.3

Source: http://www.ed-data.k12.ca.us, accessed on August 3, 2011.

TABLE 4.13-7 ***SEQUOIA UNION HIGH SCHOOL DISTRICT***

School	Address	Grades	2010-2011 Enrollment	Capacity
Comprehensive High Schools				
Carlmont High School	1400 Alameda de las, Pulgas, Belmont, CA 94002	9-12	2,125	2,125
Menlo-Atherton High School	555 Middlefield Rd., Atherton, CA 94027	9-12	2,025	2,122
Sequoia High School	1201 Brewster Ave., Redwood City, CA 94062	9-12	1,726	2,128
Woodside High School	199 Churchill Ave., Woodside, CA 94062	9-12	1,800	2,000
Continuing and Adult Education				
Middle College Cañada College	Bldg. 13, Room 106, 4200 Farm Hill Blvd., Redwood City, CA 94061	9-12	89	90
Redwood High School	1968 Old County Rd., Redwood City, CA 94063	9-12	317	n/a
Sequoia District Adult School	3247 Middlefield Rd., Menlo Park, CA 94025	n/a	n/a	n/a

Source: Sequoia Union High School District, May 25, 2011.

TABLE 4.13-8 ***SUHSD PUPIL-TEACHER RATIO (2009-2010)***

	Number of SUHSD Schools	Full-Time Teachers	SUHSD Pupil-Teacher Ratio	San Mateo County Pupil-Teacher Ratio	State Pupil-Teacher Ratio
High School	6	415.4	19.7	21.1	23.7
Continuation	1	14.0	18.6	15.7	17.6

Source: http://www.ed-data.k12.ca.us, accessed on August 3, 2011.

iv. Planned Improvements

In 2008, San Mateo County voters approved bond Measure J to fund the expansion, construction, and improvement of classrooms and to upgrade technology in classrooms within SUHSD. The SUHSD is currently constructing a new Career Tech building at Menlo-Atherton High School and a new Bio-Tech building at Carlmont High School. The SUHSD has plans to build a new Career Tech building at Woodside High School and new classrooms at Sequoia High School.[28]

3. Standards of Significance

The Specific Plan would have a significant impact with regard to schools if it would:

a. Result in substantial adverse physical impacts associated with the provision of new or physically altered school facilities, need for new or physically altered school facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, or other performance objectives.

[28] Navas, Enrique. Assistant Superintendent, Sequoia Union High School District. Personal e-mail communication with Carey Stone, The Planning Center | DC&E, August 3, 2011.

4. Impact Discussion

a. Project Impacts

i. Result in substantial adverse physical impacts associated with the provision of new or physically altered school facilities, need for new or physically altered school facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, or other performance objectives. ***(LTS)***

The Ravenswood City School District would not have adequate capacity for the number of new students that would be generated by the projected buildout of the Specific Plan. However, the Sequoia Union High School District would have adequate capacity for the number of new students that would be generated by projected buildout of the Specific Plan. Table 4.13-9 shows the student generation rate, capacity, and the number of additional students the Specific Plan could generate by 2035 for the RCSD and SUHSD.

The following school district impact analysis discussion assumes that the number of students generated by development under the Specific Plan would equally impact the RCSD and the SUHSD. This analysis assumes all of the 835 residential units will generate students in both the RCSD and SUHSD. In reality, it is unlikely these new students would be evenly distributed throughout the school districts. The number of new students generated by development under the proposed Specific Plan would be incrementally added to school district student enrollment from the present to 2035.

a) Ravenswood City School District

This analysis assumes that all 835 residential units would be developed within the area of overlap of the RCSD boundary and Plan Area. Thus, if 835 residential units are constructed within the overlap of RCSD boundary and Plan Area, these housing units could potentially add a maximum of 418 new students to the RCSD by 2035.

TABLE 4.13-9 ***RCSD AND SUHSD STUDENT GENERATION RATES AND PROJECTED 2035 ENROLLMENT***

District	Student Generation Rate	2010/2011 Total Enrollment*	Capacity	Net Additional Students	2035 Total Projected Enrollment
RCSD	0.5 students per dwelling unit[29]	4,560	4,721	418	4,978
SUHSD	0.2 per dwelling unit	3,925	4,125	167	4,092

*Enrollment and capacity for the RCSD included all of the schools within the District. Enrollment and capacity for the SUHSD included Carlmont and Woodside High Schools. Sources: Ravenswood City School District and Sequoia Union High School District, 2011.

Students within the Plan Area could attend any of the RCSD schools since the District has an open enrollment policy.[30] As of the 2010/2011 school year, the RCSD had a district-wide enrollment of 4,560 students and a total capacity of 4,721 students. The RCSD would not be able to accommodate the additional 418 students generated by the Specific Plan.

b) Sequoia Union High School District

This analysis assumes that all 835 residential units would be developed within the area of overlap of the SUHSD boundary and Plan Area. Thus, if 835 residential units are constructed within the overlap of SUHSD boundary and Plan Area, these housing units could potentially add a maximum of 167 new students to the SUHSD by 2035.

[29] Ravenswood City School District does not have an official student generation rate. Therefore, for the purpose of this analysis, the State Office of Public School Construction student generation rate of 0.5 students per dwelling unit for Elementary School Districts was used.

[30] Curtis, Megan. Chief Financial Officer, Ravenswood City School District. Personal e-mail communication with Carey Stone, The Planning Center | DC&E, September 17, 2011.

Students within the Plan Area would attend Carlmont and Woodside High Schools. The total capacity of Carlmont and Woodside High Schools is 4,125 students. As of the 2010/2011 school year, the total district enrollment for these three schools was 3,925 students. These schools would be able to accommodate an additional 167 students, with a total combined 2035 projected enrollment of 4,092 students for Carlmont and Woodside High Schools.

c) Conclusion

The City's General Plan includes goals and policies to help ensure adequate planning for public school facilities to meet future demand. Land Use Element Goal 4.0 calls for effective coordination with public service providers. Land Use Element Policy 4.1 calls for the City to work closely with public service providers to meet the community's needs and Policy 4.2 calls for the City to participate with public agencies providing services to the city to address important regional issues.

In addition to the goals and policies of the General Plan, future development under the Specific Plan would be required by State law to pay development impact fees to each School District at the time of the building permit issuance. These fees are used by the School Districts to mitigate long-term operation and maintenance impacts on school facilities associated with new development, in accordance with State law.

Pursuant to Section 65995(h) of the California Government Code, payment of these fees "is deemed to be full and complete mitigation of impacts of any legislative or adjudicative act, or both, involving but not limited to, the planning, use, or development of real property, or any change in government organization or reorganization." Additionally, the School District receives statutory pass-through payments of tax increment from the Redevelopment Agency pursuant to Health and Safety Code Section 33607.7. As buildout occurs in the Plan area and the tax base expands, these pass-through amounts will increase. Under the provisions of the Community Redevelopment Law, a portion of these pass-through payments are available to the School District for capital improvements, including new school facilities.

Furthermore, expansions or new school construction that may be required to accommodate the projected students within the RCSD would be addressed through separate CEQA-review processes when the specifics of those projects are known. At this time, details on timing, location, and project scope are not known. As a result, Specific Plan implementation, by itself, would not result in significant adverse impacts due to the construction of new or expanded schools. If such impacts are to occur, they would be identified and mitigated, to the extent feasible, through future, project-specific CEQA review. Therefore, under this project, a ***less-than-significant*** impact would occur.

b. Cumulative Impacts

Regional growth resulting from past, present and reasonably foreseeable projects would result in increased demand for additional school facilities within the Ravenswood City School District and Sequoia Union High School District boundaries. It is unknown exactly where these school facility expansions would occur to support the cumulative increase in population. As specific school expansion or improvement projects are identified, additional project-specific, environmental analysis would be completed. Therefore, the impacts associated with the provision of new or altered school facilities resulting from past, present or reasonably foreseeable projects would not be cumulatively considerable and there would be a ***less-than-significant*** cumulative impact.

D. Libraries

The following describes current conditions and potential impacts from the Specific Plan with regard to library services in East Palo Alto.

1. Regulatory Framework

a. San Mateo County Library Strategic Plan: 2007 to 2014

The San Mateo County Library Strategic Plan includes goals and objectives and defines the Library's targeted areas of focus through 2014. The Plan's goals and objectives are to help the Library achieve the following:

- A model of customer service
- An example of fiscal health
- A trained and motivated staff
- A world class library

b. City of East Palo Alto General Plan

Table 4.13-10 lists the goal and policies from the East Palo Alto General Plan that are relevant to libraries.

2. Existing Conditions

The following describes current conditions with regard to library services in East Palo Alto. East Palo Alto is served by the San Mateo County Library System, which has one branch library located within the Plan Area.

a. San Mateo County Library System

The San Mateo County Library System, a Joint Powers Authority, includes the cities of Atherton, Belmont, Brisbane, East Palo Alto, Foster City, Half Moon Bay, Millbrae, Pacifica, Portola Valley, San Carlos and Woodside, as well as unincorporated areas of the County of San Mateo. More than 90 percent of the costs to operate the system are paid for by property taxes.[31] Other funding sources come from private, State and federal grants, and gifts to the Friends of the Library. San Mateo County provides staffing and materials, and the individual cities are responsible for the buildings and maintenance.

b. East Palo Alto Branch Library

The East Palo Alto Branch Library of the San Mateo Library System is located in the Plan Area at 2415 University Avenue, at the intersection of University Avenue and Bay Road. In addition to book circulation, the library offers child, adult, and family programming and has computer work stations that are available for public use. During the 2009-2010 fiscal year, the East Palo Alto Library circulated 111,196 items, had 18,192 library card holders,

[31] Organizational Consulting Group, 2007, "San Mateo County Library Strategic Plan: 2007 to 2014," page 4.

TABLE 4.13-10 ***GENERAL PLAN POLICIES RELEVANT TO LIBRARIES***

Goal/Policy Number	Goal/Policy Content
Land Use Element	
Goal 4.0	*Provide effective coordination with public facilities and services providers.*
Policy 4.1	Work closely with local public facilities and services providers to meet community needs
Policy 4.2	Participate with other public agencies providing facilities and services to East Palo Alto in cooperative efforts to address important regional issues.

Source: City of East Palo Alto General Plan, 1999.

welcomed 185,006 visitors, and had 12,413 people attend programs at the library.[32] The East Palo Alto Library's from the 2008-2009 fiscal year to the 2009-2010 fiscal year, circulation increased by 10 percent, card holders increased by 11 percent, visitors increased by 7 percent, and program attendance increased by 80 percent.[33] As use at the East Palo Alto Library increases, there may be a need for additional physical space to hold events, store library material, and add additional computer work stations. The East Palo Alto library branch is forming a Friends of the Library group, which is often a catalyst for raising funds and support for a new library building.[34] The library is in need of additional technology access, but there is little room for expansion and no current plan to expand.[35]

[32] San Mateo County Library, 2009, 2010, *San Mateo Library 2009-2010 Annual Report*, page 4.

[33] San Mateo County Library, 2009 *San Mateo Library 2008-2009 Annual Report*, page 4 and 2010, *San Mateo Library 2009-2010 Annual Report*, page 4.

[34] Sweeney, Patrick. Branch Manager, East Palo Alto Branch Library. Personal e-mail communication with Carey Stone, The Planning Center | DC&E, August 3, 2011.

[35] Sweeney, Patrick. Branch Manager, East Palo Alto Branch Library. Personal e-mail communication with Carey Stone, The Planning Center | DC&E, October 20, 2009.

3. Standards of Significance

The Specific Plan would have a significant impact with regard to libraries if it would:

a. Result in substantial adverse physical impacts associated with the provision of new or physically altered library facilities, need for new or physically altered library facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, or other performance objectives.

4. Impact Discussion

a. Result in substantial adverse physical impacts associated with the provision of new or physically altered library facilities, need for new or physically altered library facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, or other performance objectives. ***(LTS)***

Implementation of the Specific Plan could potentially add approximately 2,766 new residents to the Plan Area by 2035, which could increase the demand for library services and facilities in East Palo Alto.

As indicated above, as development occurs in the Plan Area, new or expanded library facilities may be needed to meet the needs of the associated population growth. As discussed in Chapter 3, Project Description, development of a new library facility associated with the Specific Plan was envisioned within the mixed use designation at the northwest corner of the 4 Corners area, either as an addition to or as a replacement of the existing County building on that site. In addition, the Policy 4.1 of the General Plan Land Use Element requires that the City work closely with public service providers to meet the community's needs. Furthermore, future proposals for new library facilities would be subject to additional CEQA review.

Since the provision of new library facilities was included in projected buildout of the Specific Plan and potential impacts are analyzed throughout this EIR, impacts associated with the provision of new or physically altered

library facilities resulting from implementation of the Regulatory Changes would be ***less than significant***.

b. Cumulative Impacts

The population within San Mateo County is projected to increase by 22 percent between 2010 and 2035,[36] which will increase the demand for library services and facilities. As a result, the San Mateo County Library system would most likely need to continue to expand library facilities to meet the increased demand. As specific library expansion or improvement projects are identified, additional project-specific, environmental analysis would be completed. Therefore, the impacts associated with the provision of new or altered library facilities resulting from past, present, or reasonably foreseeable projects would not be cumulatively considerable and there would be a ***less-than-significant*** cumulative impact.

E. Parks and Recreational Facilities

1. Regulatory Framework

a. Quimby Act

Since the passage of the 1975 Quimby Act (California Government Code Section 66477), cities and counties have been authorized to pass ordinances requiring that developers set aside land, donate conservation easements, or pay fees for park improvements that are necessary to serve the needs of a residential subdivision. The goal of the Quimby Act was to require developers to help mitigate the impacts of development. Revenues generated through the Quimby Act cannot be used for the operation and maintenance of park facilities.[37] A 1982 amendment (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.

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[36] Association of Bay Area Governments, 2009 Projections.

[37] California Department of Parks and Recreation, www.parks.ca.gov, accessed on April 21, 2009.

The Quimby Act sets a standard park space to population ratio of up to 3 acres of park space per 1,000 persons. Cities with an existing ratio of higher than 3 acres per 1,000 persons can set a standard of up to 5 acres per 1,000 persons for new development. The calculation of a City's park space to population ratio is based on a comparison of the population count of the last federal census to the amount of City-owned park lands. The City of East Palo Alto has a Quimby Act ordinance in place and uses the fees for improvements to serve new developments. Subdivision Ordinance 145 of the City's Municipal Code sets the park standard at 3 acres per 1,000 people. The ordinance requires developers of subdivisions to build a park or pay an in-lieu fee if their project includes land designated as a park in the General Plan's Parks and Recreation Element.

b. East Palo Alto General Plan

Parks and recreation are addressed in the Conservation and Open Space and Land Use Elements of the East Palo Alto General Plan. Table 4.13-11 summarizes the relevant goals and policies to parks and recreation.

c. 2003 East Palo Alto Recreation/Community Services Strategic Plan

The 2003 East Palo Alto Recreation/Community Services Strategic Plan sets the City's vision for parks and recreation; establishes which qualities of community services and parks and recreation programs are most valued by the community; determines park and recreation goals and implementation strategies to achieve those goals; and recommends management, capital, and finance options to achieve the City's park and recreation goals.

d. 2007 East Palo Alto Bay Access Master Plan

The East Palo Alto Bay Access Master Plan represents the City's vision for public access to the San Francisco Bay within the jurisdiction of the city. It includes a conceptual plan for the creation of several new parks in Ravenswood. The plan calls for six smaller pocket parks, including three that would be accessed primarily by car and three that would be accessible primarily to pedestrians. It also calls for a larger park at Cooley Landing. The plan identifies potential amenities for each park, ranging from children's play equipment

TABLE 4.13-11 ***GENERAL PLAN POLICIES RELEVANT TO PARKS AND RECREATION***

Goal/Policy Number	Goal/Policy Content
Conservation and Open Space Element	
Goal 6.0	Provide adequate open space and recreational opportunities.
Policy 6.1	Promote the development and maintenance of a balanced system of public and private recreational lands, facilities and programs to meet the needs of the community.
Policy 6.2	Provide parkland improvements that are durable and economical to maintain.
Policy 6.3	Maximize the utility of existing parks, recreational facilities and open space within East Palo Alto.
Goal 8.0	Improve access to open space and recreation resources
Policy 8.1	Create joint use agreements with school districts, water districts and other public agencies to allow greater access to open space and recreational lands.
Policy 8.2	Provide physical improvements, such as parking lots, sidewalks, trails, access points or other facilities that promote greater use of recreation and open space lands and the bay.
Land Use Element	
Goal 4.0	Provide effective coordination with public facilities and services providers.
Policy 4.1	Work closely with local public facilities and services providers to meet community needs
Policy 4.2	Participate with other public agencies providing facilities and services to East Palo Alto in cooperative efforts to address important regional issues.

Source: City of East Palo Alto General Plan, 1999.

to viewing platforms facing the San Francisco Bay. Figure 4.13-2 shows the conceptual locations of each of these parks.[38]

[38] City of East Palo Alto, 2007, *East Palo Alto Bay Access Master Plan*, pages 22 through 24 and pages 27 through 30.

Source: City of East Palo Alto, 2007.

Existing Bay Trail	
Proposed Trail	
Bay Trail Alignment approved in 2004 by East Palo Alto City Council	
Proposed Pocket Park Accessible by Auto	PA1
Proposed Pocket Parks accessible by Pedestrians	PP1

FIGURE 4.13-2

RAVENSWOOD CONCEPTUAL POCKET PARKS

e. Cooley Landing Vision Plan

The Cooley Landing Vision Plan, prepared July 12, 2010, establishes the vision and concept plan for Cooley Landing, a planned 9-acre park at the eastern terminus of Bay Street. The Vision Plan also includes project phasing and identifies potential funding sources for the development of the park.

2. Existing Conditions

The following section describes current conditions of East Palo Alto's park and recreation facilities. Park and recreation facilities in and around East Palo Alto include City parks, county and regional parks, open space, and trails. Park and recreation facilities within the city are owned and operated by the City. Facilities outside of East Palo Alto are managed by various jurisdictions, and are described in this section in further detail.

A variety of different park lands and facilities are needed to serve a community's diverse needs. The City's park lands include improved or active sites as well as several unimproved sites.

a. City Parks

The City of East Palo Alto manages and operates five parks totaling approximately 16.11 acres, as identified in Table 4.13-12. Parks in East Palo Alto feature playgrounds, playing fields, basketball courts, and open lawn areas. Of the four parks, only Jack Farrell Park, located on Fordham Street between Notre Dame Avenue and Michigan Avenue, is within the Plan Area. Amenities at Jack Farrell Park include a baseball field, basketball court, and a playground.

b. Park Land Deficit

Using the City's adopted standard for new subdivisions of 3 acres of park land per 1,000 residents, the City of East Palo Alto faces a 72-acre deficit of park land in the city. The City of East Palo Alto's existing park ratio of park land acreage per 1,000 people is 0.54.

TABLE 4.13-12 ***EAST PALO ALTO PARKS***

Park	Amenities	Acres
Bay Road and East Bayshore Road	Open lawn	0.06
Bell Street Park	Playground, open lawn	4.8
Matthai Grove Park	Open lawn	0.11
Jack Farrell Park	Baseball field, batting cage, basketball court, playground	3.8
Joel Davis Park	Playground, picnic facilities, open lawn	2.0
Martin Luther King Park	Baseball field, playground, multi-purpose field, concession/storage/restroom facility	5.4
Total		**16.11**

Source: City of East Palo Alto, 2009; DC&E, 2009.

Within the Plan Area, the existing ratio of park land acreage per 1,000 people is 0.65. There are an estimated 5,794 people in the Plan Area as of 2009, and one existing park of 3.8 acres.[39] To meet the City's adopted standard, the Plan Area would need an additional 13.58 acres of parks. The future park at Cooley Landing will help meet some of this park land need.

c. City Recreation and Community Facilities

In addition to City parks, the City operates the Community Room, located at 2415 University Avenue. The Community Room is within the Plan Area.

In addition to this community facility, the City leases land to the operators of the East Palo Alto Senior Center, located at 560 Bell Street. The City also leases land to the YMCA, which operates a gymnasium and the Bell Street Community Pool, both of which are located at 550 Bell Street.

[39] Peninger, Paul. Principal, Bay Area Economics. Personal e-mail communication with Jeff Williams, The Planning Center | DC&E, November 30, 2009.

d. Planned City Park

As envisioned by the Cooley Landing Vision Plan, prepared July 15, 2010, the City plans to build a new park at Cooley Landing, a 9-acre site extending into San Francisco Bay at the terminus of Bay Road. Future park amenities are likely to include nature viewing and picnic areas, a fishing pier, outdoor and indoor classroom space, and restrooms. Funding for the park will come from State funding, grants, and in-kind contributions.[40] The City expects construction of Phase 1 of the park to begin in late 2011. The remaining Phases 2 through 6 are expected to be completed by 2035.[41]

e. Open Space

Protected open space near East Palo Alto includes the Ravenswood Open Space Preserve, owned and managed by the Midpeninsula Regional Open Space District. The 373-acre preserve, which is adjacent to the Plan Area and is largely within the City of Menlo Park, is located north and south of the Dumbarton Bridge. The southern portion of the preserve offers pedestrian and bicycle access along the shore and levees along the marshland.[42]

Other nearby open space includes the Palo Alto Baylands, which is owned and managed by the City of Palo Alto. The Baylands, located just south of the East Palo Alto city limits, include approximately 1,940 acres of salt marsh and mud flat habitats. Visitors to the Baylands can bird watch, picnic, and visit the Lucy Evans Baylands Nature Interpretive Center and the Baylands Athletic Center.

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[40] City of East Palo Alto, Cooley Landing Vision Plan, July 25, 2010, pages 105-106.

[41] Alford, Shannon. Cooley Landing Project Manager, City of East Palo Alto. Personal communication with Carey Stone, The Planning Center | DC&E, September 15, 2011.

[42] Midpeninsula Regional Open Space District, http://www.openspace.org/preserves/pr_ravenswood.asp, accessed on September 14, 2011.

f. Trails

There are two recreational trails in East Palo Alto: the San Francisco Bay Trail and the San Francisquito Creek Trail. The San Francisco Bay Trail, the multi-use public recreation corridor along San Francisco and San Pablo Bays, includes two sections of trail within East Palo Alto. The northern section of trail runs along portions of the Ravenswood Open Space Preserve to Bay Road, within the Plan Area. The southern section connects O'Connor Street to Weeks Street.[43]

The East Palo Alto Bay Access Master Plan identifies two gaps in the Bay Trail within the city limits: a 650-foot gap between Weeks Street and Bay Road and a 0.4-mile gap between University Avenue and the northern boundary of the Ravenswood Open Space Preserve.[44] To connect the Ravenswood Open Space Preserve to University Avenue, the City plans to extend the trail through a Southern Pacific easement immediately north of the University Village neighborhood. There are also plans to extend the Bay Trail between Weeks Street and Bay Road.

Additionally, there is an unimproved trail along San Francisquito Creek, well south of the Plan Area. The City has plans to extend the trail from O'Connor Street along the Palo Alto Baylands to Highway 101. These planned improvements will enhance pedestrian access to the Bay for residents of the Garden and Weeks neighborhoods.[45]

3. Standards of Significance

The Plan would have a significant impact on parks and recreational facilities if it would:

a. Result in substantial adverse impacts associated with the provision of new or physically altered park facilities, the construction of which could cause

[43] City of East Palo Alto, 2007, *East Palo Alto Bay Access Master Plan*, page 17.

[44] City of East Palo Alto, 2007, *East Palo Alto Bay Access Master Plan*, page 18.

[45] City of East Palo Alto, 2007, *East Palo Alto Bay Access Master Plan*, page 31.

significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives.

b. Increase the use of existing neighborhood and regional parks or other recreational facilities such that physical deterioration of the facility would occur or be accelerated.

4. Impact Discussion

The Specific Plan proposes several new parks within the Plan Area including:

- A new 2.33-acre neighborhood park on San Francisco Public Utilities Commission land in the University Village neighborhood.
- A new 0.85-acre neighborhood park off of Weeks Street next to the Palo Alto Baylands Nature Preserve.
- A new 3.5-acre community park as part of new development at the termini of Demeter Street and Purdue Avenue.
- A set of two community parks, totaling 2.79 acres, across from each other on Bay Road, marking the entry to Cooley Landing, a significant community park being planned by the City as a separate project.

a. Project Impacts

i. Result in substantial adverse impacts associated with the provision of new or physically altered park facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives. ***(LTS)***

Currently, there are approximately 5,794 residents and a 3.8-acre existing City park within the Plan Area. The existing ratio of parks per 1,000 residents within the Plan Area is 0.65, which is well below the adopted service standard of 3 acres of parks per 1,000 residents.

The Specific Plan calls for the provision of 15.76 acres of additional parkland. The Specific Plan proposes approximately 5.53 acres (4.5miles) of new trails and sidewalks contributing to the overall proposed open space network. In addition, there are plans underway to develop the 9-acre Cooley Landing Park at the eastern terminus of Bay Road. Therefore, there would be ap-

proximately 30 acres of parks and trails within the Plan Area by 2035 (including 4.5 miles of new sidewalks and trails contributing to an overall proposed open space network) for a future ratio of parks per 1,000 residents within the Plan Area of over 3.0. This is an improvement to the existing ratio would exceed the City's service standard of 3 acres of parks per 1,000 residents. However, Conservation and Open Element Goal 6.0 calls for the City to provide adequate open space and recreational opportunities which would help the City to continue to strive to meet its park service standard. It should also be noted that approximately 7 acres of additional publicly accessible parks and trails are anticipated to be provided in conjunction with, and by, private development projects as the Specific Plan is implemented. Please see Chapter Four of the Specific Plan for more detail about specific park and trail recommendations.

The location of the new parks are described above and the physical impacts resulting from their construction are evaluated as part of the Specific Plan in this EIR since new parks are included as part of the project. Thus, the construction of new parks within the Specific Plan would not result in additional significant impacts not otherwise identified in the other sections of this EIR. Impacts and mitigation measures identified in the other sections of this EIR for general development within the Specific Plan Area would also apply to the construction of parks. Consequently, the regulatory framework in place at both the State and City level would minimize any potential impacts from the development, expansion, and construction of parks and recreational facilities. Therefore, impacts would be ***less than significant***.

ii. Increase the use of existing neighborhood and regional parks or other recreational facilities such that physical deterioration of the facility would occur or be accelerated. ***(LTS)***

Implementation of the Specific Plan would increase the demand for park facilities by adding approximately 2,766 new residents within the Specific Plan area. The existing General Plan has several goals and policies designed to help ensure that the City maintains existing parks and park facilities as well as to provide additional park land to serve the growing population. Conservation

and Open Space Element Goal 6.0 calls for the City to provide adequate open space and recreational opportunities and Goal 8.0 calls for the City to improve access to open space and recreation resources. To ensure park maintenance, Conservation and Open Space Element Policy 6.1 calls for the maintenance of public and private recreational lands, facilities, and programs and Policy 6.2 calls for parkland improvements that are durable and economical to maintain. Therefore, with compliance with these goals and policies in addition to the provision of additional parkland, projected buildout of the Specific Plan would not result in substantial physical deterioration of the park and recreational facilities and impacts would be ***less than significant.***

b. Cumulative Impacts

This cumulative analysis considers the Plan Area in the context of the City's General Plan, which takes into account the entire incorporated area of East Palo Alto, including the Specific Plan Area. The addition of new residents in the Plan Area would compound the existing shortage of parks and recreational facilities in East Palo Alto and trigger the development, expansion, or construction of facilities throughout the city by virtue of the standard for parkland provision set out in the Municipal Code. Expansion of existing facilities or construction of new facilities, however, would also be subject to CEQA review as well as to the provisions regulations adopted as part of the Municipal Code. Therefore, potential environmental impacts would be minimized and the Specific Plan would have a ***less-than-significant*** cumulative impact related to parks and recreational facilities.

4.14 TRANSPORTATION/TRAFFIC

This chapter describes the existing traffic and transportation conditions in the Ravenswood/4 Corners Transit-Oriented Development Specific Plan Area and evaluates the potential impacts of the Plan on traffic and transportation. A summary of the relevant regulatory setting and existing conditions is followed by a discussion of Plan-specific and cumulative impacts.

A. Regulatory Framework

This section describes the regulatory setting as it relates to traffic/ transportation in the Plan Area.

1. State Agencies, Laws and Regulations

a. California Department of Transportation (Caltrans)

Following the passage of the Highway Safety, Traffic Reduction, Air Quality and Port Security Bond Act, known as Proposition 1b, in November 2006, Caltrans has implemented a Corridor System Management Plan (CSMP) for all corridors in the sate with projects funding by the Corridor Mobility Improvement Act (CMIA). A CSMP was published for the Highway 101 South Corridor in December, 2010.[1] The report notes the segment of Highway 101 that would be affected by the Specific Plan is already a zone of AM and PM congestion.

2. Regional Agencies, Regulations and Policies

a. Metropolitan Transportation Commission

Metropolitan Transportation Commission (MTC) is the transportation planning, coordinating and financing agency for the nine-county San Francisco Bay Area, including San Mateo County. MTC is charged with regularly updating the Regional Transportation Plan, a comprehensive blueprint for the development of mass transit, highway, airport, seaport, railroad, bicycle and pedestrian facilities in the region. The most recent edition of the Regional Transportation Plan, known as Transportation 2035, was adopted in April

[1] Caltrans District 4, 2010. U.S. 101 South. Corridor System Management Plan.

2009. Transportation 2035 directs funding for various projects in San Mateo County, including pavement maintenance for local streets; improvement programs for Caltrain, SamTrans and BART; countywide shuttle service programs; and Highway 101 operation improvements near Route 92.

b. City/County Association of Governments of San Mateo County

The City/County Association of Governments of San Mateo County (C/CAG) is a regional planning agency involved with various public services, including transportation. In 1990, California voters passed Propositions 111 and 108, which provide funding to urban counties in California that designate a Congestion Management Agency (CMA) and prepare, implement and biennially update a Congestion Management Program (CMP). In San Mateo, C/CAG was designated as the CMA and the first CMP was adopted in 1991. The 2007 update (published September 2009) is the most recent edition of the CMP. The CMP sets standards for regional routes in San Mateo County, including all state highways, principal arterials and intersections. The CMP sets a level of service standard for each route identified, measures and evaluates current performance on those routes, provides a land use alternative impact analysis, and plans a seven-year capital improvement program.[2]

C/CAG also developed the San Mateo Countywide Transportation Plan 2010, adopted in January 2010.[3] The purpose of the Plan is to create a long range vision for the future of transportation within San Mateo County and neighboring counties. The Plan creates a broad policy framework for addressing various modes of transportation, including roads, Caltrain, SamTrans, BART and bikeways, together as one comprehensive transportation system. The Plan is intended to achieve goals such as reducing traffic congestion in San Mateo County; improving mobility, air quality and the coordination between land use and transportation planning; and increasing access, reliability and safety.

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[2] City/County Association of Governments, 2009, *Final Congestion Management Program for 2007.*

[3] City/County Association of Governments, April 2001, *San Mateo Countywide Transportation Plan 2010.*

c. San Mateo County Transit District

The San Mateo County Transit District (SamTrans) is the administrative branch for the principal public transit services and transportation programs within San Mateo County. In addition, SamTrans manages the San Mateo County Transportation Authority, the agency formed to administer the proceeds of Measure A, a countywide half-cent sales tax. In 1988, voters approved Measure A to provide capital funds for Caltrain grade separation projects, and street and highway improvement projects. The Measure also provides funding for Redi-Wheels, the county's paratransit service.

3. East Palo Alto General Plan

The East Palo Alto General Plan describes the major roadways in the City. The classification for City streets includes:

- Freeway – A multi0lane roadway with controlled access that provides regional access to the City
- Arterial – Arterials are signalized streets that serve through traffic and provide access to major destinations.
- Collector – Streets that collect traffic from local residential stress and distribute to arterials.
- Local – Streets that provide access to adjacent properties.

Roadways relevant to the Plan Area are listed in the Section B. Existing Conditions, 3. Existing Traffic Conditions.

The General Plan also defines the thresholds for determining the significance of traffic impacts. These are presented in Section C, Standards of Significance.

B. Existing Conditions

The analysis focuses on existing intersection levels of service on roadways and intersections that would accommodate traffic associated with the Specific

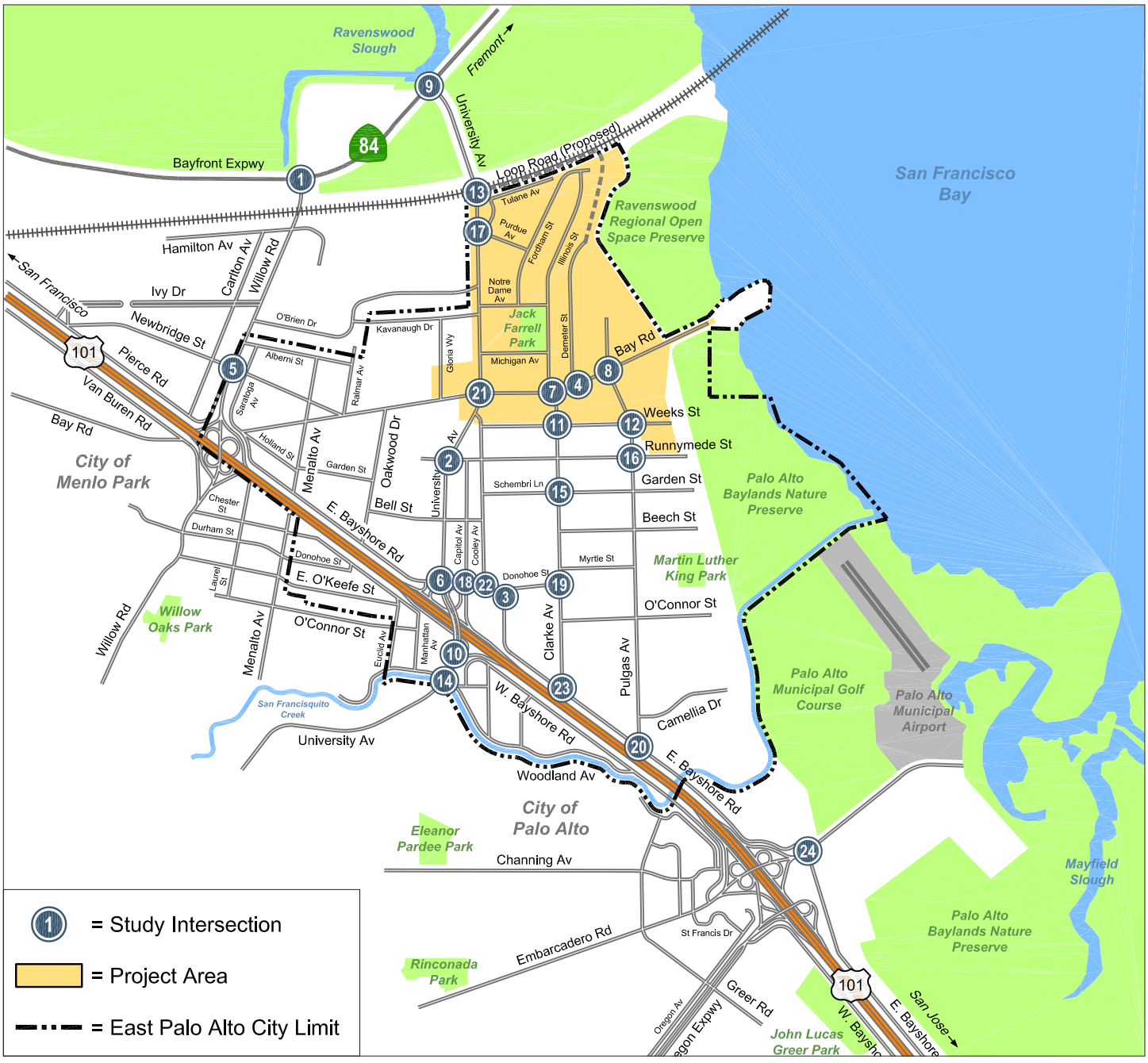
Plan. Many of these roadways and intersections are located outside of the Plan Area. This chapter also describes existing conditions for other major transportation facilities in the Plan Area, including transit service and bicycle/pedestrian facilities.

1. Scope of Study

The traffic analysis is based on peak-hour levels of service for 14 signalized intersections, nine unsignalized intersections, and one proposed new intersection. The study also evaluates unsignalized study intersections to determine whether traffic signals may be needed. The study intersections are identified below. The study area and study intersections are illustrated on Figure 14-.4-1. Most of the study intersections are located in the City of East Palo Alto, except as noted below. The study intersections include intersections in the project vicinity identified in other traffic studies as having existing or projected future deficiencies as well as locations that operate at acceptable levels which are expected to serve a substantial number of project trips. Several of the intersections are located outside of the Plan Area but are studied because they represent key locations used by vehicles traveling to and from the Plan Area.

a. Study Intersections

1. Willow Road (State Route 114) and Bayfront Expressway (State Route 84)* (City of Menlo Park)
2. University Avenue (State Route 109) and Runnymede Street
3. East Bayshore Road and Donohoe Street
4. Demeter Street and Bay Road (one-way stop)
5. Willow Road (State Route 114) and Newbridge Street (City of Menlo Park)
6. University Avenue (State Route 109) and Donohoe Street
7. Clarke Avenue and Bay Road (all-way stop)
8. Pulgas Avenue and Bay Road (two-way stop)
9. University Avenue and Bayfront Expressway (State Route 84)* (City of Menlo Park)



Source: Hexagon Transportation Consultants, Inc.

FIGURE 4.14.1

STUDY AREA AND STUDY INTERSECTIONS

10. University Avenue and Highway 101 Southbound Off Ramp
11. Clarke Avenue and Weeks Street (two-way stop)
12. Pulgas Avenue and Weeks Street (two-way stop)
13. University Avenue and Loop Road (future proposed)
14. University Avenue and Woodland Avenue
15. Clarke Avenue and Garden Street (all-way stop)
16. Pulgas Avenue and Runnymede Street (all-way stop)
17. University Avenue (State Route 109) and Purdue Avenue (one-way stop)
18. Highway 101 Northbound Off Ramp/Capital Avenue and Donohoe Street
19. Clarke Avenue and Donohoe Street (all-way stop)
20. Pulgas Avenue and East Bayshore Road
21. University Avenue (State Route 109) and Bay Road
22. Cooley Avenue and Donohoe Street
23. Clarke Avenue and East Bayshore Road
24. Embarcadero Road and East Bayshore Road (City of Palo Alto)

Intersections denoted with an asterisk (*) are designated as Congestion Management Program (CMP) intersections. As the Congestion Management Agency (CMA) for San Mateo County, the City/County Association of Governments (C/CAG) is responsible for maintaining the performance and standards of the Congestion Management Program (CMP) roadway network. Any new development projects that generate 100 or more peak-hour trips on the CMP roadway network are required by the CMP to implement Travel Demand Management (TDM) measures that would reduce project impacts. Additionally, the level of service standards at CMP intersections are established by the CMP and may not necessarily be the same as the level of service standards of the City in which the particular CMP intersection is located.

b. Study Peak Hours

Current traffic conditions at the study intersections were analyzed for the weekday AM and PM peak hours of traffic. The AM peak hour of traffic is generally between 7:00 and 9:00 a.m., and the PM peak hour is typically be-

tween 4:00 and 6:00 p.m. It is during these periods that the most congested traffic conditions occur on an average day.

2. Methodology

This section presents the methods used to determine the traffic conditions for existing conditions. It includes descriptions of the data requirements, the analysis methodologies, and the applicable level of service standards.

a. Data Requirements

The data required for the analysis were obtained from intersection turning movement counts conducted on various dates from October 2009 to June 2011 and field observations. The following data were collected from these sources:

- Existing traffic volumes
- Existing lane configurations
- Signal timing and phasing

b. Intersection Level of Service Standards and Analysis Methodologies

Traffic conditions at the study intersections were evaluated using level of service (LOS). Level of service is a qualitative description of operating conditions ranging from LOS A, or free-flow conditions with little or no delay, to LOS F, or jammed conditions with excessive delays. Intersection levels of service are based on the average amount of delay incurred by drivers traveling through the intersection. The intersection analysis methods are described below.

The traffic study area spans the jurisdictions of four different agencies. As such, intersection levels of service were evaluated in accordance with the standards set forth by the City of East Palo Alto, the City of Menlo Park, the City of Palo Alto, and the City/County Association of Governments of San Mateo County. However, the criteria used to determine significant impacts on intersections are mostly based on the level of service standards of the Cities of East Palo Alto, Menlo Park, and Palo Alto because the standards of the cities are more stringent than the CMP standards.

The City of East Palo Alto and the City of Palo Alto both use a level of service standard of LOS D for intersections. The City of Menlo Park level of service standard is LOS C for intersections on collector streets and LOS D for intersections on arterials or local approaches to State-controlled intersections. All of the Menlo Park study intersections are located on State Routes. Therefore, all of the study intersections in Menlo Park were evaluated with a LOS D standard.

Two of the signalized study intersections are located on the CMP roadway network (Willow Road/Bayfront Expressway and University Avenue/Bayfront Expressway). The CMP level of service standard for these intersections is LOS F.

i. Signalized Intersections

This analysis of signalized intersections is based on the Highway Capacity Manual (HCM) 2000 method for computing level of service at signalized intersections. This method is also approved for traffic level of service analyses by the City/County Association of Governments (C/CAG) of San Mateo County, as described in the 2007 Congestion Management Program (CMP). The study intersections were analyzed using the TRAFFIX level of service software and the HCM 2000 methodology. The HCM 2000 methodology evaluates signalized intersection operations on the basis of average control delay time for all vehicles at the intersection. Control delay is the amount of delay that is attributed to the particular traffic control device at the intersection, and includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay.

The correlation between average delay and level of service for signalized intersections is shown in Table 4.14-1.

TABLE 4.14-1 ***SIGNALIZED INTERSECTION LEVEL OF SERVICE DEFINITIONS***

Level of Service	Description	Average Control Delay Per Vehicle (Seconds)
A	Signal progression is extremely favorable. Most vehicles arrive during the green phase and do not stop at all. Short cycle lengths may also contribute to the very low vehicle delay.	10.0 or less
B	Operations characterized by good signal progression and/or short cycle lengths. More vehicles stop than with LOS A, causing higher levels of average vehicle delay.	10.1 to 20.0
C	Higher delays may result from fair signal progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant, though many still pass through the intersection without stopping.	20.1 to 35.0
D	The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable signal progression, long cycle lengths, or high volume-to-capacity (V/C) ratios. Many vehicles stop and individual cycle failures are noticeable.	35.1 to 55.0
E	This is considered by most drivers to be the limit of acceptable delay. These high delay values generally indicate poor signal progression, long cycle lengths, and high volume-to-capacity (V/C) ratios. Individual cycle failures occur frequently.	55.1 to 80.0
F	This level of delay is considered unacceptable by most drivers. This condition often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of the intersection. Poor progression and long cycle lengths may also be major contributing causes of such delay levels.	Greater than 80.0

Source: Transportation Research Board, 2000 Highway Capacity Manual (Washington, D.C., 2000).

ii. Unsignalized Intersections

Levels of service for unsignalized intersections were determined using the 2000 Highway Capacity Manual methodology for unsignalized intersection analysis and the TRAFFIX level of service software. This method is applicable for both two-way and all-way stop-controlled intersections. For the analysis of stop-controlled intersections, the 2000 HCM methodology evaluates intersection operations on the basis of average control delay time for all vehicles on the stop-controlled approaches. For the purpose of reporting level of service for one- and two-way stop-controlled intersections, the delay and corresponding level of service for the stop-controlled minor street approach with the highest delay is reported. For all-way stop-controlled intersections, the reported average delay and corresponding level of service is the average for all approaches at the intersection. The correlation between average control delay and level of service for unsignalized intersections is shown in Table 4.14-2.

c. Signal Warrants

The level of service analysis at unsignalized intersections is supplemented with an assessment of the need for signalization of the intersection. This assessment is made on the basis of signal warrant criteria adopted by Caltrans. For this study, the need for signalization is assessed on the basis of the peak-hour traffic signal warrant, Warrant #3 described in the 2006 California Manual on Uniform Traffic Control Devices (CAMUTCD). This method provides an indication of whether traffic conditions and peak-hour traffic levels are, or would be, sufficient to justify installation of a traffic signal, and helps identify locations that should be studied further for potential signalization.

3. Existing Traffic Conditions

a. Roadway Network

This section describes the existing roadway network in the Plan Area, as well as key surrounding roadways.

TABLE 4.14-2 ***UNSIGNALIZED INTERSECTION LEVEL OF SERVICE DEFINITIONS***

Level of Service	Description	Average Delay Per Vehicle (Seconds)
A	Little or no traffic delay	10.0 or less
B	Short traffic delays	10.1 to 15.0
C	Average traffic delays	15.1 to 25.0
D	Long traffic delays	25.1 to 35.0
E	Very long traffic delays	35.1 to 50.0
F	Extreme traffic delays	Greater than 50.0

Source: Transportation Research Board, 2000 Highway Capacity Manual (Washington, D.C., 2000).

Regional access to the Plan Area is provided via Highway 101 and Bayfront Expressway (State Route 84). Local circulation within the area that was examined for the traffic study is provided by a variety of roadways. These facilities are described below.

- *Highway 101* is a north/south freeway that extends from San Francisco through San Mateo and Santa Clara Counties. In the Plan Area, Highway 101 is eight lanes wide, including two HOV lanes (one in each direction). Full-access interchanges at University Avenue, Willow Road, and Embarcadero Road provide access from Highway 101 to the Plan Area.
- *Bayfront Expressway* (State Route 84) is a four-lane east/west expressway to the north of the Plan Area. It extends eastward and crosses the San Francisco Bay on the Dumbarton Bridge and extends westward toward Highway 101, where it becomes Marsh Road near the Highway 101/Marsh Road interchange. Bayfront Expressway primarily serves in-

dustrial areas and accommodates commute traffic traveling to/from the East Bay.

- *University Avenue* (State Route 109) is a north/south arterial that extends from the Stanford University campus in Palo Alto to State Route 84 north of East Palo Alto where it terminates. In the Plan Area, University Avenue is a four-lane divided roadway. University Avenue primarily serves retail and residential uses.
- *Cooley Avenue* is a north/south local street located within the City of East Palo Alto that begins at Donohoe Street and extends northward to University Avenue where it terminates. Cooley Avenue is a two-lane undivided roadway that serves residential uses.
- *Clarke Avenue* is a two-lane, north/south undivided roadway that begins at East Bayshore Road and extends northward to Bay Road, where it changes designation to Illinois Street. Clarke Avenue primarily serves residential uses.
- *Bay Road* is a 2- to 4-lane east/west street that begins at East Bayshore Road and extends eastward to the San Francisco Bay and Cooley Landing. Bay Road is a four-lane arterial between University Avenue and Pulgas Street. East of Pulgas Street and west of University Avenue, Bay Road is an undivided, two-lane roadway. Bay Road primarily serves retail and residential uses.
- *Willow Road* (State Route 114) is a four-lane, divided north/south roadway that begins in Menlo Park at Alma Street and extends northward through East Palo Alto to just beyond Bayfront Expressway, where it terminates at Network Circle. Willow Road primarily serves retail and residential uses.
- *Embarcadero Road* is a four-lane undivided arterial that begins in Palo Alto at El Camino Real and extends eastward to the Palo Alto Municipal Airport. West of Highway 101, Embarcadero Road serves residential uses. East of Highway 101, Embarcadero Road serves industrial uses. West of El Camino Real, Embarcadero Road changes designation to Galvaez Street.

- *Pulgas Avenue* is an undivided two-lane, north/south collector street that begins at East Bayshore Road and extends northward to just north of Bay Road, where it terminates. Pulgas Avenue primarily serves residential uses.
- *East Bayshore Road* is a 2- to 4-lane frontage road that is situated immediately north of Highway 101 in East Palo Alto. It begins in Mountain View and extends northward to Bay Road where it changes designation to Saratoga Avenue. North of University Avenue, East Bayshore Road primarily serves residential uses. South of University Avenue, East Bayshore Road primarily serves retail and industrial uses.

b. Existing Intersection Lane Configurations

The existing lane configurations at the study intersections were determined by observations in the field. The existing intersection lane configurations are shown graphically on Figure 4.14-2.

c. Existing Traffic Volumes

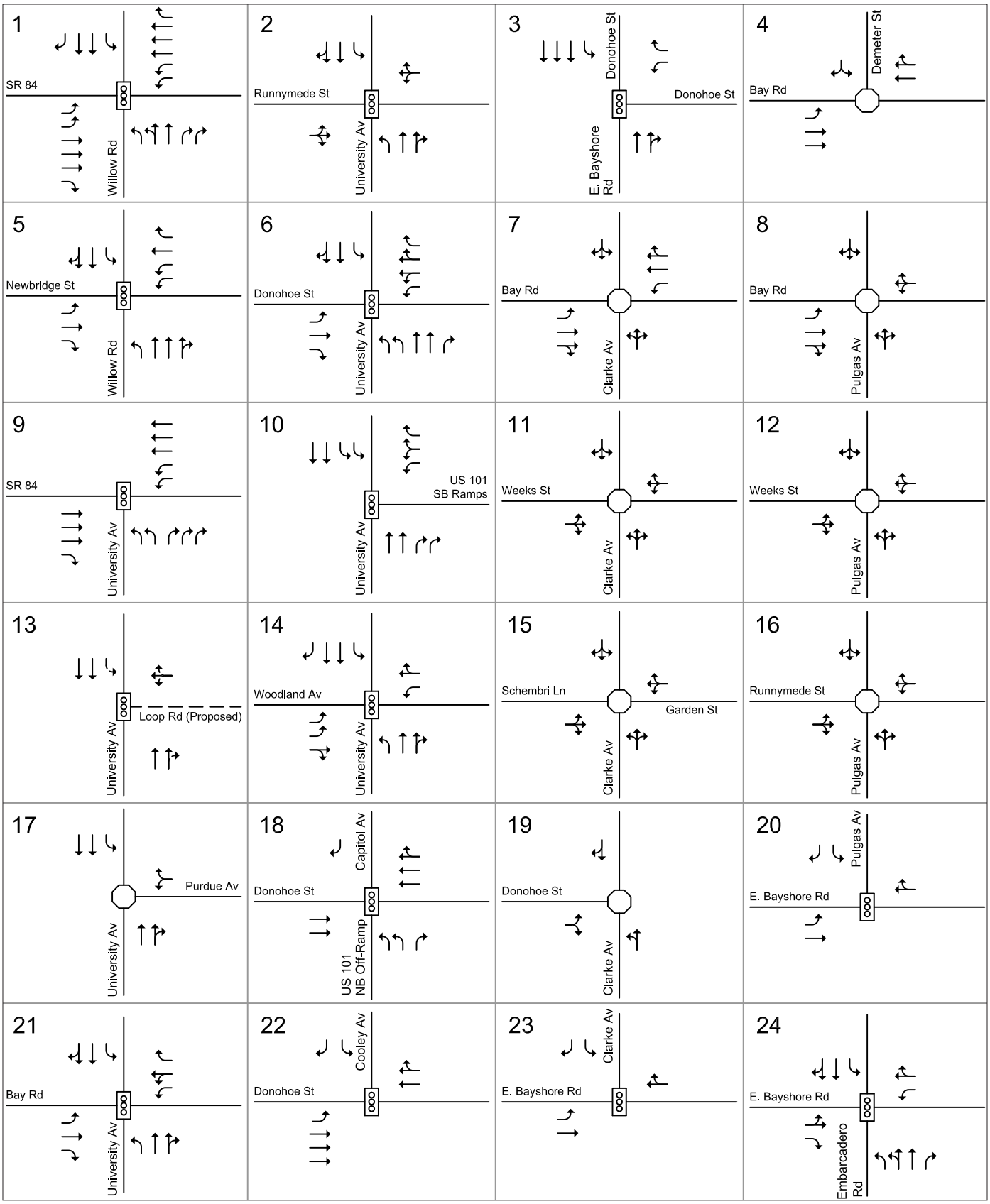
Existing traffic volumes were obtained from intersection turning movement counts conducted at all study intersections at various dates from October 2009 to June 2011.[4] The existing AM and PM peak-hour intersection volumes are shown on Figure 4.14-3.

d. Existing Intersection Levels of Service

The results of the level of service analysis are summarized in Table 4.14-3. The results show that three intersections currently operate at unacceptable levels of service during at least one peak hour:

- Willow Road and Bayfront Expressway
- University Avenue and Bayfront Expressway
- University Avenue and Purdue Avenue

[4] Traffic count data are contained in Appendix A from the Traffic/Transportation Survey Report, which is included in Appendix 3 of this Draft EIR.



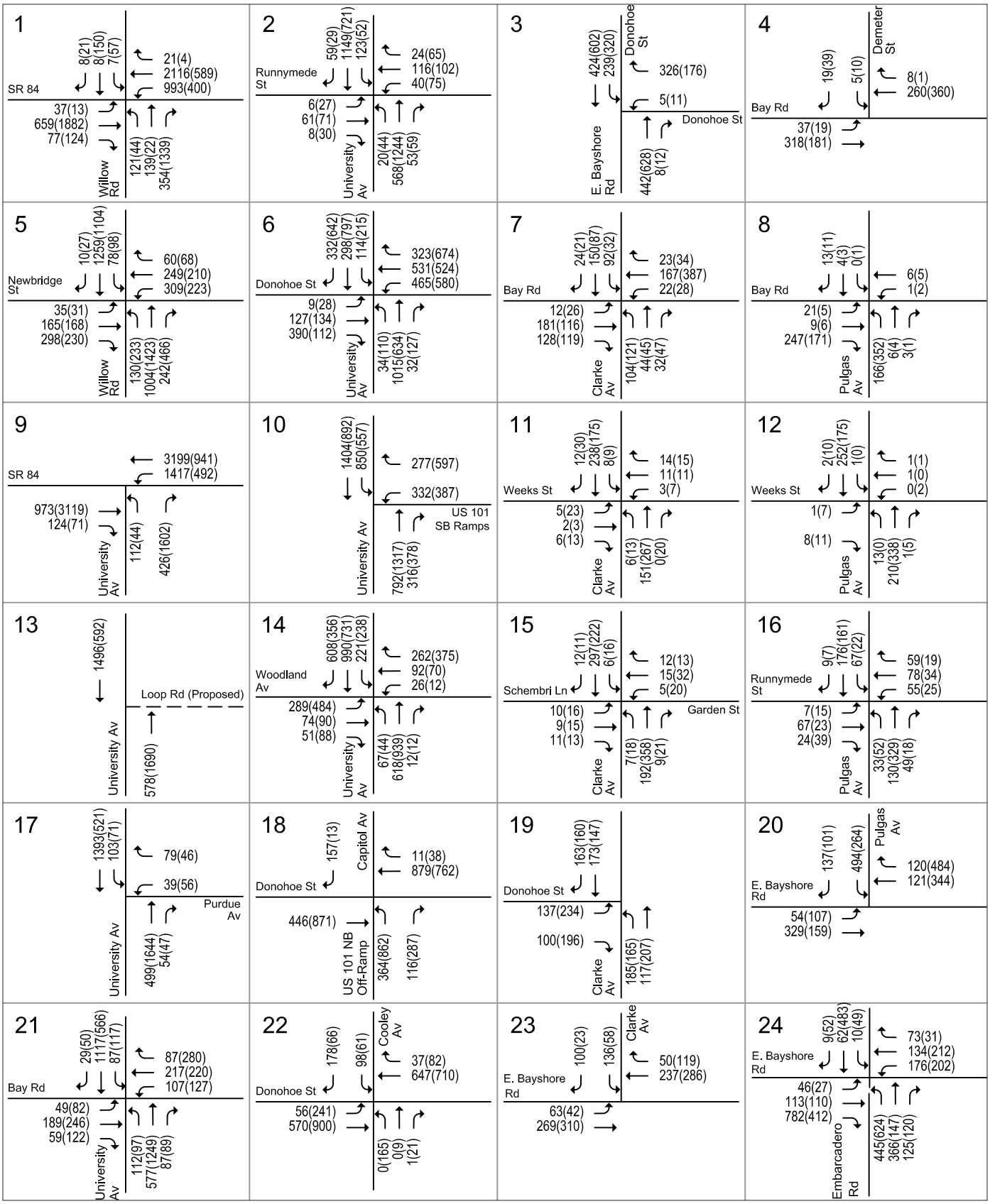
Source: Hexagon Transportation Consultants, Inc.

= Signalized Intersection

= Unsignalized Intersection

FIGURE 4.14-2

EXISTING LANE CONFIGURATIONS



Source: Hexagon Transportation Consultants, Inc.

XX(XX) = AM(PM) Peak-Hour Traffic Volumes

FIGURE 4.14-3

EXISTING TRAFFIC VOLUMES

TABLE 4.14-3 ***EXISTING INTERSECTION LEVELS OF SERVICE***

Int. No.	Intersection Name	Control	Hour	Date	Avg. Delay[a]	Worst Delay[b]	LOS
1	Willow Road & Bayfront Expressway*	Signal	AM	10/21/09	19.8	-	B
			Crit. Local App.		NA/**61.0**	-	NA/**E**
			PM	10/21/09	**60.8**	**-**	**E**
			Crit. Local App.		NA/**136**	**-**	NA/**F**
2	University Avenue & Runnymede Street	Signal	AM	01/14/10	6.8	-	A
			PM	04/22/10	8.0	-	A
3	East Bayshore Road & Donohoe Street	Signal	AM	01/14/10	11.2	-	B
			PM	03/31/10	11.1	-	B
4	Demeter Street & Bay Road	2-Way Stop	AM	06/02/11	0.8	9.8	A
			PM	06/02/11	1.1	10.2	B
5	Willow Road & Newbridge Street	Signal	AM	10/21/09	33.4	-	C
			Crit. Local App.		49.5/**60.4**	-	D/**E**
			PM	10/21/09	29.5	-	C
			Crit. Local App.		**58.5/59.2**	-	**E/E**
6	University Avenue & Donohoe Street	Signal	AM	10/20/09	46.3	-	D
			PM	10/20/09	41.2	-	D
7	Clarke Avenue & Bay Road	All-Way Stop	AM	10/20/09	11.0	-	B
			PM	10/20/09	11.0	-	B
8	Pulgas Avenue & Bay Road	2-Way Stop	AM	10/20/09	4.8	11.3	B
			PM	10/20/09	8.2	12.4	B
9	University Avenue & Bayfront Expressway[d] *	Signal	AM	10/21/09	17.7	-	B
			PM	10/21/09	**74.5**	**-**	**E**
10	University Avenue & US 101 SB Off-Ramp	Signal	AM	10/22/09	15.4	-	B
			PM	10/22/09	18.1	-	B
11	Clarke Avenue & Weeks Street	2-Way Stop	AM	06/02/11	1.2	11.0	B
			PM	06/02/11	1.8	12.3	B
12	Pulgas Avenue & Weeks Street	2-Way Stop	AM	06/02/11	0.4	11.0	B
			PM	06/02/11	0.4	12.0	B
13	University Avenue & Loop Road (new)	Future Signal	AM	n/a	n/a	NA	NA
			PM	n/a	n/a	NA	NA

Int. No.	Intersection Name	Control	Hour	Date	Avg. Delay[a]	Worst Delay[b]	LOS
14	University Avenue & Woodland Avenue	Signal	AM	10/22/09	29.8	-	C
			PM	10/22/09	45.4	-	D
15	Clarke Avenue & Garden Street	All-Way Stop	AM	04/22/10	9.2	-	A
			PM	04/22/10	10.6	-	B
16	Pulgas Avenue & Runnymede Street	All-Way Stop	AM	06/02/11	9.9	-	A
			PM	06/02/11	10.6	-	B
17	University Avenue & Purdue Avenue	2-Way Stop	AM	10/21/09	2.0	29.1	D
			PM	10/21/09	**18.4**	**OVFL**	**F**
18	Capitol Avenue & Donohoe Street	Signal	AM	10/20/09	20.7	-	C
			PM	10/20/09	17.7	-	B
19	Clarke Avenue & Donohoe Street	All-Way Stop	AM	01/14/10	11.2	-	B
			PM	04/01/10	15.9	-	C
20	Pulgas Avenue & Bayshore Road	Signal	AM	10/22/09	19.0	-	B
			PM	10/22/09	16.1	-	B
21	University Avenue & Bay Road	Signal	AM	10/20/09	32.6	-	C
			PM	10/20/09	36.9	-	D
22	Cooley Avenue & Donohoe Street	Signal	AM	01/26/10	14.7	-	B
			PM	03/31/10	18.7	-	B
23	Clarke Avenue & East Bayshore Road	Signal	AM	10/22/09	13.5	-	B
			PM	10/22/09	6.0	-	A
24	Embarcadero Road & Bayshore Road	Signal	AM	10/22/09	35.7	-	D
			PM	10/22/09	36.8	-	D

Note: Intersections denoted with an asterisk (*) are CMP intersections.
Bold = denotes an unacceptable level of service.
OVFL = denotes delay is beyond the bounds of the equation.
Crit. Local App. = Critical Local Approaches

[a] Whole intersection weighted average control delay, including uncontrolled movements at unsignalized intersections, expressed in seconds per vehicle.

[b] The worst case delay is the average delay on the worst stop-controlled approach, expressed in seconds per vehicle.

[c] Average delay and level of service are presented for the intersection overall and for the critical movements on local approaches (Eastbound/Westbound Newbridge Street and Northbound/Southbound Willow Road).

[d] Intersection of two state routes. There are no local approaches controlled by Menlo Park.

Source: Hexagon, 2011.

The study intersections on Bayfront Expressway at Willow Road and at University Avenue currently operate at LOS E during the PM peak hour. While the intersections meet the CMP level of service standard (LOS F), they fall below the City of Menlo Park's level of service standard (LOS D). In addition, while the intersection of Willow Road and Newbridge Street operates at an acceptable level of service overall, one or both local approaches currently operate at unacceptable levels. Likewise, the stop-controlled approach at the intersection of University Avenue and Purdue Avenue experiences unacceptable delays during the PM peak hour. The remaining study intersections currently operate at acceptable levels of service, according to the respective level of service standards of each jurisdiction.[5]

e. Existing Peak-Hour Traffic Signal Warrant Results

The results of the peak-hour traffic signal warrant analysis are summarized in Table 4.14-4. Two unsignalized study intersections currently exhibit traffic volumes that are high enough to satisfy the peak-hour volume traffic signal warrant:

- University Avenue and Purdue Avenue
- Clarke Avenue and Donohoe Street

The stop-controlled approach on Purdue Avenue at University Avenue operates at LOS F during the PM peak hour. This indicates that a traffic signal likely is needed to assign right-of-way at this intersection and to provide for safe and efficient traffic operations.

The intersection of Clarke Avenue and Donohoe Street currently operates at an acceptable level of service under all-way stop control. It is possible that intersections meet signal warrants but still operate at an acceptable level of service. Clark Avenue and Donohoe Street is a three-legged intersection, so it has fewer conflicting turning movements than a standard four-way intersection. When a signal warrant is met, an intersection could be considered for a

[5] The level of service calculation sheets are included in Appendix B from the Traffic/Transportation Survey Report, which is included in Appendix 3 of this Draft EIR.

TABLE 4.14-4 ***EXISTING PEAK-HOUR SIGNAL WARRANT RESULTS***

Int. Number	Intersection Name	Warrant Met? AM	PM
4	Demeter Street and Bay Road	no	no
7	Clarke Avenue and Bay Road	no	no
8	Pulgas Avenue and Bay Road	no	no
11	Clarke Avenue and Weeks Street	no	no
12	Pulgas Avenue and Weeks Street	no	no
13	University Avenue and Loop Road (new)	n/a	n/a
15	Clarke Avenue and Garden Street	no	no
16	Pulgas Avenue and Runnymede Street	no	no
17	University Avenue and Purdue Avenue	**yes**	**yes**
19	Clarke Avenue and Donohoe Street	no	**yes**

Notes: Signal warrant analysis based on MUTCD Peak Hour Signal Warrant #3-part B.
Source: Hexagon, 2011.

traffic signal, but it does not necessarily mean that a traffic signal would provide better traffic operation.[6]

f. Field Observations

Traffic conditions in the field were observed in order to identify existing operational deficiencies and to confirm the accuracy of calculated levels of service. The purpose of this effort was (1) to identify any existing traffic problems that may not be directly related to intersection level of service, and (2) to identify any locations where the level of service calculation does not accu-

[6] The signal warrant sheets are included in Appendix C from the Traffic/Transportation Survey Report, which is included in Appendix 3 of this Draft EIR.

rately reflect level of service in the field. The field observations revealed that the level of service analysis generally reflects actual existing traffic conditions.

The following notable traffic conditions were observed in the field in and around the Plan Area. At the Highway 101 northbound Off Ramp/Capitol Avenue and Donohoe Street intersection, westbound traffic moves slowly through the intersection due to the long westbound right-turn queue back up at the University Avenue/Donohoe Avenue intersection. Similarly, at the University Avenue/Highway 101 southbound off ramp intersection, southbound traffic moves slowly through the intersection due to traffic backups originating at the University Avenue/Woodland Avenue intersection.

g. Existing Freeway Levels of Service

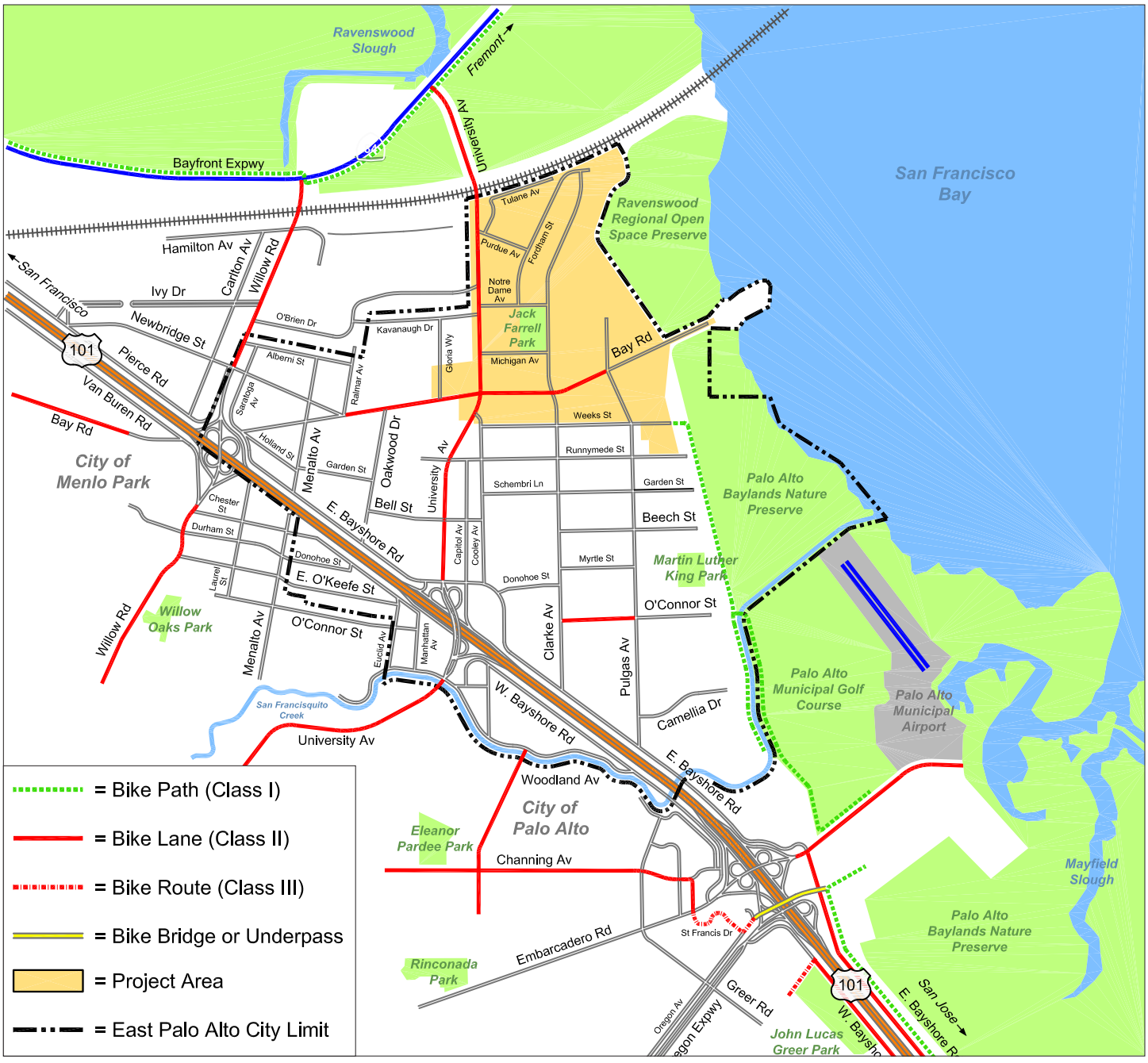
According to the 2009 Congestion Management Program Monitoring Reports from San Mateo and Santa Clara Counties, the following freeway segments in the vicinity of the Specific Plan currently operate at LOS F during one or both of the AM and PM peak hours:

- State Route 84 Dumbarton Bridge
- Highway 101 Whipple Avenue to Embarcadero Road
- Highway 101 Embarcadero Road to San Antonio Road
- Highway 101 San Antonio Road to Rengstorff Avenue

4. Existing Bicycle and Pedestrian Facilities

Bicycle facilities are divided into three classes. Class I bikeways are bike paths that are physically separated from motor vehicles and offer two-way bicycle travel on a separate path. Class II bikeways are striped bike lanes on roadways that are marked by signage and pavement markings. Class III bikeways are bike routes designated only with signs to help guide bicyclists on recommended routes to certain locations. Existing bicycle facilities in and around the Plan Area are described below and shown on Figure 4.14-4. In and around the Plan Area, bike lanes are available on:

- University Avenue, south of Highway 101, between Donohoe Street and O'Brien Drive, and between Adams Drive and Bayfront Expressway
- Bay Road, between Ralmar Avenue and Pulgas Avenue



Source: Hexagon Transportation Consultants, Inc.

FIGURE 4.14.4

EXISTING BICYCLE FACILITIES

- O'Connor Street, between Clarke Avenue and Pulgas Avenue
- Willow Road, between Newbridge Street and Bayfront Expressway

Just to the north of the Plan Area, a bike path parallels Bayfront Expressway. Another bike path connects the eastern terminus of Weeks Street south to Genge Road and Embarcadero Road on the southern end of Palo Alto Municipal Golf Course.

On other roadways in and around the Plan Area, bicyclists must share the road with auto traffic. The bike lanes on Willow Road, Bay Road, University Avenue, and Channing Avenue/Embarcadero Road are discontinuous as they cross Highway 101. Other than the bicycle bridge to the south of the Plan Area, there are no bicycle facilities available to cross Highway 101.

Of the facilities described above, only the Bay Road and University Avenue bike lanes are within the Plan Area. While the bike lanes described above accommodate some bicycle travel in the Plan Area, they do not represent a significant bicycle network and offer limited connectivity to the regional bicycle network. The bike path that begins at Weeks Street is the only link to regional bicycle facilities, such as those found just to the south in the Palo Alto Baylands.

Pedestrian facilities in the Plan Area consist primarily of sidewalks and crosswalks along the streets in the residential neighborhood and commercial areas in the Plan Area. Sidewalks and crosswalks are found on most roadways, except as noted below.

The list below identifies key roadways or roadway segments in and around the Plan Area that do not currently have sidewalks.

- Portions of Bay Road east of Pulgas Avenue
- Portions of Pulgas Avenue, north of Weeks Street
- University Avenue, north of Notre Dame Avenue
- Willow Road, north of Hamilton Avenue
- East Bayshore Avenue, between University Avenue and Poplar Avenue

This list is not a comprehensive assessment of pedestrian facilities in and around the Plan Area. There likely are other minor streets, street segments, and property frontages in the Plan Area that currently do not have sidewalks.

The University Avenue roadway segment represents a key barrier to walkers within the Plan Area because it limits pedestrian access to the residential areas east of University Avenue and the commercial areas west of University Avenue. Additionally, pedestrian connections to the open space north of the Plan Area are limited due to the lack of sidewalks on University Avenue. Similarly, the absence of sidewalks on Bay Road limits connections to the open space to the east of the Plan Area.

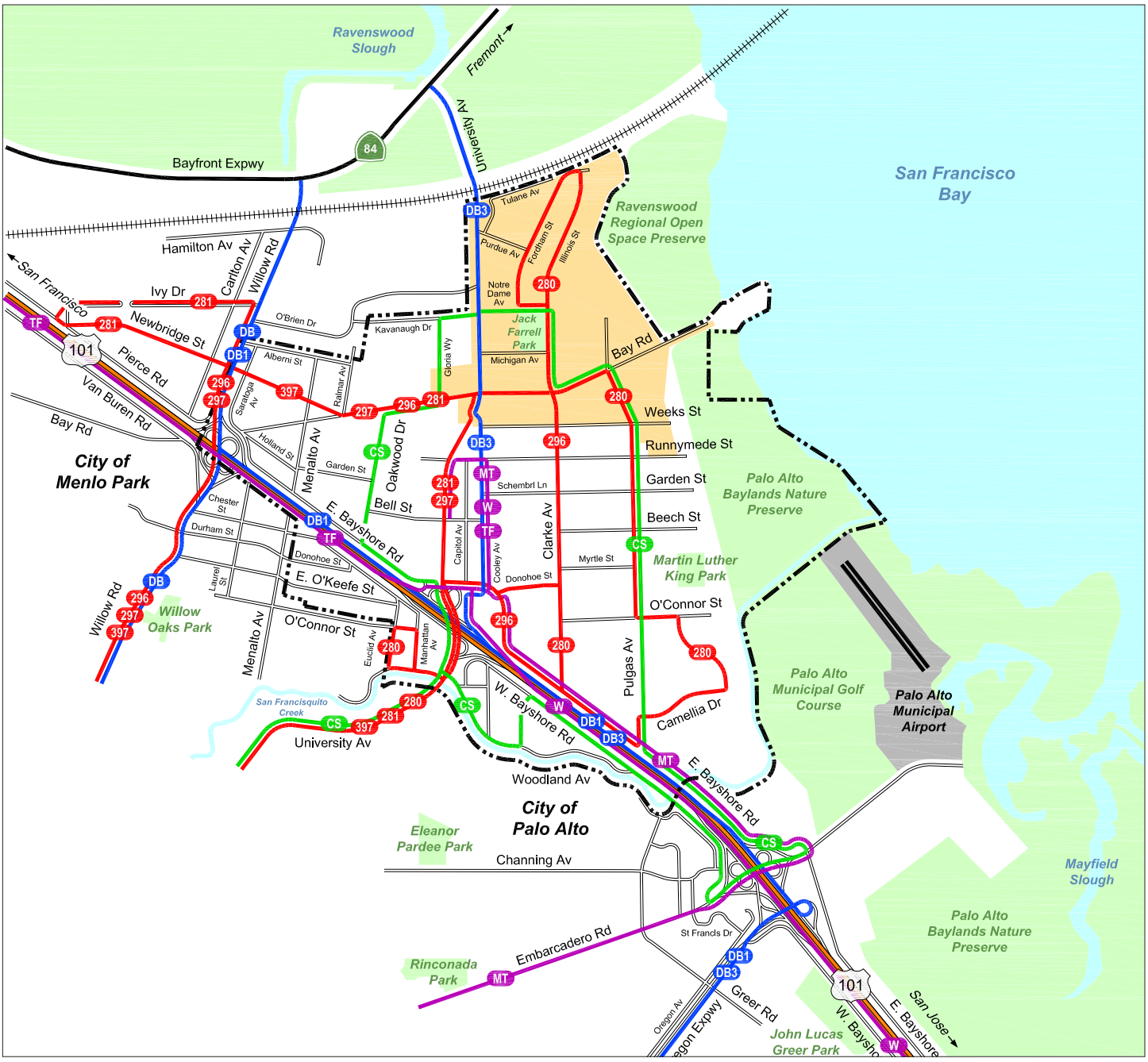
5. Existing Transit Service

Existing transit service to the study area is provided by the San Mateo County Transit District (SamTrans), the Alameda-Contra Costa Transit District (AC Transit), and Caltrain. Transit services are described below and shown on Figure 4.14-5.

a. SamTrans Bus Service

SamTrans provides bus service within and around the Plan Area, as described below.

- *The 280 line* provides service between the Stanford Shopping Center in Palo Alto and Purdue/Fordham in East Palo Alto via University Avenue, Donohoe Street, and Pulgas Avenue on 30-minute headways during commute hours.
- *The 281 line* provides service between Stanford Shopping Center in Palo Alto and Onetta Harris Community Center in East Palo Alto via University Avenue, Bay Road, and Newbridge Street, on approximately 30-minute headways.
- *The 296 line* provides service between East Palo Alto and the Redwood City Caltrain station via Middlefield Road, Willow Road, Bay Road, and Clarke Avenue on 30-minute headways.



Source: Hexagon Transportation Consultants, Inc.

DB1 = Dumbarton Express Bus Routes

CS = Community Shuttle (Daily Service)

MT = EPA Senior Shuttle (Monday & Thursday Service)

TF = EPA Senior Shuttle (Tuesday & Friday Service)

W = EPA Senior Shuttle (Wednesday Service)

= Project Area

= East Palo Alto City Limit

280 = SamTrans Bus Routes

FIGURE 4.14-5

EXISTING TRANSIT FACILITIES

- *The 297 Line* provides service between the Palo Alto Caltrain Station and the Redwood City Caltrain Station via University Avenue, Newbridge Street, and Willow Road on 60-minute headways.
- *The 397 Line* provides service between the Palo Alto Caltrain Station and downtown San Francisco via University Avenue, Newbridge Street, and Willow Road on 60-minute headways.
- *The East Palo Alto Community Shuttle* provides service throughout East Palo Alto on approximately 30-minute headways during commute hours. Within the Plan Area, the Community Shuttle operates on Pulgas Avenue, Bay Road, East Bayshore Road, Illinois Avenue, and Notre Dame Avenue.

Other services in the area include the East Palo Alto Senior Shuttle, which is free to all transit riders and travels on various routes throughout East Palo Alto on weekdays.

Of these lines, only the 280 Line and Community Shuttle provide service through the Plan Area. At the 4 Corners intersection, there are also connections to the 281 296, 297, and 397 lines, which then provide service to the west and south of the Plan Area.

b. AC Transit Bus Service

The *Dumbarton Express Shuttle* provides service between Palo Alto and the Union City BART Station via three different routes: DB, DB1, and DB3. Route DB operates on Willow Avenue and Bayfront Expressway in the Plan Area. Route DB1 operates on Highway 101, Willow Avenue, and Bayfront Expressway. Route DB3 operates on Highway 101, University Avenue, and Bayfront Expressway, and is the only Dumbarton Express Shuttle that has a stop within the Plan Area. The Dumbarton Express operates on 20- to 30-minute headways.

c. Caltrain Service

Caltrain provides commuter rail service between San Francisco and Gilroy. The Plan Area is located about four miles northeast of the Palo Alto Caltrain station, which is located near the intersection of Alma Street and University Avenue in Downtown Palo Alto. At the Palo Alto station, Caltrain provides service with approximately 20- to 30-minute headways during the weekday commute hours.

C. Standards of Significance

For definition of what constitutes a significant impact under CEQA Criterion 1 for road congestion, this EIR uses the definitions adopted by of the cities of East Palo Alto, Menlo Park, and Palo Alto. Project impacts on other transportation facilities, such as pedestrian and bicycle facilities, parking, and transit service were determined on the basis of engineering judgment.

a. Definition of Significant Signalized Intersection Impacts

i. East Palo Alto

The project is said to create a significant adverse impact on traffic conditions at a signalized intersection in the City of East Palo Alto if for any peak hour:

- The level of service at the intersection degrades from an acceptable LOS D or better under existing conditions to an unacceptable LOS E or F under existing plus project conditions, or
- The level of service at the intersection is an unacceptable LOS E or F under existing conditions and the addition of project trips causes both the critical-movement delay at the intersection to increase by four or more seconds and the volume-to-capacity ratio (V/C) to increase by 0.01 or more, or
- An increase of the volume-to-capacity (V/C) ratio by 0.01 or more at an intersection observed to operate unacceptably, even if the calculated level of service is acceptable.

ii. Menlo Park

The City of Menlo Park has established distinct significance criteria for signalized intersections based on the category of the intersecting streets.

For signalized intersections involving a state route and a city-controlled street (Willow Road [State Route 84]/Bayfront Expressway, and Willow Road [State Route 84]/Newbridge Street), the project is said to create a significant adverse impact if for any peak hour:

- The level of service degrades from an acceptable LOS D or better under existing conditions to an unacceptable LOS E or F under existing plus project conditions, or the average delay per vehicle increases by more than 23 seconds per vehicle or
- The level of service is an unacceptable LOS E or F under existing conditions and the addition of project trips causes an increase of more than 0.8 seconds of average delay to vehicles on the critical movement for any local approach.

For signalized intersections involving two state routes (University Avenue [State Route 109]/Bayfront Expressway [State Route 84]), the project is said to create a significant adverse impact if for any peak hour:

- The level of service degrades from an acceptable LOS D or better under existing conditions to an unacceptable LOS E or F under existing plus project conditions, or the average delay per vehicle increases by more than 23 seconds per vehicle or
- The level of service is an unacceptable LOS E or F under existing conditions and the addition of project trips causes an increase in the average control delay at the intersection by four seconds or more.

iii. Palo Alto

The project is said to create a significant adverse impact on traffic conditions at a signalized intersection in the City of Palo Alto if for any peak hour:

- The level of service at the intersection degrades from an acceptable LOS D or better under existing conditions to an unacceptable LOS E or F under existing plus project conditions, or
- The level of service at the intersection is an unacceptable LOS E or F under existing conditions and the addition of project trips causes both the critical-movement delay at the intersection to increase by four or more seconds and the volume-to-capacity ratio (V/C) to increase by .01 or more.

An exception to this rule applies when the addition of project traffic reduces the amount of average delay for critical movements (i.e. the change in average delay for critical movements is negative). In this case, the threshold of significance is an increase in the critical V/C value by .01 or more.

b. Definition of Significant Unsignalized Intersection Impacts

i. East Palo Alto

All of the unsignalized study intersections are located within the City of East Palo Alto. The project is said to create a significant adverse impact on traffic conditions at an unsignalized intersection in the City of East Palo Alto if for any peak-hour:

- The level of service for the controlled movements at the intersection degrades from an acceptable LOS D or better under existing conditions to an unacceptable LOS E or F under existing plus project conditions, or
- The level of service for the controlled movements at the intersection is an unacceptable LOS E or F under existing conditions and the addition of project trips causes the controlled movements at the intersection to increase by five or more seconds, and
- The approach volumes on the intersecting streets are sufficiently high to satisfy the Peak Hour Volume Warrant (Warrant 3) described in the California Manual on Uniform Traffic Control Devices for Streets and Highways (CA MUTCD), Part 4, Highway Traffic Signals, 2006.

D. Impact Discussion

Traffic volumes have been estimated for the implementation of the Specific Plan, if this were to happen under present-day (2011) conditions, and under future conditions (2035). Traffic blocks inside the Specific Plan Area are shown on Figure 4.14-6.

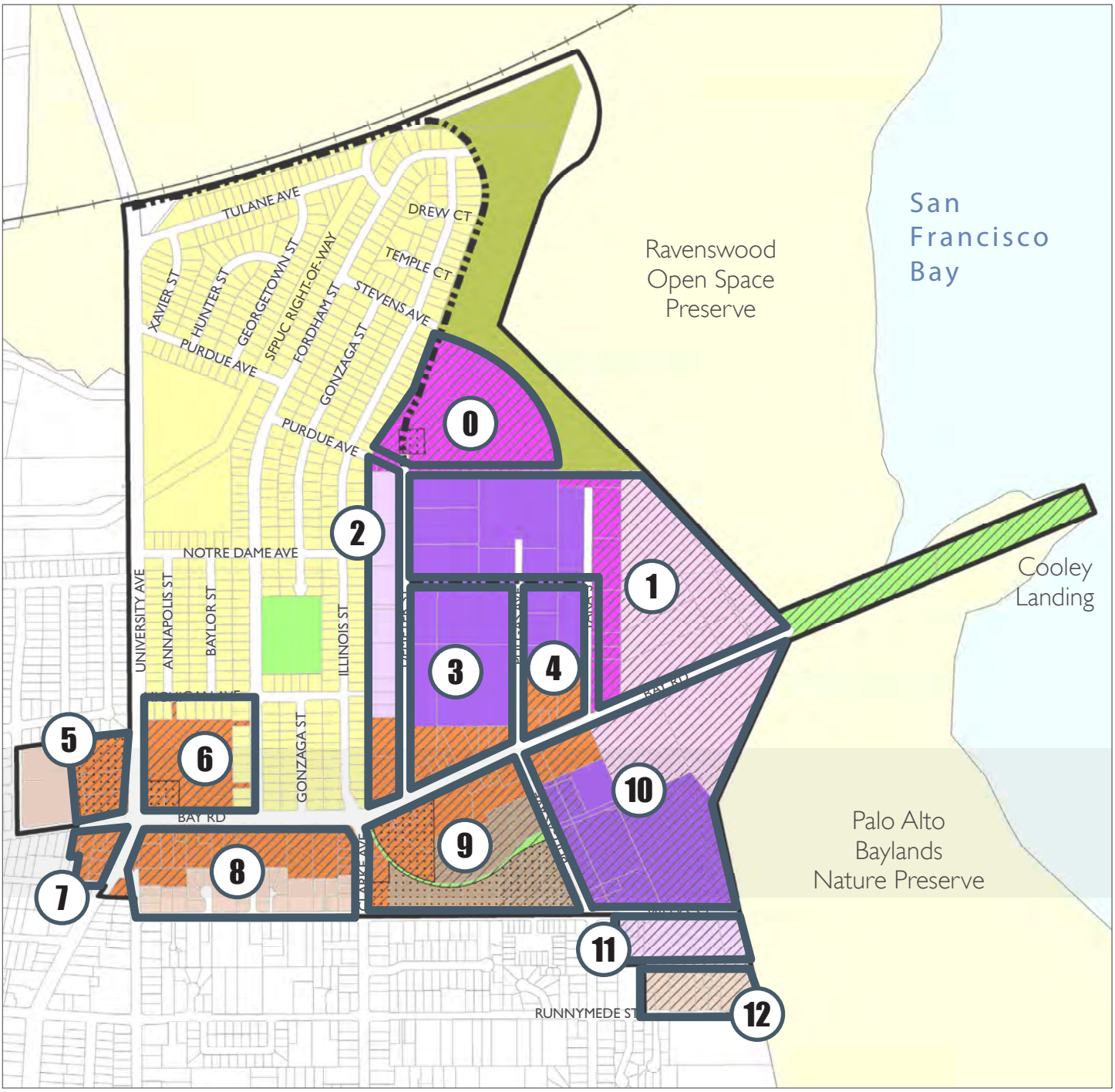
1. Methodology

The magnitude of traffic produced by a new development and the locations where that traffic would appear are estimated using a three-step process: 1) trip generation, 2) trip distribution, and 3) trip assignment. In determining project trip generation, the magnitude of traffic entering and exiting the Specific Plan land uses is estimated on a daily basis and for the AM and PM peak hours. As part of the project trip distribution, an estimate is made of the directions to and from which the project trips would travel. In the project trip assignment, the project trips are assigned to specific streets. These procedures are described further in the following sections.

a. Trip Generation

Through empirical research, data have been collected that correlate to common land uses their propensity for producing traffic. Thus, for the most common land uses there are standard trip generation rates that can be applied to help predict the future traffic increases that would result from a new development.

Trip estimates for the Specific Plan land uses were prepared based on trip generation rates obtained from the Institute of Transportation Engineers (ITE)'s Trip Generation, Eighth Edition, 2008. In order to enable a detailed assignment of project trips on roadways within the Plan area, project trip estimates were prepared on a block by block basis. The block numbering scheme is shown on Figure 4.14-6. The project trip generation estimates by block and overall are shown in Table 4.14-5.



Source: Hexagon Transportation Consultants, Inc.

FIGURE 4.14-6

SPECIFIC PLAN TRAFFIC BLOCKS

TABLE 4.14-5 ***PROJECT TRIP GENERATION ESTIMATES***

Land Use	ITE Code	Size		Daily Trip Rates	Daily Trips	AM Peak Hour						PM Peak Hour					
						Pk-Hr Rate	Splits		Trips		Total	Pk-Hr Rate	Splits		Trips		Total
							In	Out	In	Out			In	Out	In	Out	
BLOCK 0																	
Office	710	212,355	s.f.	11.01	2,338	1.55	88%	12%	290	39	329	1.49	17%	83%	54	262	316
Industrial/R&D[a]																	
General Light Industrial	110	27,225	s.f.	6.97	190	0.92	88%	12%	22	3	25	0.97	12%	88%	3	23	26
Research and Development Center	760	27,225	s.f.	8.11	221	1.22	83%	17%	27	6	33	1.07	15%	85%	4	25	29
Civic Uses																	
Recreation Center	495	10,000	s.f.	22.88	229	1.62	61%	39%	10	6	16	1.45	37%	63%	6	9	15
Block Subtotal					*2,978*				*349*	*54*	*403*				*67*	*319*	*386*
Mixed-Use Reductions (Internal Trips)																	
Office/Industrial/R&D	1%				-27				-3	-1	-4				-1	-3	-4
Civic	33%				-76				-3	-2	-5				-2	-3	-5
Block Total					**2,875**				**343**	**51**	**394**				**64**	**313**	**377**
BLOCK 1																	
Office	710	834,555	s.f.	11.01	9,188	1.55	88%	12%	1,139	155	1,294	1.49	17%	83%	211	1,032	1,243
Industrial/R&D[a]																	
General Light Industrial	110	48,283	s.f.	6.97	337	0.92	88%	12%	39	5	44	0.97	12%	88%	6	41	47
Research and Development Center	760	48,282	s.f.	8.11	392	1.22	83%	17%	49	10	59	1.07	15%	85%	8	44	52
Block Subtotal					*9,917*				*1,227*	*170*	*1,397*				*225*	*1,117*	*1,342*
Mixed-Use Reductions (Internal Trips)																	
Office/Industrial/R&D	1%				-99				-12	-2	-14				-2	-11	-13
Block Total					**9,818**				**1,215**	**168**	**1,383**				**223**	**1,106**	**1,329**

TABLE 4.14-5 ***PROJECT TRIP GENERATION ESTIMATES*** (CONTINUED)

Land Use	ITE Code	Size		Daily Trip Rates	Daily Trips	AM Peak Hour						PM Peak Hour					
						Pk-Hr Rate	Splits		Trips		Total	Pk-Hr Rate	Splits		Trips		Total
							In	Out	In	Out			In	Out	In	Out	
BLOCK 2																	
Residential																	
Mixed-use (apartments)	220	41	units	6.65	273	0.51	20%	80%	4	17	21	0.62	65%	35%	16	9	25
Retail	820	-9,840	s.f.	42.94	-423	1.00	61%	39%	-6	-4	-10	3.73	49%	51%	-18	-19	-37
Office	710	12,167	s.f.	11.01	134	1.55	88%	12%	17	2	19	1.49	17%	83%	3	15	18
Block Subtotal					*-16*				*15*	*15*	*30*				*1*	*5*	*6*
Mixed-Use Reductions (Internal Trips)																	
Residential	16%				-44				-1	-2	-3				-3	-1	-4
Office/Industrial/R&D	1%				-1				0	0	0				0	0	0
Retail	22%				93				1	1	2				4	4	8
Retail Pass-By Trip Reduction	38%				125				0	0	0				5	6	11
Block Total					**157**				**15**	**14**	**29**				**7**	**14**	**21**
BLOCK 3																	
Residential																	
Mixed-use (apartments)	220	120	units	6.65	798	0.51	20%	80%	12	49	61	0.62	65%	35%	48	26	74
Retail	820	23,760	s.f.	42.94	1,020	1.00	61%	39%	15	9	24	3.73	49%	51%	44	45	89
Office	710	38,088	s.f.	11.01	419	1.55	88%	12%	52	7	59	1.49	17%	83%	10	47	57
Industrial/R&D[a]																	
General Light Industrial	110	43,960	s.f.	6.97	306	0.92	88%	12%	35	5	40	0.97	12%	88%	5	38	43
Research and Development Center	760	43,961	s.f.	8.11	357	1.22	83%	17%	45	9	54	1.07	15%	85%	7	40	47
Block Subtotal					*2,900*				*159*	*79*	*238*				*114*	*196*	*310*
Mixed-Use Reductions (Internal Trips)																	
Residential	16%				-128				-2	-8	-10				-8	-4	-12

TABLE 4.14-5 ***PROJECT TRIP GENERATION ESTIMATES*** (CONTINUED)

						AM Peak Hour						PM Peak Hour					
							Splits		Trips				Splits		Trips		
Land Use	ITE Code	Size		Daily Trip Rates	Daily Trips	Pk-Hr Rate	In	Out	In	Out	Total	Pk-Hr Rate	In	Out	In	Out	Total
Office/Industrial/R&D	1%				-11				-1	-1	-2				0	-1	-1
Retail	22%				-224				-3	-2	-5				-10	-10	-20
Retail Pass-By Trip Reduction	38%				-300				0	0	0				-13	-13	-26
Block Total					**2,237**				**153**	**68**	**221**				**83**	**168**	**251**
BLOCK 4																	
Residential																	
Mixed-use (apartments)	220	91	units	6.65	605	0.51	20%	80%	9	37	46	0.62	65%	35%	36	20	56
Retail	820	13,200	s.f.	42.94	567	1.00	61%	39%	8	5	13	3.73	49%	51%	24	25	49
Office	710	28,480	s.f.	11.01	314	1.55	88%	12%	39	5	44	1.49	17%	83%	7	35	42
Industrial/R&D[a]																	
General Light Industrial	110	5,524	s.f.	6.97	39	0.92	88%	12%	4	1	5	0.97	12%	88%	1	4	5
Research and Development Center	760	5,523	s.f.	8.11	45	1.22	83%	17%	6	1	7	1.07	15%	85%	1	5	6
Block Subtotal					*1,570*				*66*	*49*	*115*				*69*	*89*	*158*
Mixed-Use Reductions (Internal Trips)																	
Residential	16%				-97				-1	-6	-7				-6	-3	-9
Office/Industrial/R&D	1%				-4				0	-1	-1				0	-1	-1
Retail	22%				-125				-2	-1	-3				-5	-6	-11
Retail Pass-By Trip Reduction	38%				-167				0	0	0				-7	-7	-14
Block Total					**1,177**				**63**	**41**	**104**				**51**	**72**	**123**
BLOCK 5																	
Civic Uses																	
Library	590	10,000	s.f.	56.24	562	1.04	71%	29%	7	3	10	7.30	48%	52%	35	38	73
Block Subtotal					*562*				*7*	*3*	*10*				*35*	*38*	*73*

TABLE 4.14-5 ***PROJECT TRIP GENERATION ESTIMATES*** (CONTINUED)

Land Use	ITE Code	Size		Daily Trip Rates	Daily Trips	AM Peak Hour						PM Peak Hour					
						Pk-Hr Rate	Splits		Trips		Total	Pk-Hr Rate	Splits		Trips		Total
							In	Out	In	Out			In	Out	In	Out	
Mixed-Use Reductions (Internal Trips)																	
Civic	33%				-185				-2	-1	-3				-12	-12	-24
Block Total					**377**				**5**	**2**	**7**				**23**	**26**	**49**
BLOCK 6																	
Residential																	
Mixed-use (apartments)	220	244	units	6.65	1,623	0.51	20%	80%	25	99	124	0.62	65%	35%	98	53	151
Retail	820	20,000	s.f.	42.94	859	1.00	61%	39%	12	8	20	3.73	49%	51%	37	38	75
Civic Uses																	
Community Center[b]		20,000	s.f.	31.00	620	3.30	92%	8%	61	5	66	2.80	43%	57%	24	32	56
Block Subtotal					*3,102*				*98*	*112*	*210*				*159*	*123*	*282*
Mixed-Use Reductions (Internal Trips)																	
Residential	16%				-260				-4	-16	-20				-16	-8	-24
Retail	22%				-189				-3	-1	-4				-8	-9	-17
Civic	33%				-205				-20	-2	-22				-8	-10	-18
Retail Pass-By Trip Reduction	38%				-253				0	0	0				-11	-11	-22
Block Total					**2,195**				**71**	**93**	**164**				**116**	**85**	**201**
BLOCK 7																	
Residential																	
Mixed-use (apartments)	220	60	units	6.65	399	0.51	20%	80%	6	25	31	0.62	65%	35%	24	13	37
Retail	820	4,880	s.f.	42.94	210	1.00	61%	39%	3	2	5	3.73	49%	51%	9	9	18
Office	710	20,544	s.f.	11.01	226	1.55	88%	12%	28	4	32	1.49	17%	83%	5	26	31
Block Subtotal					*835*				*37*	*31*	*68*				*38*	*48*	*86*

TABLE 4.14-5 ***PROJECT TRIP GENERATION ESTIMATES*** (CONTINUED)

						AM Peak Hour						PM Peak Hour					
							Splits		Trips				Splits		Trips		
Land Use	ITE Code	Size		Daily Trip Rates	Daily Trips	Pk-Hr Rate	In	Out	In	Out	Total	Pk-Hr Rate	In	Out	In	Out	Total
Mixed-Use Reductions (Internal Trips)																	
Residential	16%				-64				-1	-4	-5				-4	-2	-6
Office/Industrial/R&D	1%				-2				0	0	0				0	0	0
Retail	22%				-46				-1	0	-1				-2	-2	-4
Retail Pass-By Trip Reduction	38%				-62				0	0	0				-3	-2	-5
Block Total					**661**				**35**	**27**	**62**				**29**	**42**	**71**
BLOCK 8																	
Residential																	
Mixed-use (apartments)	220	95	units	6.65	632	0.51	20%	80%	10	38	48	0.62	65%	35%	38	21	59
Retail	820	28,720	s.f.	42.94	1,233	1.00	61%	39%	18	11	29	3.73	49%	51%	52	55	107
Office	710	68,986	s.f.	11.01	760	1.55	88%	12%	94	13	107	1.49	17%	83%	18	85	103
Civic Uses																	
Post Office	732	-2,000	s.f.	108.19	-216	8.21	52%	48%	-8	-8	-16	11.12	51%	49%	-11	-11	-22
Block Subtotal					*2,409*				*114*	*54*	*168*				*97*	*150*	*247*
Mixed-Use Reductions (Internal Trips)																	
Residential	16%				-101				-2	-6	-8				-6	-3	-9
Office/Industrial/R&D	1%				-8				-1	0	-1				0	-1	-1
Retail	22%				-271				-4	-2	-6				-11	-13	-24
Civic	33%				71				3	2	5				4	3	*7*
Retail Pass-By Trip Reduction	38%				-363				0	0	0				-15	-16	-31
Block Total					**1,737**				**110**	**48**	**158**				**69**	**120**	**189**

TABLE 4.14-5 ***PROJECT TRIP GENERATION ESTIMATES*** (CONTINUED)

Land Use	ITE Code	Size		Daily Trip Rates	Daily Trips	AM Peak Hour						PM Peak Hour					
						Pk-Hr Rate	Splits		Trips		Total	Pk-Hr Rate	Splits		Trips		Total
							In	Out	In	Out			In	Out	In	Out	
BLOCK 9																	
Residential																	
Mixed-use (apartments)	220	90	units	6.65	599	0.51	20%	80%	9	37	46	0.62	65%	35%	36	20	56
Retail	820	17,600	s.f.	42.94	756	1.00	61%	39%	11	7	18	3.73	49%	51%	32	34	66
Office	710	29,625	s.f.	11.01	326	1.55	88%	12%	40	6	46	1.49	17%	83%	7	37	44
Industrial/R&Da																	
General Light Industrial	110	-7,500	s.f.	6.97	-52	0.92	88%	12%	-6	-1	-7	0.97	12%	88%	-1	-6	-7
Research and Development Center	760	-7,500	s.f.	8.11	-61	1.22	83%	17%	-7	-2	-9	1.07	15%	85%	-1	-7	-8
Civic Uses																	
School (Elementary School)d	520	50,000	s.f.	15.43	772	5.20	56%	44%	146	114	260	1.21	45%	55%	27	34	61
Health Clinic (Medical/Dental Office Building)[c]	720	15,000	s.f.	36.13	542	2.30	79%	21%	28	7	35	3.46	27%	73%	14	38	52
Church	560	-9,000	s.f.	9.11	-82	0.56	62%	38%	-3	-2	-5	0.55	48%	52%	-2	-3	-5
Charter High School[e]		-33,000	s.f.	14.69	-485	4.64	53%	47%	-81	-72	-153	1.27	52%	48%	-22	-20	-42
Block Subtotal					*2,315*				*137*	*94*	*231*				*90*	*127*	*217*
Mixed-Use Reductions (Internal Trips)																	
Residential	16%				-96				-1	-6	-7				-6	-3	-9
Office/Industrial/R&D	1%				-2				0	0	0				0	0	0
Retail	22%				-166				-2	-2	-4				-7	-8	-15
Civic	33%				-246				-30	-15	-45				-6	-16	-22
Retail Pass-By Trip Reduction	38%				-223				0	0	0				-9	-10	-19
Block Total					**1,582**				**104**	**71**	**175**				**62**	**90**	**152**

TABLE 4.14-5 ***PROJECT TRIP GENERATION ESTIMATES*** (CONTINUED)

Land Use	ITE Code	Size		Daily Trip Rates	Daily Trips	AM Peak Hour						PM Peak Hour					
						Pk-Hr Rate	Splits		Trips		Total	Pk-Hr Rate	Splits		Trips		Total
							In	Out	In	Out			In	Out	In	Out	
BLOCK 10																	
Residential																	
Mixed-use (apartments)	220	75	units	6.65	499	0.51	20%	80%	8	30	38	0.62	65%	35%	31	16	47
Retail	820	14,080	s.f.	42.94	605	1.00	61%	39%	9	5	14	3.73	49%	51%	26	27	53
Office	710	23,700	s.f.	11.01	261	1.55	88%	12%	33	4	37	1.49	17%	83%	6	29	35
Industrial/R&Da																	
General Light Industrial	110	43,717	s.f.	6.97	305	0.92	88%	12%	35	5	40	0.97	12%	88%	5	37	42
Research and Development Center	760	43,717	s.f.	8.11	355	1.22	83%	17%	44	9	53	1.07	15%	85%	7	40	47
Block Subtotal					*2,025*				*129*	*53*	*182*				*75*	*149*	*224*
Mixed-Use Reductions (Internal Trips)																	
Residential	16%				-80				-1	-5	-6				-5	-3	-8
Office/Industrial/R&D	1%				-9				-1	0	-1				0	-1	-1
Retail	22%				-133				-2	-1	-3				-6	-6	-12
Retail Pass-By Trip Reduction	38%				-178				0	0	0				-8	-7	-15
Block Total					**1,625**				**125**	**47**	**172**				**56**	**132**	**188**
BLOCK 11																	
Industrial/R&D[a]																	
General Light Industrial	110	14,701	s.f.	6.97	102	0.92	88%	12%	12	2	14	0.97	12%	88%	2	12	14
Research and Development Center	760	14,702	s.f.	8.11	119	1.22	83%	17%	15	3	18	1.07	15%	85%	2	14	16
Block Subtotal					*221*				*27*	*5*	*32*				*4*	*26*	*30*
Mixed-Use Reductions (Internal Trips)																	
Office/Industrial/R&D	1%				-2				0	0	0				0	0	0
Block Total					**219**				**27**	**5**	**32**				**4**	**26**	**30**

TABLE 4.14-5 ***PROJECT TRIP GENERATION ESTIMATES*** (CONTINUED)

Land Use	ITE Code	Size		Daily Trip Rates	Daily Trips	AM Peak Hour						PM Peak Hour					
						Pk-Hr Rate	Splits		Trips		Total	Pk-Hr Rate	Splits		Trips		Total
							In	Out	In	Out			In	Out	In	Out	
BLOCK 12																	
Residential																	
Townhomes	230	19	units	5.81	110	0.44	17%	83%	1	7	8	0.52	67%	33%	7	3	10
Block Subtotal					*110*				*1*	*7*	*8*				*7*	*3*	*10*
Mixed-Use Reductions (Internal Trips)																	
Residential	16%				-18				0	-1	-1				-1	-1	-2
Block Total					**92**				**1**	**6**	**7**				**6**	**2**	**8**
SUBTOTAL (BEFORE REDUCTIONS)					**28,928**				**2,366**	**726**	**3,092**				**981**	**2,390**	**3,371**
TOTAL (AFTER REDUCTIONS)					**24,752**				**2,267**	**641**	**2,908**				**793**	**2,196**	**2,989**

Notes: Internalization reductions were applied based on the ITE *Trip Generation Handbook* methodology for multi-use developments. A 38% pass-by reduction was applied to the retail land use during the PM peak hour based on the ITE *Trip Generation Handbook*.

Assumptions:

[a] The total size of the industrial/R&D land use was assumed to be 50% light industrial use and 50% R&D use.

[b] Trip estimates for the proposed community center were developed based on maximum person occupancy and typical usage characteristics at the 20,000 s.f. Bascom Community Center in San Jose.

[c] Due to limited trip generation information available, the health clinic land use was analyzed using ITE trip generation rate for medical office building.

[d] The school land use identified within the "Civic Uses" category was assumed to represent an elementary school.

[e] The AM peak-hour trips generated by the charter school were based on surveys conducted at the existing East Palo Alto Phoenix Acadamy. Daily and PM peak-hour trips generated by the charter school were estimated based on ITE Trip Generation rates for High School (Land Use code 530).

Source: ITE Trip Generation, 8th Edition 2008.

i. Mixed-Use Reductions

Because the Specific Plan would include a mix of land uses in close proximity to each other, it is anticipated that some of the project trips would be internal trips -- that is trips having both origin and destination within the Specific Plan area. Internal trips are expected to be made by walking so they will not result in any vehicle trips through any study intersections.

The percentage of internal trips was estimated using the methodology contained in ITE's *Trip Generation Handbook, 2nd Edition*, Chapter 7.[7] Based on this ITE methodology, it is estimated that 16 percent of the trips generated by the proposed residential uses would be internal trips. For office, industrial, and research and development space, only about 1 percent of the trips would be internal to the Plan Area. The highest proportion of internalization is anticipated for the proposed retail and civic uses, which are expected to have 22 and 33 percent internal trips, respectively. Overall, combining trips from all land uses, it is estimated that internal trips would account for about 7 percent of all trips generated by the Specific Plan land uses.

ii. Pass-By Reductions

The ITE trip generation rates are derived from driveway counts and thus include pass-by trips. Pass-by trips are trips made as an intermediate stop by vehicles already on the adjacent roadway and so already counted in the existing traffic. Pass-by trips are therefore deducted from the project trip estimates since these trips are not new traffic added to the street system by the project but rather part of the ambient traffic levels. Retail uses in particular are known to attract a significant percentage of traffic from the adjacent roadways. Thus, the pass-by trip percentage for the proposed retail space was estimated using the fitted-curve equation contained in ITE's Trip Generation Handbook, 2nd Edition, Chapter 5. Based on the size of the proposed retail development, it is estimated that about 38 percent of the retail trips during the PM peak hour would be pass-by trips. The same percentage reduction

[7] A worksheet that details the calculation of internal capture rates is presented Appendix D from the Traffic/Transportation Survey Report, which is included in Appendix 3 of this Draft EIR.

was applied to the daily retail trips. Retail uses generate little traffic during the AM peak hour, so no pass-by trip reduction was applied to this time period.

iii. Transit Reductions

The Plan Area is served directly by a number of local SamTrans Bus Lines, the East Palo Alto Community Shuttle, and the Dumbarton Express Shuttle. Without transportation demand management (TDM) programs or other incentives the percentage of project trips that can be expected to use these existing transit services is estimated to be in the range of 3 to 5 percent. The base trip rates published by ITE reflect this level of transit service. Therefore, a further trip reduction for transit usage was not applied.

The Specific Plan could include measures that would mandate that employers implement a TDM program that includes a variety of policies such as subsidizing transit passes or allowing parking cash-out that would encourage transit ridership. The City also may want to consider establishing a Citywide TDM program with the aim of promoting alternative modes of travel and reducing the trips made by single-occupant automobiles. The extent of TDM measures that may be implemented is uncertain at this time. Thus, in order to be conservative, no trip reductions were assumed for increased transit usage or the effect of possible TDM measures.

The Plan Area is adjacent to the proposed Dumbarton Rail Line. Station locations are currently being planned as part of a separate project. Furthermore, Rapid Bus/BRT Service may be implemented along University Avenue. The planned transit services would encourage trips to and from the Ravenswood/4 Corners Area to utilize alternative modes of travel, thereby reducing the vehicle trips generated by the project. However, because the timing and funding of the Dumbarton Rail Line is uncertain, and because the location of the rail station is subject to change, no reductions for transit usage were assumed in calculating Plan-level impacts.

iv. Net Project Trips

After applying reductions for mixed-use internal trips and pass-by trips, implementation of the Specific Plan is estimated to generate 24,752 net daily vehicle trips, with 2,908 net trips occurring during the AM peak hour and 2,989 net trips occurring during the PM peak hour. Using the inbound/outbound splits published by ITE, the project would produce 2,267 inbound and 641 outbound trips during the AM peak hour and 793 inbound and 2,196 outbound trips during the PM peak hour.

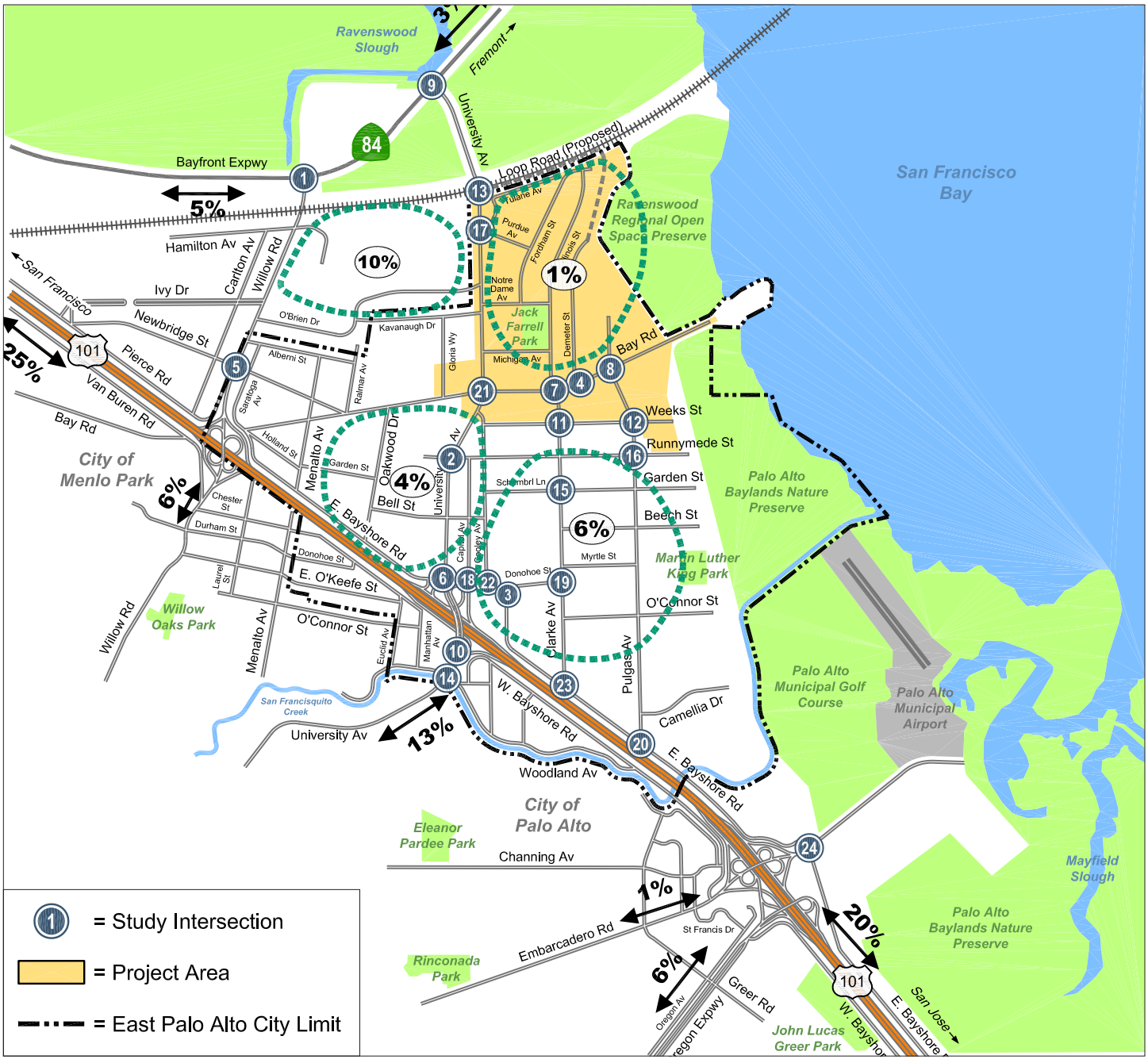
b. Trip Distribution

Using the C/CAG travel demand model, separate trip distribution patterns were developed for the proposed residential dwellings and the non-residential uses. Figures 4.14-7 and 4.14-8 present the residential and non-residential trip distribution patterns, respectively. The model estimates that approximately 21 percent of the residential trips and about 27 percent of the non-residential trips generated by the project would remain within East Palo Alto or Menlo Park east of Highway 101. Note that these percentages do not include pass-by or internal captured trips. The trips shown within the Ravenswood/4-Corners area (1 percent of residential trips and 4 percent of non-residential trips) reflect project trips with origins or destinations at existing uses in the area that are not subject to redevelopment.

c. Trip Assignment

The net peak-hour trips generated by the proposed land uses were assigned to the roadway system in accordance with the trip distribution patterns discussed above. In order to accurately reflect project trips at study intersections within the Plan area, the assignment of project trips utilized a distinct set of paths for each block based on the anticipated access points for the particular block.

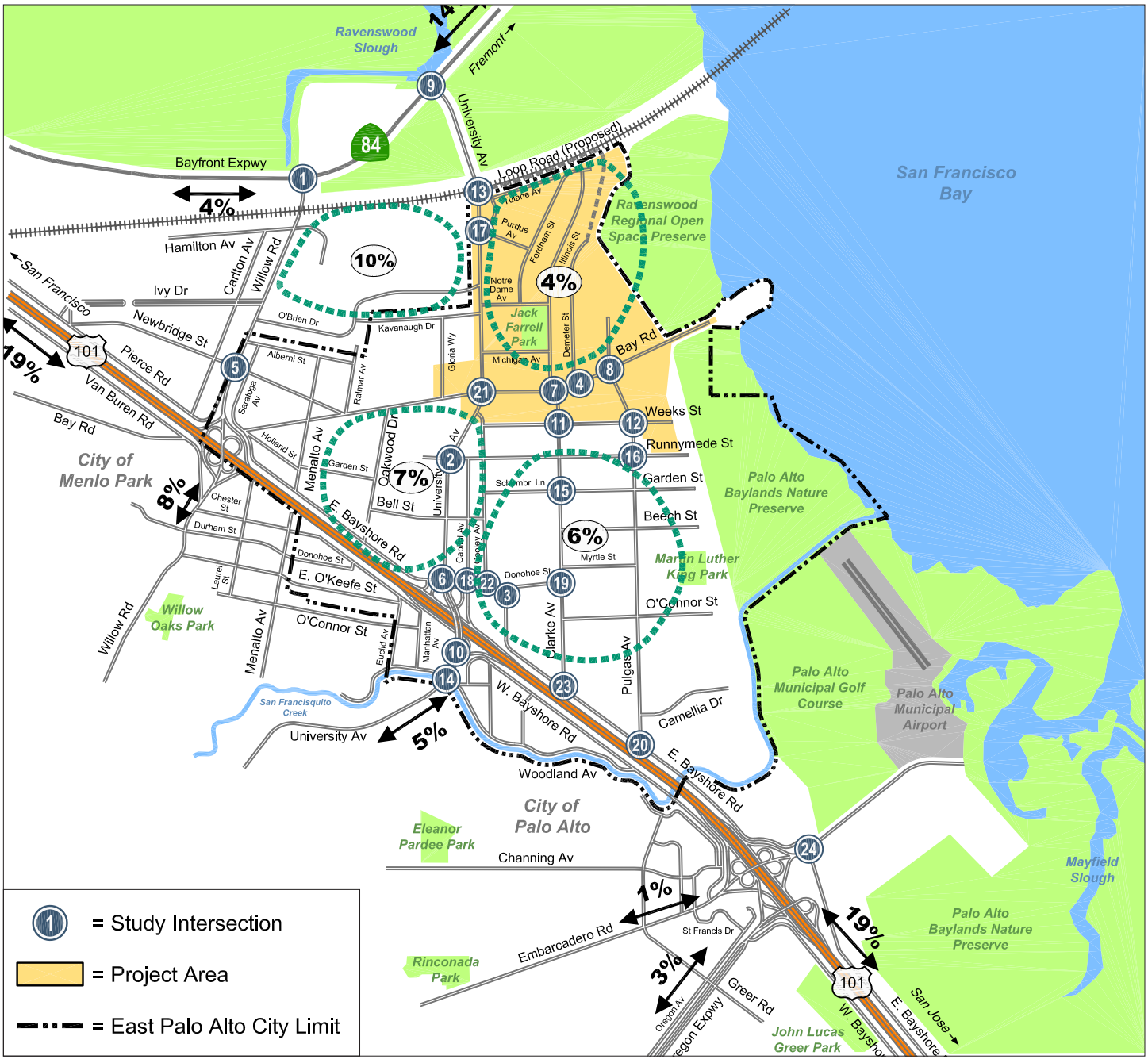
The trip assignment assumes that a new "Loop" Road would be constructed as part of the project. The new roadway would extend northward from the current termination point of Demeter Street. Just south of the Dumbarton



Source: Hexagon Transportation Consultants, Inc.

FIGURE 4.14.7

RESIDENTIAL TRIP DISTRIBUTION



Source: Hexagon Transportation Consultants, Inc.

FIGURE 4.14.8

NON-RESIDENTIAL TRIP DISTRIBUTION

Rail Line, the new roadway would turn to the west and connect with University Avenue near the East Palo Alto city limits. The new Loop Road is intended to provide a direct route between the Plan Area and University Avenue that avoids the constraints posed by the University/Bay intersection. In addition to serving project trips, the new Loop Road may be used by some existing traffic that chooses to divert from University Avenue. The amount of traffic diversion was estimated based on existing turning-movement volumes and peak-hour traffic conditions. It was assumed that some existing traffic in the neighborhood north of Purdue Avenue would use the new Loop Road rather than using Purdue Avenue. In the Specific Plan Area, it was assumed that trips destined to the Dumbarton Bridge from the northern and eastern sections would use the Loop Road, rather than using Bay Road, to access University Avenue. It is estimated that the Loop Road would cause a diversion of 85 existing vehicles in the AM peak hour and 95 existing vehicles in the PM peak hour. The estimated diversion of existing traffic is reflected in the net project trip assignment, which is shown on Figure 4.14-9. The project is estimated to add 391 trips to the Loop Road during the AM peak hour and 387 trips during the PM peak hour.

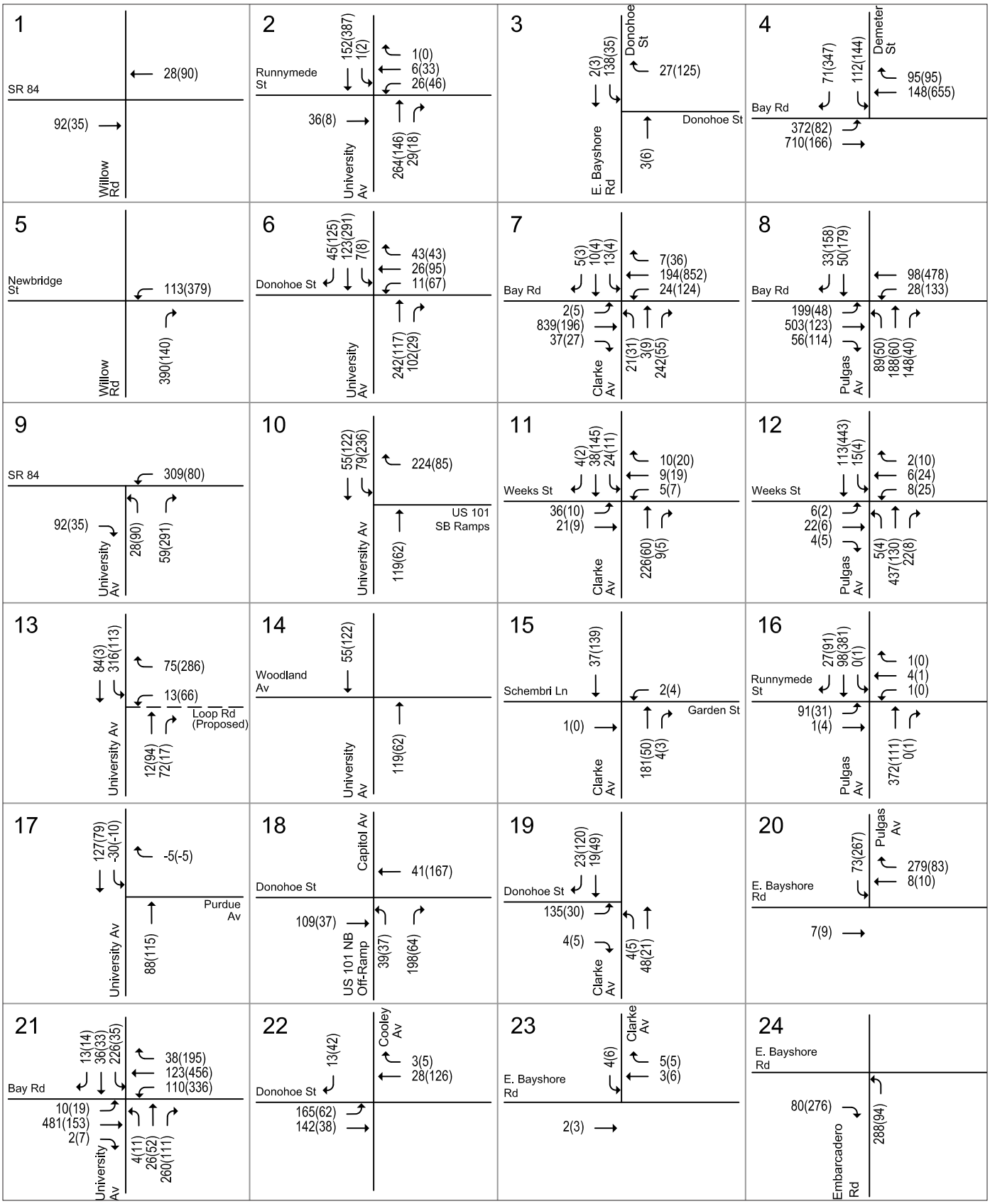
2. Existing Plus Project Traffic Volumes

The net project trips were added to existing traffic volumes to obtain existing plus project traffic volumes. The existing plus project traffic volumes at all study intersections are shown graphically on Figure 4.14-10.[8]

3. Project Impacts

This section identifies significant project impacts and recommended mitigation measures based on the analysis of existing plus project conditions. Mitigations are also included as project features in the Specific Plan.

[8] Traffic volumes for all components of traffic are tabulated in Appendix E from the Traffic/Transportation Survey Report, which is included in Appendix 3 of this Draft EIR.

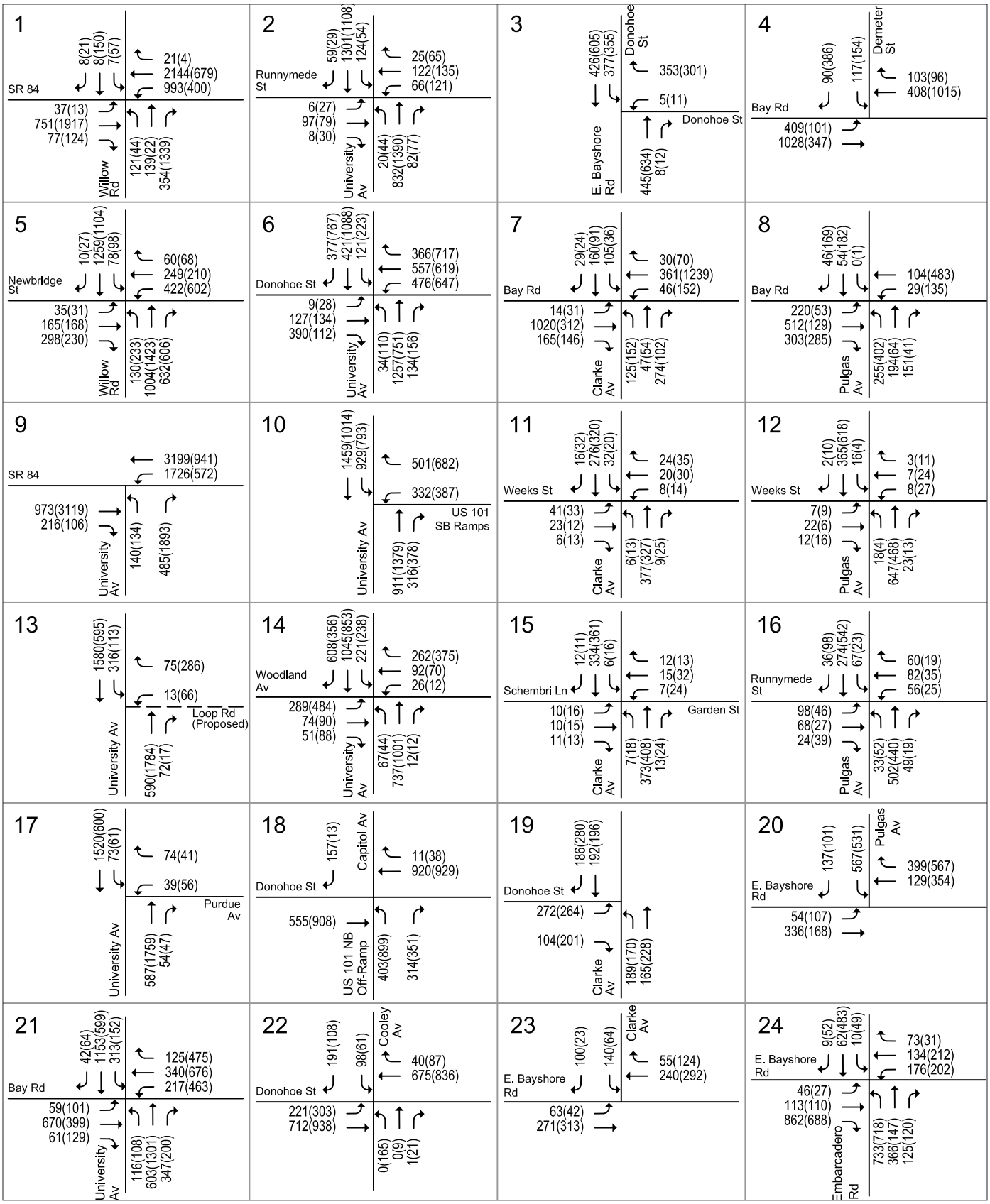


Source: Hexagon Transportation Consultants, Inc.

XX(XX) = AM(PM) Peak-Hour Traffic Volumes

FIGURE 4.14-9

PROJECT TRIP ASSIGNMENT



Source: Hexagon Transportation Consultants, Inc.

XX(XX) = AM(PM) Peak-Hour Traffic Volumes

FIGURE 4.14-10

EXISTING PLUS PROJECT TRAFFIC VOLUMES

a. Intersection Level of Service Impacts Under Existing Plus Project Conditions. *(SU)*

The results of the level of service analysis under existing plus project conditions are summarized in Table 4.14-6.[9] The results of the peak-hour traffic signal warrant checks are summarized in Table 4.14-7.[10]

Significant adverse impacts were identified under existing plus project conditions at the following eight study intersections:

- Willow Road and Bayfront Expressway
- University Avenue and Bayfront Expressway
- University Avenue and Purdue Avenue
- University Avenue and Bay Road
- University Avenue and Donohoe Street
- Clarke Avenue and Bay Road
- Demeter Street and Bay Road
- Pulgas Avenue and Bay Road

East Palo Alto intends to adopt a traffic impact fee, which will be used to fund the improvements described in this section to support development within the Plan Area, as required by **Specific Plan Policy TRA-2.5**. The impact fee would be used to fund improvements as they become warranted based on the development pattern that occurs in the Plan Area.

i. Willow Road and Bayfront Expressway

Impact TRA-1 (Willow Road and Bayfront Expressway): During the PM peak hour, the intersection currently operates at an unacceptable level of service (LOS E). The addition of project-generated traffic is expected to cause the critical-movement delay on the southbound approach to increase by three

[9] Traffic volumes for all components of traffic are tabulated in Appendix E from the Traffic/Transportation Survey Report, which is included in Appendix 3 of this Draft EIR.

[10] The level of service calculation sheets are included in Appendix B and the peak-hour signal warrant sheets are contained in Appendix from the Traffic/Transportation Survey Report, which is included in Appendix 3 of this Draft EIR.

TABLE 4.14-6 ***EXISTING PLUS PROJECT INTERSECTION LEVELS OF SERVICE (WITH LOOP ROAD)***

					Existing			Existing + Project					Mitigated Existing+Project	
Int. No.	Intersection Name	Jurisdiction	Existing Control	Peak Hour	Avg. Delay[a]	Worst Delay[b]	LOS	Avg. Delay[a]	Worst Delay[b]	LOS	Incr. in Crit. Delay	Incr. In Crit. V/C	Avg. Delay[a]	LOS
1	Willow Road & Bayfront Expressway [c]*	MP	Signal	AM	19.8	–	B	20.5	-	C	0.0	0.006	22.3	C
				CLA	NA/**61.0**	–	NA/E	NA/**61.0**	-	NA/E	NA/**0.0**	NA/**0.00**	NA/**61.0**	NA/E
				PM	**60.8**	–	E	**61.6**	-	E	1.8	0.007	**58.2**	E
				CLA	NA/**136**	–	NA/F	NA/**139**	-	NA/F	NA/**3.0**	NA/**0.01**	NA/**119**	NA/F
2	University Avenue & Runnymede Street	EPA	Signal	AM	6.8	–	A	7.7	-	A	1.0	0.072		
				PM	8.0	–	A	10.0	-	B	2.7	0.111		
3	East Bayshore Road & Donohoe Street	EPA	Signal	AM	11.2	–	B	10.8	-	B	-0.3	0.091		
				PM	11.1	–	B	11.4	-	B	0.6	0.025		
4	Demeter Street & Bay Road	EPA	2-Way Stop	AM	0.8	9.8	A	**72.6**	**OVFL**	F	**OVFL**	**2.238**	18.6	B
				PM	1.1	10.2	B	**150.4**	**OVFL**	F	**OVFL**	**1.343**	27.6	C
5	Willow Road & Newbridge Street[c]	MP	Signal	AM	33.4	–	C	35.4	-	D	-0.9	0.045		
				CLA	49.5/**60.4**	–	D/E	53.4/**58.3**	-	D/E	3.9/**-2.1**	0.04/**0.04**		
				PM	29.5	–	C	38.8	-	D	2.0	0.147		
				CLA	**58.5/59.2**	–	E/E	**78.8**/54.5	-	E/D	**20.3**/-4.7	**0.14**/0.14		
6	University Avenue & Donohoe Street	EPA	Signal	AM	46.3	–	D	52.9	-	D	11.7	0.093	40.4	D
				PM	41.2	–	D	**77.5**	-	E	**57.8**	**0.171**	42.6	D
7	Clarke Avenue & Bay Road	EPA	All-Way Stop	AM	11.0	–	B	**115.7**	-	F	**104.7**	**0.919**	28.1	C
				PM	11.0	–	B	**95.4**	-	F	**84.4**	**0.911**	24.0	C
8	Pulgas Avenue & Bay Road	EPA	2-Way Stop	AM	4.8	11.3	B	**OVFL**	**OVFL**	F	**OVFL**	**3.424**	23.2	C
				PM	8.2	12.4	B	**OVFL**	**OVFL**	F	**OVFL**	**0.894**	48.2	D
9	University Avenue & Bayfront Expressway[d]*	MP	Signal	AM	17.7	–	B	20.3	-	C	33.6	0.080		
				PM	**74.5**	–	E	**100.7**	-	F	**31.6**	**0.074**		

TABLE 4.14-6 ***EXISTING PLUS PROJECT INTERSECTION LEVELS OF SERVICE*** (CONTINUED)

					Existing			Existing + Project					Mitigated Existing+Project	
Int. No.	Intersection Name	Jurisdiction	Existing Control	Peak Hour	Avg. Delay[a]	Worst Delay[b]	LOS	Avg. Delay[a]	Worst Delay[b]	LOS	Incr. in Crit. Delay	Incr. In Crit. V/C	Avg. Delay[a]	LOS
10	University Avenue & US 101 SB Off-Ramp	EPA	Signal	AM	15.4	–	B	16.5	-	B	2.3	0.083		
				PM	18.1	–	B	22.1	-	C	7.3	0.103		
11	Clarke Avenue & Weeks Street	EPA	2-Way Stop	AM	1.2	11.0	B	2.9	19.3	C	8.3	0.120		
				PM	1.8	12.3	B	2.9	18.1	C	5.8	0.068		
12	Pulgas Avenue & Weeks Street	EPA	2-Way Stop	AM	0.4	11.0	B	1.4	24.3	C	13.3	0.097		
				PM	0.4	12.0	B	2.0	28.6	D	16.6	0.141		
13	University Avenue & Loop Road (new)	EPA	Future Signal	AM	n/a	NA	NA	11.5	-	B	N/A	N/A		
				PM	n/a	NA	NA	23.8	-	C	N/A	N/A		
14	University Avenue & Woodland Avenue	EPA	Signal	AM	29.8	–	C	30.6	-	C	-0.5	-0.006		
				PM	45.4	–	D	47.4	-	D	3.9	0.021		
15	Clarke Avenue & Garden Street	EPA	All-Way Stop	AM	9.2	–	A	11.0	-	B	1.8	0.114		
				PM	10.6	–	B	12.7	-	B	2.1	0.092		
16	Pulgas Avenue & Runnymede Street	EPA	All-Way Stop	AM	9.9	–	A	32.0	-	D	22.1	0.603		
				PM	10.6	–	B	32.9	-	D	22.3	0.443		
17	University Avenue & Purdue Avenue	EPA	2-Way Stop	AM	2.0	29.1	D	2.0	34.6	D	5.5	0.043	9.0	A
				PM	**18.4**	**OVFL**	**F**	**22.4**	**OVFL**	**F**	**OVFL**	**0.317**	4.3	A
18	Capitol Avenue & Donohoe Street	EPA	Signal	AM	20.7	–	C	22.7	-	C	2.5	0.112		
				PM	17.7	–	B	18.2	-	B	0.4	0.024		
19	Clarke Avenue & Donohoe Street	EPA	All-Way Stop	AM	11.2	–	B	15.4	-	C	4.2	0.169		
				PM	15.9	–	C	23.8	-	C	7.9	0.119		
20	Pulgas Avenue & Bayshore Road	EPA	Signal	AM	19.0	–	B	21.7	-	C	5.3	0.191		
				PM	16.1	–	B	30.6	-	C	17.9	0.220		

TABLE 4.14-6 ***EXISTING PLUS PROJECT INTERSECTION LEVELS OF SERVICE*** (CONTINUED)

					Existing			Existing + Project				Mitigated Existing+Project	
Int. No.	Intersection Name	Jurisdiction	Existing Control	Peak Hour	Avg. Delay[a]	Worst Delay[b]	LOS	Avg. Delay[a]	Worst Delay[b]	LOS	Incr. in Crit. Delay	Incr. In Crit. V/C	Avg. Delay[a]	LOS
21	University Avenue & Bay Road	EPA	Signal	AM	32.6	–	C	**94.7**	-	F	**86.8**	0.444	51.3	D
				PM	36.9	–	D	**109.8**	-	F	**119.2**	0.449	53.9	D
22	Cooley Avenue & Donohoe Street	EPA	Signal	AM	14.7	–	B	17.4	-	B	5.4	0.125		
				PM	18.7	–	B	25.2	-	C	10.8	0.088		
23	Clarke Avenue & East Bayshore Road	EPA	Signal	AM	13.5	–	B	13.6	-	B	0.0	0.007		
				PM	6.0	–	A	6.3	–	A	0.4	0.010		
24	Embarcadero Road & Bayshore Road	PA	Signal	AM	35.7	–	D	37.1	–	D	1.2	0.056		
				PM	36.8	–	D	42.5	–	D	3.4	0.196		

Notes: CLA = Critical Local Approaches
Asterisk (*) denotes CMP intersection.
Shading = denotes a significant adverse impact.
Bold = denotes an unacceptable level of service.
OVFL= denotes delay is beyond the limits of the equation.

[a] Whole intersection weighted average control delay, including uncontrolled movements at unsignalized intersections, expressed in seconds per vehicle.

[b] The worst case delay is the average delay on the worst stop-controlled approach, expressed in seconds per vehicle.

[c] Average delay and level of service are presented for the intersection overall and for the critical movements on local approaches (Eastbound/Westbound Newbridge Street and Northbound/Southbound Willow Road).

[d] Intersection of two state routes. There are no local approaches controlled by Menlo Park.

Souce: Hexagon, 2011.

TABLE 4.14-7 ***EXISTING + PROJECT PEAK HOUR SIGNAL WARRANT RESULTS***

Int. No.	Intersection Name	Warrant Met? Existing AM	Existing PM	Existing +Project AM	Existing +Project PM
4	Demeter Street and Bay Road	no	no	**yes**	**yes**
7	Clarke Avenue and Bay Road	no	no	**yes**	**yes**
8	Pulgas Avenue and Bay Road	no	no	**yes**	**yes**
11	Clarke Avenue and Weeks Street	no	no	no	no
12	Pulgas Avenue and Weeks Street	no	no	no	no
13	University Avenue and Loop Road (new)	n/a	n/a	no	**yes**
15	Clarke Avenue and Garden Street	no	no	no	no
16	Pulgas Avenue and Runnymede Street	no	no	no	no
17	University Avenue and Purdue Avenue	**yes**	**yes**	**yes**	no
19	Clarke Avenue and Donohoe Street	no	**yes**	**yes**	**yes**

Notes: Signal Warrant analysis based on MUTCD Peak Hour Signal Warrant #3-Part B.

seconds. This constitutes a ***significant adverse impact*** according to the thresholds established by the City of Menlo Park.

Mitigation Measure TRA-1: The shared left-through lane on eastbound Willow Road shall be converted into a left-turn only lane and the signal phasing on the east and west approaches from split phase modified to protected lefts. With this improvement, the intersection would continue to operate at LOS E (58.2 seconds); however, the average delay would be less than that under existing conditions (60.8 seconds). Alternatively, the addition of a third right-turn lane on northbound Willow Road would reduce the intersection's average control delay to an acceptable LOS D.

Implementation of any improvement at this intersection would require coordination with and approval by Caltrans and the City of Menlo Park.

Significance after Mitigation: Because the improvement is under the jurisdiction of Caltrans and the City cannot guarantee it would be implemented, the impact remains ***significant and unavoidable.***

ii. University Avenue and Bayfront Expressway

Impact TRA-2 (University Avenue and Bayfront Expressway): During the PM peak hour, the intersection currently operates at an unacceptable level of service (LOS E). The addition of project-generated traffic is expected to cause the average control delay at the intersection to increase by 31.6 seconds. This constitutes a ***significant adverse impact*** according to the thresholds established by the City of Menlo Park.

Mitigation Measure TRA-2: The implementation of adaptive signal timing could reduce delays and improve intersection operation; however, there are no feasible improvements within the existing right-of-way that would substantially reduce delay at this intersection.

Significance after Mitigation: Even with the implementation of adaptive signal timing, project impacts would not be reduced to a less-than-significant level. Any potential intersection improvement would require coordination with and approval by Caltrans and the City of Menlo Park.

This intersection currently operates at a poor level of service under the existing PM peak-hour traffic volumes. Implementation of the Specific Plan would add a substantial number of trips to this intersection, which serves as a gateway to the East Bay. The threshold that defines a significant impact is an increase in the average control delay of four or more seconds. Implementation of the Specific Plan would increase the average control delay by 31.6 seconds during the PM peak hour. Therefore, trip reduction measures alone would not be sufficient to fully mitigate the significant project impact at this intersection. While implementation of

TDM measures could somewhat reduce the magnitude of the impact, the impact would remain ***significant and unavoidable***.

iii. University Avenue and Purdue Avenue

Impact TRA-3 (University Avenue and Purdue Avenue): During the PM peak hour, the stop-controlled movements on Purdue Avenue currently operate at LOS F with over 100 seconds of delay. The loop road would reduce the traffic on Purdue Avenue. However, the project would add traffic to University Avenue. The addition of project-generated traffic to University Avenue is expected to cause the delay for the stop-controlled movements on Purdue Avenue to increase by more than 100 seconds, and the approach volumes on Purdue Avenue are expected to continue to satisfy the Peak-Hour Volume Warrant. This constitutes a ***significant adverse impact*** according to the thresholds established by the City of East Palo Alto.

Mitigation Measure TRA-3: A new traffic signal shall be installed at this intersection. Along with a new traffic signal, appropriate pedestrian and bicycle accommodation should be provided. This includes pedestrian countdown timers, Americans with Disabilities Act (ADA) compliant curbs, and bicycle detection loops. To facilitate this, the City must implement **Specific Plan Policy TRA-2.5**, which requires a "nexus study" be undertaken and a traffic impact fee developed that ensures that developers pay their "fair share" of necessary traffic improvements in the Specific Plan Area. With this improvement the intersection would operate at an acceptable level (LOS A) during both the AM and PM peak hours.

Impact after Mitigation: With implementation of **Specific Plan Policy TRA-2.5** and implementation of the improvements identified in Mitigation Measure TRA-3, this intersection would operate at acceptable levels and the impact would be ***less than significant***.

iv. University Avenue and Bay Road

Impact TRA-4 (University Avenue and Bay Road): This intersection currently operates at acceptable levels (LOS D or better) during the AM and PM

peak hours. The addition of project-generated traffic is expected to cause the intersection to degrade to LOS F during the AM (94.7 seconds delay) and PM (109.8 seconds delay) peak hours. This constitutes a ***significant adverse impact*** according to the thresholds established by the City of East Palo Alto.

Mitigation Measure TRA-4: An exclusive northbound right-turn lane and a second westbound left-turn lane shall be built. The second westbound left-turn lane would result in two left turn lanes, one through lane, and one right-turn lane in the westbound direction on Bay Road. With these changes the signal phasing on Bay Road could be modified from split phase operation to a standard phase sequence with protected left turns. The recommended mitigation measure would require the acquisition of additional right-of-way and roadway widening. At least 2 feet of additional right-of-way would be required on the east side of University Avenue. About 12 feet of additional right-of-way would be required on the north side of Bay Road. Roadway widening has the potential to make pedestrian and bicycle travel more difficult through the intersection. Therefore, any intersection widening or reconstruction should incorporate pedestrian and bicycle accommodation. This may include pedestrian countdown timers, Americans with Disabilities Act (ADA) compliant curbs, and bicycle detection loops. With this improvement, the intersection would operate at an acceptable level (LOS D) during the AM and PM peak hours. To facilitate this, the City must implement **Specific Plan Policy TRA-2.5**, which requires a "nexus study" be undertaken and a traffic impact fee developed that ensures that developers pay their "fair share" of necessary traffic improvements in the Specific Plan Area. The Plan includes the requirement for TDM programs for new development. An effective TDM program would reduce the project impact at this intersection. However, to reduce the impact to a level of insignificance without any of the geometric improvements described above, the TDM program would need to achieve over a 50 percent reduction in trip generation, which is unlikely to be achieved

Significance after Mitigation: With implementation of **Specific Plan Policy TRA-2.5** and implementation of the improvements identified in Mitigation Measure TRA-4, this intersection would operate at acceptable levels and the impact would be ***less than significant***..

v. University Avenue and Donohoe Street

Impact TRA-5 (University Avenue and Donohoe Street): This intersection currently operates at an acceptable level (LOS D) during the PM peak hour. The addition of project-generated traffic is expected to cause the intersection to degrade to LOS E with 77.5 seconds of delay during the PM peak hour. This constitutes a ***significant adverse impact*** according to the thresholds established by the City of East Palo Alto.

Mitigation Measure TRA-5: An exclusive southbound right-turn lane shall be built, restriping the westbound approach to include dual left-turn lanes, one through lane and one right-turn only lane, and the signal phasing on Donohoe Street modified from split phase operation to a standard phase sequence with protected left turns. The recommended mitigation measure would require the acquisition of additional right-of-way and roadway widening that affects properties outside the Plan area. About 12 feet of additional right-of-way would be needed on the west side of University Avenue. Roadway widening has the potential to make pedestrian and bicycle travel more difficult through the intersection. Therefore, any intersection widening or reconstruction should incorporate pedestrian and bicycle accommodation. This includes pedestrian countdown timers, Americans with Disabilities Act (ADA) compliant curbs, and bicycle detection loops. With this improvement, the intersection would operate at LOS D with 42.6 seconds of delay during the PM peak hour. To facilitate this, the City must implement **Specific Plan Policy TRA-2.5**, which requires a "nexus study" be undertaken and a traffic impact fee developed that ensures that developers pay their "fair share" of necessary traffic improvements in the Specific Plan Area. The Plan includes the requirement for TDM programs for new development. An effective TDM program would reduce the project impact at this intersection. However, to reduce

the impact to a level of insignificance without any of the geometric improvements described above, the TDM program would need to achieve over a 50 percent reduction in trip generation, which is unlikely to be achieved.

Significance after Mitigation: With this improvement and implementation of **Specific Plan Policy TRA-2.5**, the intersection would operate at an acceptable level and the impact would be ***less than significant***.

vi. Clarke Avenue and Bay Road

Impact TRA-6 (Clarke Avenue and Bay Road): The intersection currently operates at acceptable levels (LOS B) during the AM and PM peak hours. The addition of project-generated traffic is expected to cause the intersection to degrade to LOS F with 95 to 100 seconds of delay during the AM and PM peak hours, and the intersection traffic volumes are expected to satisfy the Peak-Hour Volume Warrant. This constitutes a ***significant adverse impact*** according to the thresholds established by the City of East Palo Alto.

Mitigation Measure TRA-6: A new traffic signal shall be installed at this intersection. Along with a new traffic signal, appropriate pedestrian and bicycle accommodation should be provided. This includes pedestrian countdown timers, Americans with Disabilities Act (ADA) compliant curbs, and bicycle detection loops. With this improvement, the intersection would operate at an acceptable level LOS C with 24 to 28 seconds of delay during both the AM and PM peak hours. To facilitate this, the City must implement **Specific Plan Policy TRA-2.5**, which requires a "nexus study" be undertaken and a traffic impact fee developed that ensures that developers pay their "fair share" of necessary traffic improvements in the Specific Plan Area.

Significance after Mitigation: With implementation of **Specific Plan Policy TRA-2.5** and implementation of the improvements identified in Mitigation Measure TRA-6, this intersection would operate at acceptable levels and the impact would be ***less than significant***.

vii. Demeter Street and Bay Road

Impact TRA-7 (Demeter Street and Bay Road): The intersection currently operates at acceptable levels (LOS A and B during the AM and PM peak hours, respectively). The addition of project-generated traffic is expected to cause the stop-controlled movements on Demeter Street to degrade to LOS F with over 100 seconds of delay during the AM and PM peak hours, and the intersection traffic volumes are expected to satisfy the Peak-Hour Volume Warrant. This constitutes a ***significant adverse impact*** according to the thresholds established by the City of East Palo Alto.

Mitigation Measure TRA-7: A new traffic signal at this intersection shall be installed at this location. Along with a new traffic signal, appropriate pedestrian and bicycle accommodation should be provided. This includes pedestrian countdown timers, Americans with Disabilities Act (ADA) compliant curbs, and bicycle detection loops. With this improvement, the intersection would operate at an acceptable level (LOS B and C during the AM and PM peak hours, respectively). To facilitate this, the City must implement **Specific Plan Policy TRA-2.5**, which requires a "nexus study" be undertaken and a traffic impact fee developed that ensures that developers pay their "fair share" of necessary traffic improvements in the Specific Plan Area.

Significance after Mitigation: With implementation of **Specific Plan Policy TRA-2.5** and implementation of the improvements identified in Mitigation Measure TRA-7, this intersection would operate at acceptable levels and the impact would be ***less than significant***.

viii. Pulgas Avenue and Bay Road

Impact TRA-8 (Pulgas Avenue and Bay Road): The intersection currently operates at acceptable levels (LOS B) during the AM and PM peak hours. The addition of project-generated traffic is expected to cause the stop-controlled movements on Pulgas Avenue to degrade to LOS F) with over 100 seconds of delay during the AM and PM peak hours, and the intersection traffic volumes are expected to satisfy the Peak-Hour Volume Warrant. This

constitutes a ***significant adverse impact*** according to the thresholds established by the City of East Palo Alto.

Mitigation Measure TRA-8: A new traffic signal shall be installed at this intersection. Along with a new traffic signal, appropriate pedestrian and bicycle accommodation should be provided. This includes pedestrian countdown timers, Americans with Disabilities Act (ADA) compliant curbs, and bicycle detection loops. With this improvement, the intersection would operate at LOS C with 23.2 seconds of delay during the AM peak hour and LOS D with 48.2 seconds of delay during the PM peak hour. To facilitate this, the City must implement **Specific Plan Policy TRA-2.5**, which requires a "nexus study" be undertaken and a traffic impact fee developed that ensures that developers pay their "fair share" of necessary traffic improvements in the Specific Plan Area.

Significance after Mitigation: With implementation of **Specific Plan Policy TRA-2.5** and implementation of the improvements identified in Mitigation Measure TRA-8, this intersection would operate at acceptable levels and the impact would be ***less than significant***.

b. Freeway Segment Level of Service Impacts Under Existing Plus Project Conditions ***(SU)***

The project trips on study area freeways are summarized in Table 4.14-8.

Impact TRA-9 (Freeway): All of the freeway segments evaluated would be significantly impacted by the implementation of the Specific Plan. Project impacts on freeway segments would diminish as the distance from the Plan Area increases until eventually the project's impact on freeway segments would be below the threshold established for significant impacts. This would be considered a ***significant adverse impact*** to freeway segments close to the Plan Area.

TABLE 4.14-8 ***FREEWAY SEGMENT THRESHOLDS AND PROJECT IMPACTS***

Freeway	Segment	Dir.	Peak Hour	Existing LOS	Threshold	Trips
SR 84	Dumbarton Bridge	EB	AM	F	66	20
			PM	F	66	66
SR 84	Dumbarton Bridge	WB	AM	F	66	68
			PM	F	66	24
US 101	Whipple Ave. to Embarcadero Rd	NB	AM	F	66	139
			PM	F	66	425
US 101	Whipple Ave to Embarcadero Rd	SB	AM	F	66	435
			PM	F	66	169
US 101	Embarcadero Rd to San Antonio Rd	NB	AM	F	66	431
			PM	F	66	155
US 101	Embarcadero Rd to San Antonio Rd	SB	AM	F	66	125
			PM	F	66	418
US 101	San Antonio Rd to Rengstorff	NB	AM	F	66	431
			PM	F	66	155
US 101	San Antonio Rd to Rengstorff	SB	AM	F	66	125
			PM	F	66	418

Source: Hexagon, 2011.

Mitigation Measure TRA-9: It is not within the City's jurisdiction nor is it financially feasible for the City of East Palo Alto to implement an extensive freeway widening project in order to mitigate the significant impacts associated with the Specific Plan.

Significance after Mitigation: Project impacts on freeway segments would remain ***significant and unavoidable.***

c. Existing Plus Project Conditions without Loop Road ***(SU)***

The previous analysis of traffic conditions with the proposed project assumed the completion of the proposed loop road. For comparison, an analysis of existing plus project conditions also was conducted without the loop road as

shown in Table 4.14-9. The table includes only those study intersections that would be affected by the loop road. All other study intersections would operate at the same level of service with or without the loop road.

Compared to the existing plus project scenario with the loop road, the traffic volumes on segments of University Avenue and Bay Road would be higher without the loop road resulting in an increase in average delay at the following three study intersections:

- University Avenue and Purdue Avenue
- University Avenue and Bay Road
- Clarke Avenue and Bay Road

At the intersection of Demeter Street and Bay Road, some turn movements would experience an increase in traffic volume while other movements would see a decrease in traffic volume without the loop road. Compared to the existing plus project scenario with the loop road, the intersection would operate with lower delays during the AM peak hour and higher delays during the PM peak hour.

Although the traffic volumes and delays at certain intersections would differ depending on whether or not the loop road is constructed, ***significant impacts*** would occur at the same intersections. Furthermore, the same improvements are recommended to mitigate intersection impacts.

There is one notable difference between the two scenarios. While the significant project impact at the intersection of University Avenue and Bay Road could be fully mitigated by the construction of an exclusive northbound right-turn lane and a second westbound left-turn lane under the existing plus project scenario with the loop road, the same improvements would only partially mitigate the significant project impact under the existing plus project scenario without the loop road. With the recommended improvements, the intersection would operate at an unacceptable level (LOS E) during both the AM and PM peak hours. New development within the Plan Area will be required to implement TDM measures that would reduce the project impact

TABLE 4.14-9 ***EXISTING + PROJECT INTERSECTION LEVELS OF SERVICE (WITHOUT LOOP ROAD)***

					Existing			Existing + Project without Loop					Mitigated Existing + Project without Loop	
Int. #	Intersection Name	Juris-diction	Existing Control	Peak Hour	Avg. Delay[a]	Worst Delay[b]	LOS	Avg. Delay[a]	Worst Delay[b]	LOS	Incr. in Crit. Delay	Incr. In Crit. V/C	Avg. Delay[a]	LOS
4	Demeter Street & Bay Road	EPA	2-Way Stop	AM	0.8	9.8	A	**26.2**	**OVFL**	**F**	**OVFL**	**1.412**	16.9	B
				PM	1.1	10.2	B	**175.3**	**OVFL**	**F**	**OVFL**	**1.305**	38.7	D
7	Clarke Avenue & Bay Road	EPA	All-Way Stop	AM	11.0	–	B	**244.3**	–	**F**	**233.4**	**1.423**	33.9	C
				PM	11.0	–	B	**202.5**	–	**F**	**191.5**	**1.324**	25.7	C
13	University Avenue & Loop Road (new)	EPA	Future Signal	AM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				PM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
17	University Avenue & Purdue Avenue	EPA	2-Way Stop	AM	2.0	29.1	D	**2.8**	**54.2**	**F**	**0.8**	**0.188**	9.1	A
				PM	**18.4**	**OVFL**	**F**	**45.4**	**OVFL**	**F**	**OVFL**	**1.617**	5.0	A
21	University Avenue & Bay Road	EPA	Signal	AM	32.6	–	C	**142.9**	–	**F**	**181.0**	**0.671**	**76.4**	**E**
				PM	36.9	–	D	**147.3**	–	**F**	**153.2**	**0.525**	**76.3**	**E**

Note: Only those intersections affected by the Loop Road are shown. The level of service at all other study intersections is the same with or without the Loop Road.
Asterisk (*) denotes CMP intersection.
[a] Whole intersection weighted average control delay, including uncontrolled movements at unsignalized intersections, expressed in seconds per vehicle.
[b] The worst case delay is the average delay on the worst stop-controlled approach, expressed in seconds per vehicle.
Bold denotes an unacceptable level of service.
Outline denotes a significant adverse impact.
OVFL denotes delay is beyond the limits of the equation.
Source: Hexagon, 2011.

at this intersection. In combination with the recommended geometric improvements described above, the TDM program would need to achieve over a 26 percent reduction in trip generation to reduce the project impact to a level of insignificance. Without any TDM reductions, additional improvements including the addition of a third northbound through lane, a second southbound left-turn lane, and a second westbound through lane would be necessary to fully mitigate the project impact without the loop road. Because these improvements would require the acquisition of extensive right-of-way, they are considered to be infeasible.

d. Pedestrian Facilities ***(LTS with Mitigation)***

There are many portions of streets in the Plan Area that do not have continuous sidewalks. The Specific Plan provides the opportunity to complete the sidewalk network as properties redevelop. An example is on Bay Road where the lack of sidewalks precludes easy pedestrian access to the Bay Trail. There are also some sections of University Avenue that lack sidewalks. This is a major impediment to pedestrian travel in the Plan Area.

Impact TRA-10: There are many portions of streets in the Plan Area that do not have continuous sidewalks. This is a major impediment to pedestrian travel in the Plan Area.

Mitigation Measure TRA-10a: Continuous sidewalks shall be developed on all streets in the Plan Area as required under **Specific Plan Policy TRA-1.1**.

Mitigation Measure TRA-10b: Off-street pedestrian paths shall be provided as per **Specific Plan Policy TRA-1.2**. The paths can help promote walking by providing shorter connections between sites and buildings than could be offered by the street system. For example, a pedestrian path could be developed as an extension of Purdue Avenue. This would allow a much easier pedestrian connection to University Avenue than the existing street system.

Significance after Mitigation: With policies in place to ensure that adequate sidewalks are built, the impact would be ***less than significant.***

e. Bicycle Facilities

Under existing conditions the bike transportation system is incomplete in the project area. The Specific Plan provides an opportunity to complete some of the missing links in the bicycle system.

- The planned Loop Road that is an extension of Demeter Street would include a Class I bicycle facility alongside the road. This would allow bicycles to and from the north, and to the Bayfront bicycle path, to avoid the missing bike lane segment on University Avenue. Furthermore, the Specific Plan also recommends several additional trail segments that would allow for bicycle circulation, as detailed in Chapter Four of the Specific Plan. Including the Loop Road trail, it is anticipated that approximately 4.5 miles of additional trails in total would be added within the Specific Plan Area.
- The bike lanes on Bay Road do not extend all the way east to the Bay Trail. The Specific Plan calls for widening and improving Bay Road to provide the necessary connection.
- The Bay Trail north of Weeks Street is not paved, so it is not suitable for bicycle travel, other than mountain bikes. The Specific Plan calls for paving of the Bay Trail north of Weeks Street to the city limits.
- The East Palo Alto Bicycle Plan shows bike lanes on Pulgas Avenue, part of which is included in the Specific Plan area. The Specific Plan calls for Pulgas Avenue to be improved and redesignated as a Class III bicycle route.

With implementation of these potential bicycle facilities, there would be good regional connections to the north and to the south. The connection to the south would be via Bay Road to the Bay Trail, which leads to Embarcadero Road and a bike bridge over US 101 in Palo Alto. To the north the connection would be via the Bay Trail or the Demeter Street extension to the existing bike lanes on University Avenue to the bike path along Bayfront Ex-

pressway. It would be desirable to also provide bike lanes on the missing segment of University Avenue. However, the parcels along this segment are not expected to redevelop, so completion might not be feasible as part of the plan. Also, East Palo Alto still needs a bicycle connection across US 101. The closest connection is at Oregon Expressway, quite a distance to the south. The interchanges at Willow Road and at University Avenue allow bicycles, but they are difficult to negotiate for all but the most experienced riders. Although not part of the Specific Plan, it would be desirable for East Palo Alto to pursue a bike bridge over US 101. As a separate effort, the City is recruiting a planning/engineering consultant to plan a pedestrian overcrossing over US 101.

In order to encourage bicycling, the Specific Plan includes provisions to require bicycle parking and showers and locker rooms as part of new development. East Palo Alto also could adopt a citywide transportation demand management (TDM) ordinance to encourage employers to provide bicycling incentives, such as a parking cash-out program.

The Specific Plan is estimated to generate close to 25,000 daily trips. The typical mode split for bicycling is 1-2percent, so we would expect about 250 to 500 daily bicycle trips. This number of trips could be accommodated on the enhanced bicycle network described above.

f. Transit Service

The Specific Plan area is served by five SamTrans bus routes, the East Palo Alto Community Shuttle, and the Dumbarton Express service operated by AC Transit. These services provide good connectivity between the Plan Area and East Palo Alto, the nearby Peninsula cities, and the East Bay. Access to Caltrain, which provides regional service to the greater Peninsula, San Jose, and San Francisco, is provided by two of the SamTrans bus routes. The Palo Alto Caltrain station is located four miles from the Plan area, and the bus trip takes a scheduled 15 minutes.

All of the bus routes serving the Plan Area converge at the intersection of University Avenue and Bay Road. The Specific Plan should include a program to enhance the area of the intersection to facilitate bus ridership and transfers. Enhancements could include on-street bus bays, wider sidewalks, shelters, public restrooms, and transit information kiosks. Electronic bus arrival information also could be considered.

Most of the Plan Area is within ½ mile of University/Bay, which is a 10-minute walk. Some parts of the area are over 3,500 feet from the intersection. Reaching these more remote sections may require a shuttle bus. The East Palo Alto Community Shuttle and one of the existing SamTrans bus routes travel through the area. These services could be used by patrons who prefer not to walk.

Without an effective TDM program or special incentives, a reasonable expectation for transit mode split for the Plan Area is three to five percent. Given about 25,000 daily trips, this calculates to 750 to 1,250 new daily transit riders. The existing bus services have the capacity to serve this many additional riders. In total there are about 230 buses per day that serve the area. The projected number of new riders averages three to five new passengers per bus.

As described in the Specific Plan, there are various policies that could be included in the Specific Plan to encourage transit ridership. The design guidelines should insure that building entrances are oriented toward sidewalks and pathways to provide good connections to bus stops. East Palo Alto could adopt a policy to require employers to implement a TDM program and to encourage transit ridership. Measures could include a guaranteed ride home program, discount transit passes or parking cash-out, unbundling of parking, and flexible work hours. Some employers also may wish to operate or subscribe to shuttle services or subscription bus services. A shuttle service to Caltrain, for example, could offer faster travel times than the scheduled SamTrans routes. Subscription bus services, such as the Google shuttle, provide express buses from employees' homes to the employer. An effective TDM

program could increase the transit mode share above the three to five percent that would occur without any special programs.

i. Dumbarton Rail Service

The Metropolitan Transportation Commission (MTC), in conjunction with SamTrans and the Santa Clara Valley Transportation Agency (VTA), has studied the possible provision of rail service or enhanced bus service across the Dumbarton Bridge, which has been referred to as the Dumbarton Rail Corridor (DRC). The DRC service would link the East Bay cities of Union City, Fremont, and Newark to the Peninsula cities of East Palo Alto, Palo Alto, Menlo Park, and Redwood City, with possible extensions to San Francisco and San Jose. The latest DRC study, which was completed in January 2011, narrows the alternatives to three rail options and one enhanced bus option. All of the options would pass through East Palo Alto but not necessarily stop there.

The three rail options differ in their service plans: number of trains and hours of operation. With any of the rail options, a station in East Palo Alto is a possibility but not a certainty. If a station were to be built in East Palo Alto, the likely location would be on University Avenue near Tulare Avenue. This location is ½ to 1 mile from the development sites within the Plan Area, so a shuttle system would be necessary.

The enhanced bus service option includes Bus Rapid Transit (BRT) and is planned to run down University Avenue through East Palo Alto. BRT typically includes limited bus stops and traffic signal priority. It also could include exclusive bus lanes. A logical location for a BRT stop would be at the intersection of University Avenue and Bay Road, which already is a major transfer point for SamTrans bus routes.

Since the potential DRC transit service is unfunded, it was not included in the Specific Plan traffic analysis.[11] The likely impact of the service would be different whether it was rail service with an East Palo Alto station or BRT service. The potential DRC rail service is projected to have much higher ridership than the bus service. Therefore, it would reduce traffic on the Dumbarton Bridge. This reduction would also apply to Bayfront Expressway and University Avenue. If there were a station on University Avenue, the station would attract some of its own traffic because each station would have a large tributary area. The effects of reducing traffic on the Dumbarton Bridge and increasing traffic around the station are off-setting. Without conducting a much more detailed study, it cannot be said whether the rail service would increase or decrease traffic in the Plan Area, particularly on University Avenue. The rail service in conjunction with an East Palo Alto station would provide an attractive transit option for the Plan Area. Therefore, assuming a shuttle was available, the rail service would increase the transit mode share of the project.

The BRT service also would decrease traffic on the Dumbarton Bridge, although to much less extent than the rail service. This would result in some traffic reduction on University Avenue. Unlike rail service which relies on a limited number of stations, BRT would include has a series of stops. Therefore, there would be no concentration of added traffic around the stops. The BRT would provide an attractive transit option in close proximity to the Plan Area. Therefore, the transit mode split for the project would be expected to increase.

4. Cumulative Traffic Volume Forecasts

Cumulative conditions reflect a horizon year of 2035. Traffic volume forecasts under cumulative conditions with the proposed project were derived using the C/CAG travel demand forecast model based on land use data from ABAG Projections '09. The ABAG land use data were reviewed and modi-

[11] The provision of a station at a defined location was not included in the analysis. However, passenger service along the DRC was included as a factor in the cumulative analysis.

fied as necessary to reflect the proposed land uses envisioned in the Plan Area. In addition, lists of approved and pending development projects were obtained from the Cities of East Palo Alto, Menlo Park, and Palo Alto.[12] In certain traffic analysis zones, the land use data in the C/CAG model was adjusted to ensure that the size and locations of growth are consistent with the list of developments provided by the cities. In particular, the cumulative forecasts reflect the proposed Facebook East and West development projects, which would substantially affect traffic volumes on Bayfront Expressway and Willow Road. The forecasts also include the Stanford Hospital and Medical Clinics project in Palo Alto. According to the C/CAG travel demand forecast model, 57 percent of the traffic on University Avenue will be attributable to through traffic in 2035.

The transportation network assumptions coded in the travel demand model are based on the C/CAG 2020 Gateway Report. The model includes the planned Dumbarton Rail Service; however, the potential East Palo Alto Rail Station was not included.

The raw 2035 intersection turning-movement forecasts were adjusted based on the year 2005 base year model forecasts and base year count data. The adjustment process corrects for differences between the base year model forecasts and base year counts.

The modeled roadway network within the Plan Area is sparse and doesn't allow for detailed turning-movement forecasts on some local streets. Because no further development is anticipated within the vicinity beyond that outlined in the Specific Plan, and because the model shows that local roadways within the Plan Area will not be subject to additional cut-through traffic, the future traffic projections on local roadways within the Plan Area are expected to equal the traffic volume forecasts for existing plus project conditions.

[12] The project lists are presented in Appendix F from the Traffic/Transportation Survey Report, which is included in Appendix 3 of this Draft EIR.

Traffic volumes under cumulative no project conditions were derived by subtracting the manual project trips estimates from the adjusted model forecasts of cumulative plus project conditions.

The cumulative scenario was analyzed both with and without the loop road. Traffic volumes for the without-loop-road scenario were estimated by manually reassigning project trips that had been assigned to the Loop Road. Furthermore, the diversion of existing traffic from University Avenue to the new Loop Road that had been assumed previously was deducted.

Intersection turning-movement forecasts under cumulative no project and cumulative plus project conditions are presented on Figures 4.14-11 and 4.14-12, respectively. Figure 4.14-13 presents the traffic volumes under cumulative plus project conditions without the Loop Road.[13]

5. Cumulative Impacts

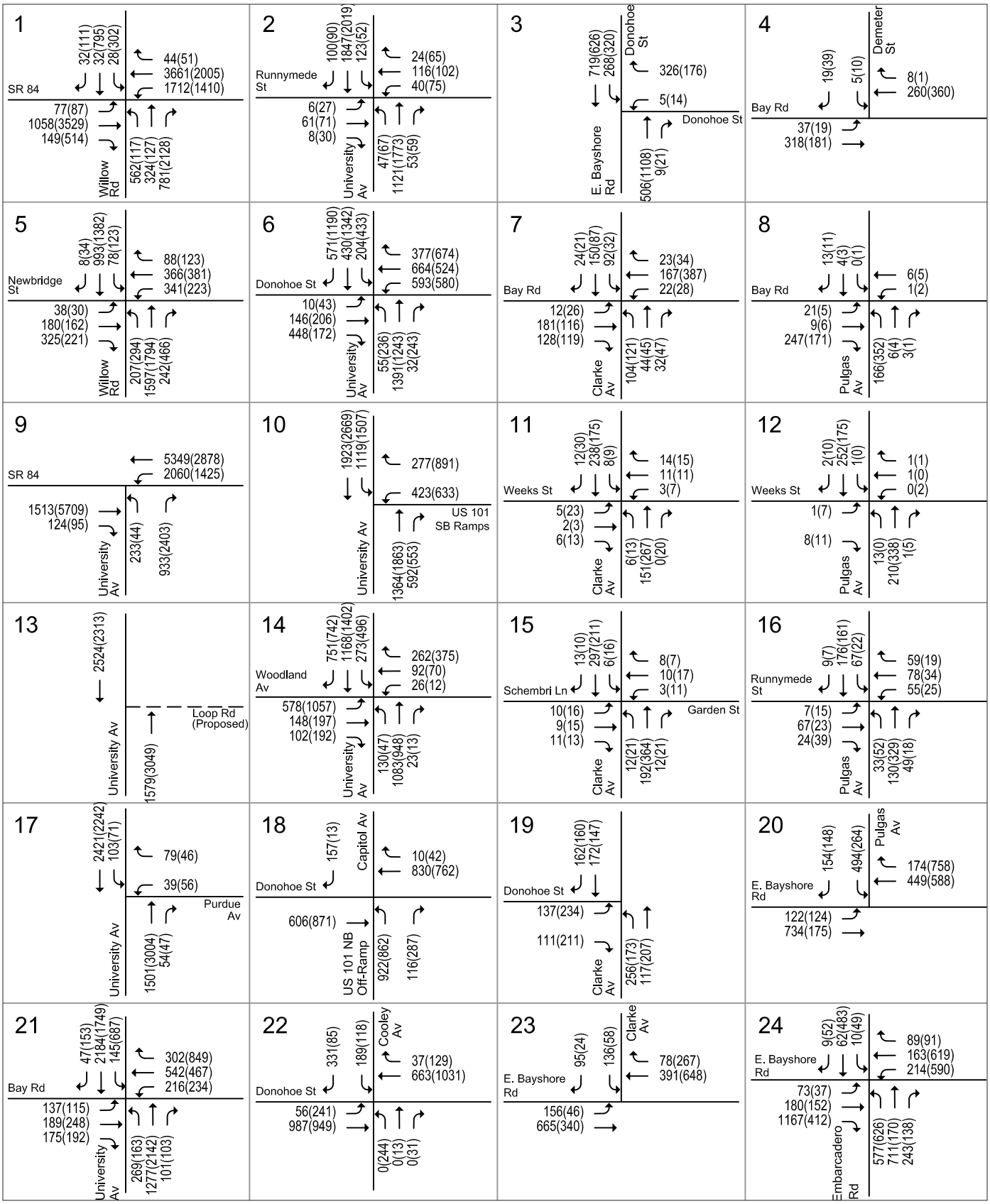
a. Definition of Significant Impacts

The same significance criteria as applied to existing plus project conditions were used to identify significant project impacts under cumulative conditions. Cumulative plus project conditions were evaluated relative to cumulative no project conditions to determine potential project impacts.

b. Intersection Level of Service Impacts Under Cumulative Conditions

The results of the level of service analysis under cumulative no project and cumulative plus project (with Loop Road) conditions are summarized in

[13] Traffic volumes under all scenarios are tabulated in Appendix E from the Traffic/Transportation Survey Report, which is included in Appendix 3 of this Draft EIR.

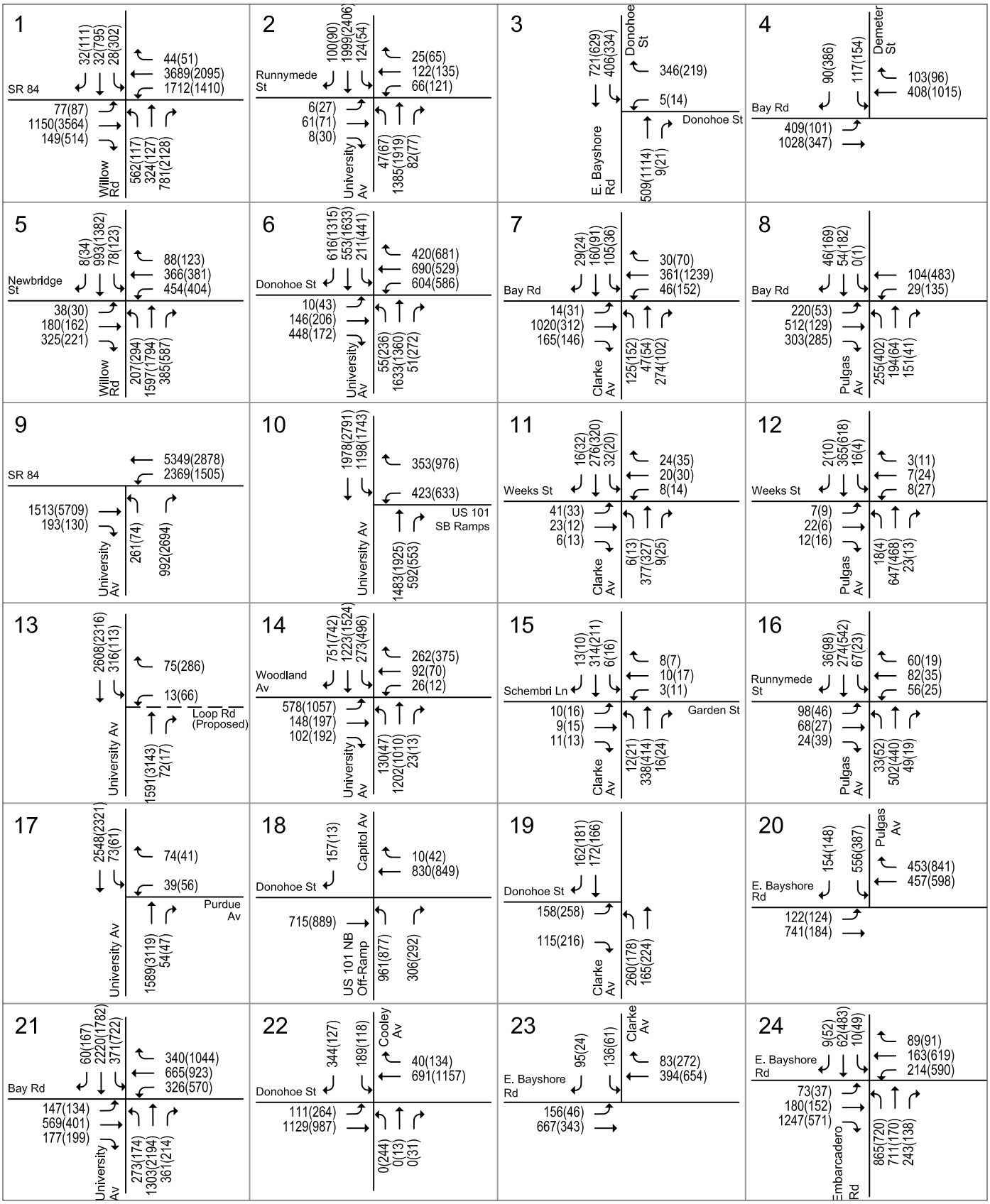


Source: Hexagon Transportation Consultants, Inc.

XX(XX) = AM(PM) Peak-Hour Traffic Volumes

FIGURE 4.14-11

CUMULATIVE NO PROJECT TRAFFIC VOLUMES

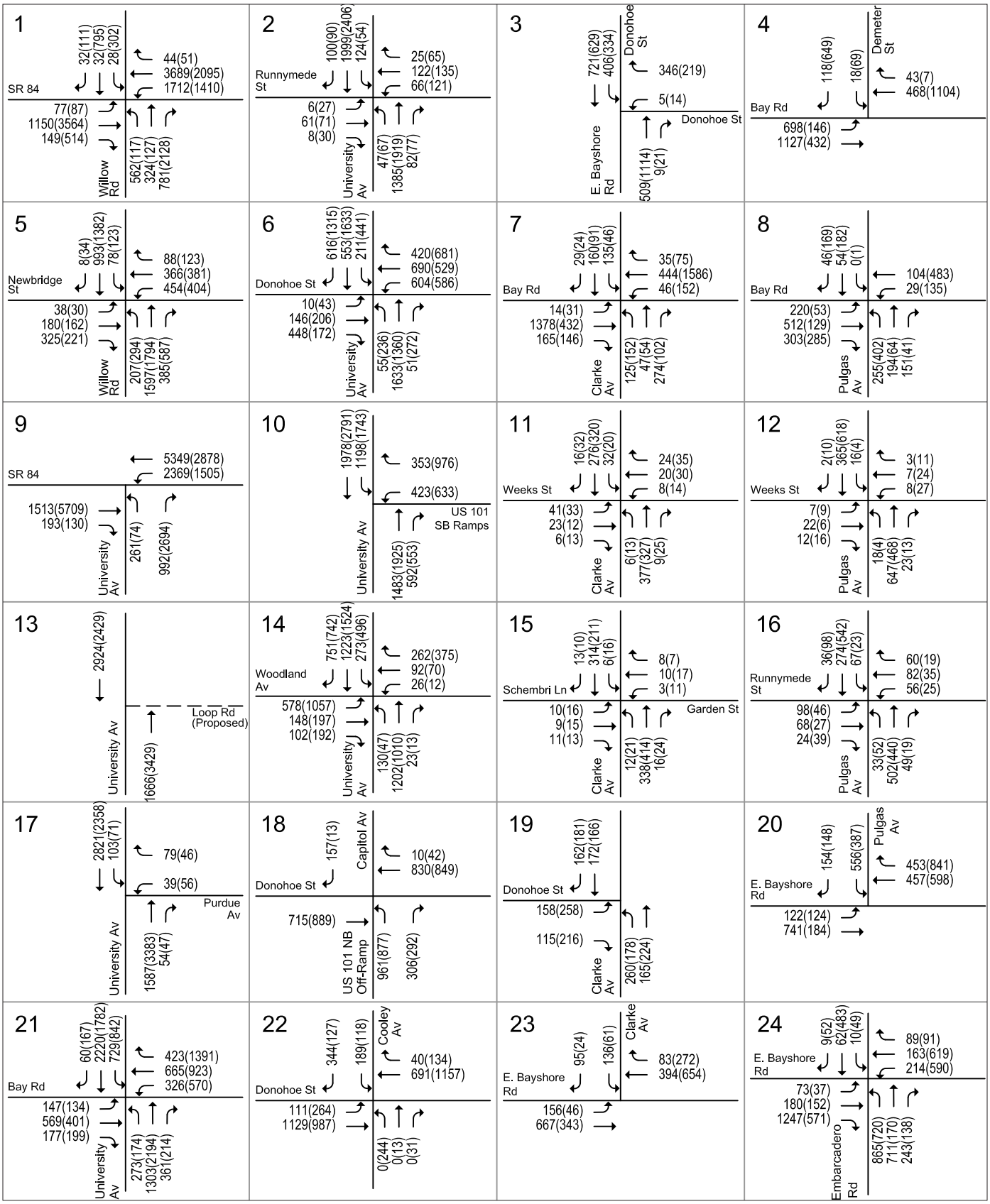


Source: Hexagon Transportation Consultants, Inc.

XX(XX) = AM(PM) Peak-Hour Traffic Volumes

FIGURE 4.14-12

CUMULATIVE PLUS PROJECT WITH LOOP ROAD TRAFFIC VOLUMES



Source: Hexagon Transportation Consultants, Inc.

XX(XX) = AM(PM) Peak-Hour Traffic Volumes

FIGURE 4.14-13

CUMULATIVE PLUS PROJECT WITHOUT LOOP ROAD TRAFFIC VOLUMES

Table 4.14-10.[14] The results of the peak-hour traffic signal warrant checks are summarized in Table 4.14-11.[15]

Significant adverse impacts were identified under cumulative plus project conditions at the following thirteen study intersections:

1. Willow Road and Bayfront Expressway
4. Demeter Street and Bay Road
6. University Avenue and Donohoe Street
7. Clarke Avenue and Bay Road
8. Pulgas Avenue and Bay Road
9. University Avenue and Bayfront Expressway
10. University Avenue and Highway 101 SB Off-Ramp
13. University Avenue and Loop Road (new)
14. University Avenue and Woodland Avenue
17. University Avenue and Purdue Avenue
20. Pulgas Avenue and Bayshore Road
21. University Avenue and Bay Road
24. Embarcadero Road and Bayshore Road

i. Willow Road and Bayfront Expressway

Impact TRA-CUM-1 (Willow Road and Bayfront Expressway): During the PM peak hour, the intersection is expected to operate at an unacceptable level of service (LOS F) under cumulative no project conditions. The addition of project-generated traffic is expected to cause the critical-movement delay on the southbound approach to increase by 3.0 seconds. This constitutes a ***significant adverse impact*** according to the thresholds established by the City of Menlo Park.

[14] The level of service calculation sheets are included in Appendix B from the Traffic/Transportation Survey Report, which is included in Appendix 3 of this Draft EIR.

[15] The peak-hour signal warrant sheets are contained in Appendix C from the Traffic/Transportation Survey Report, which is included in Appendix 3 of this Draft EIR.

TABLE 4.14-10 *CUMULATIVE INTERSECTION LEVELS OF SERVICE (WITH LOOP ROAD)*

					Cumulative No Project			Cumulative + Project with Loop Road					Mitigated Cumulative + Project	
Int. No.	Intersection Name	Jurisdiction	Existing Control	Peak Hour	Avg. Delay[a]	Worst Delay[b]	LOS	Avg. Delay[a]	Worst Delay[b]	LOS	Incr. in Crit. Delay	Incr. in Crit. V/C	Avg. Delay[a]	LOS
1	Willow Road & Bayfront Expressway[c]*	MP	Signal	AM	67.2	-	E	71.2	-	E	2.6	0.006	71.7	E
				CLA	NA/65.1	-	NA/E	NA/65.1	-	NA/E	NA/0.0	NA/0.00	NA/65.1	NA/E
				PM	327.5	-	F	328.1	-	F	3.4	0.008	287.7	F
				CLA	NA/464	-	NA/F	NA/467	-	NA/F	NA/3.0	NA/0.01	NA/456.2	NA/F
2	University Avenue & Runnymede Street	EPA	Signal	AM	6.4	-	A	8.0	-	A	2.2	0.071		
				PM	9.5	-	A	23.8	-	C	23.7	0.186		
3	East Bayshore Road & Donohoe Street	EPA	Signal	AM	9.7	-	A	10.4	-	B	1.4	0.091		
				PM	13.4	-	B	13.8	-	B	0.6	0.011		
4	Demeter Street & Bay Road	EPA	2-Way Stop	AM	0.8	9.8	A	72.6	OVFL	F	OVFL	2.238	18.6	B
				PM	1.1	10.2	B	150.4	OVFL	F	OVFL	1.343	27.6	C
5	Willow Road & Newbridge Street[c]	MP	Signal	AM	35.6	-	D	36.9	-	D	0.2	0.037		
				CLA	71.4/47.8	-	E/D	71.4/51.3	-	E/D	0.0/3.5	0.00/0.04		
				PM	40.5	-	D	43.0	-	D	0.0	0.000		
				CLA	59.7/72.6	-	E/E	59.7/72.6	-	E/E	0.0/0.0	0.00/0.00		
6	University Avenue & Donohoe Street	EPA	Signal	AM	93.8	-	F	116.0	-	F	35.1	0.089	84.1	F
				PM	143.3	-	F	186.7	-	F	67.5	0.142	93.1	F
7	Clarke Avenue & Bay Road	EPA	All-Way Stop	AM	11.0	-	B	115.7	-	F	104.7	0.919	28.1	C
				PM	11.0	-	B	95.4	-	F	84.4	0.911	24.0	C
8	Pulgas Avenue & Bay Road	EPA	2-Way Stop	AM	4.8	11.3	B	OVFL	OVFL	F	OVFL	3.424	23.2	C
				PM	8.2	12.4	B	OVFL	OVFL	F	OVFL	0.894	48.2	D

TABLE 4.14-10 ***CUMULATIVE INTERSECTION LEVELS OF SERVICE*** (CONTINUED)

					Cumulative No Project			Cumulative + Project with Loop Road					Mitigated Cumulative + Project	
Int. No.	Intersection Name	Jurisdiction	Existing Control	Peak Hour	Avg. Delay[a]	Worst Delay[b]	LOS	Avg. Delay[a]	Worst Delay[b]	LOS	Incr. in Crit. Delay	Incr. in Crit. V/C	Avg. Delay[a]	LOS
9	University Avenue & Bayfront Expressway[d,*]	MP	Signal	AM	**90.9**	–	**F**	**107.4**	-	**F**	**4.6**	**0.009**	no feasible mitigation	
				PM	**321.8**	–	**F**	**349.9**	-	**F**	**34.6**	**0.075**	no feasible mitigation	
10	University Avenue & US 101 SB Off-Ramp	EPA	Signal	AM	28.4	–	C	39.1	-	D	20.3	0.072	no feasible mitigation	
				PM	**127.1**	–	**F**	**155.2**	-	**F**	**45.9**	**0.103**	no feasible mitigation	
11	Clarke Avenue & Weeks Street	EPA	2-Way Stop	AM	1.2	11.0	B	2.9	19.3	C	8.3	0.120		
				PM	1.8	12.3	B	2.9	18.1	C	5.8	0.068		
12	Pulgas Avenue & Weeks Street	EPA	2-Way Stop	AM	0.4	11.0	B	1.4	24.3	C	13.3	0.097		
				PM	0.4	12.0	B	2.0	28.6	D	16.6	0.141		
13	University Avenue & Loop Road (new)	EPA	Future Signal	AM	N/A	NA	N/A	13.8	-	B	N/A	N/A	no feasible mitigation	
				PM	N/A	NA	N/A	**98.6**	-	**F**	**N/A**	**N/A**	no feasible mitigation	
14	University Avenue & Woodland Avenue	EPA	Signal	AM	47.6	–	D	52.2	-	D	9.3	0.039	no feasible mitigation	
				PM	**131.5**	–	**F**	**144.4**	-	**F**	**8.5**	**0.020**	no feasible mitigation	
15	Clarke Avenue & Garden Street	EPA	All-Way Stop	AM	9.2	–	A	10.4	-	B	1.2	0.073		
				PM	10.4	–	B	11.2	-	B	0.8	0.064		
16	Pulgas Avenue & Runnymede Street	EPA	All-Way Stop	AM	9.9	–	A	32.0	-	D	22.1	0.603		
				PM	10.6	–	B	32.9	-	D	22.3	0.443		
17	University Avenue & Purdue Avenue	EPA	2-Way Stop	AM	**51.6**	OVFL	**F**	**53.0**	**OVFL**	**F**	**OVFL**	**0.411**	6.2	A
				PM	**OVFL**	OVFL	**F**	**OVFL**	**OVFL**	**F**	**OVFL**	**18.254**	24.6	C
18	Capitol Avenue & Donohoe Street	EPA	Signal	AM	24.0	–	C	23.7	-	C	1.0	0.047		
				PM	17.7	–	B	17.9	-	B	0.2	0.011		
19	Clarke Avenue & Donohoe Street	EPA	All-Way Stop	AM	12.3	–	B	13.8	-	B	1.5	0.086		
				PM	16.6	–	C	19.7	-	C	3.1	0.069		

TABLE 4.14-10 ***CUMULATIVE INTERSECTION LEVELS OF SERVICE*** (CONTINUED)

					Cumulative No Project			Cumulative + Project with Loop Road					Mitigated Cumulative + Project	
Int. No.	Intersection Name	Jurisdiction	Existing Control	Peak Hour	Avg. Delay[a]	Worst Delay[b]	LOS	Avg. Delay[a]	Worst Delay[b]	LOS	Incr. in Crit. Delay	Incr. in Crit. V/C	Avg. Delay[a]	LOS
20	Pulgas Avenue & Bayshore Road	EPA	Signal	AM	21.3	–	C	27.7	-	C	11.2	0.175	no feasible mitigation	
				PM	37.0	–	D	**74.5**	–	E	**46.9**	**0.134**	no feasible mitigation	
21	University Avenue & Bay Road	EPA	Signal	AM	**128.3**	–	F	**265.1**	–	F	**143.5**	**0.321**	**124.5**	F
				PM	**200.1**	–	F	**346.9**	–	F	**202.1**	**0.449**	**217.7**	F
22	Cooley Avenue & Donohoe Street	EPA	Signal	AM	11.6	–	B	11.8	–	B	0.9	0.049		
				PM	31.5	–	C	48.1	–	D	26.2	0.061		
23	Clarke Avenue & East Bayshore Road	EPA	Signal	AM	9.5	–	A	9.4	–	A	0.0	0.001		
				PM	5.2	–	A	5.3	–	A	0.2	0.009		
24	Embarcadero Road & Bayshore Road	PA	Signal	AM	**78.3**	–	E	**97.4**	–	F	**21.4**	**0.056**	no feasible mitigation	
				PM	53.0	–	D	**67.3**	–	E	**16.4**	**0.082**	no feasible mitigation	

Notes: *CLA* = Critical Local Approaches
Asterisk (*) denotes CMP intersection.
Bold = denotes an unacceptable level of service.
OVFL = denotes delay is beyond the limits of the equation.
Shading = denotes a significant adverse impact.

[a] Whole intersection weighted average control delay, including uncontrolled movements at unsignalized intersections, expressed in seconds per vehicle.

[b] The worst case delay is the average delay on the worst stop-controlled approach, expressed in seconds per vehicle.

[c] Average delay and level of service are presented for the intersection overall and for the critical movements on local approaches (Eastbound/Westbound Newbridge Street and Northbound/Southbound Willow Road).

[d] Intersection of two state routes. There are no local approaches controlled by Menlo Park.

Souce: Hexagon, 2011.

TABLE 4.14-11 ***CUMULATIVE PEAK HOUR SIGNAL WARRANT RESULTS***

Int. No.	Intersection Name	Warrant Met? Cumulative No Project AM	Cumulative No Project PM	Cumulative + Project with Loop Road AM	Cumulative + Project with Loop Road PM
4	Demeter Street and Bay Road	no	no	**yes**	**yes**
7	Clarke Avenue and Bay Road	no	no	**yes**	**yes**
8	Pulgas Avenue and Bay Road	no	no	**yes**	**yes**
11	Clarke Avenue and Weeks Street	no	no	no	no
12	Pulgas Avenue and Weeks Street	no	no	no	no
13	University Avenue and Loop Road (new)	n/a	n/a	no	yes
15	Clarke Avenue and Garden Street	no	no	no	no
16	Pulgas Avenue and Runnymede Street	no	no	no	no
17	University Avenue and Purdue Avenue	**yes**	**yes**	**yes**	no
19	Clarke Avenue and Donohoe Street	no	**yes**	no	**yes**

Notes: Signal Warrant analysis based on MUTCD Peak Hour Signal Warrant #3-Part B.

Mitigation Measure TRA-CUM-1: The shared left-through lane on northbound Willow Road shall be converted into a left-turn only lane and the signal phasing on the east and west approaches from split phase modified to protected lefts. With this improvement, the intersection would continue to operate at LOS F (287.7 seconds of delay); however, the average delay would be less than that under cumulative no project conditions (327.5 seconds). Alternately, the addition of a third right-turn lane on northbound Willow Road would further reduce the intersection's average control delay although not to an acceptable level. Implementation of any improvement at this intersection would require coordination with and approval by Caltrans and the City of Menlo Park.

Significance after Mitigation: Because the improvement is under the jurisdiction of Caltrans and the City cannot guarantee it would be implemented, the impact remains ***significant and unavoidable.***

ii. University Avenue and Bayfront Expressway

Impact TRA-CUM-2 (University Avenue and Bayfront Expressway): During the AM and PM peak hours, the intersection is expected to operate at an unacceptable level of service (LOS F) under cumulative no project conditions. The addition of project-generated traffic is expected to cause the average control delay at the intersection to increase by 17 to 28 seconds. This constitutes a ***significant adverse impact*** according to the thresholds established by the City of Menlo Park.

Mitigation Measure TRA-CUM-2: There are no feasible improvements within the existing right-of-way that would substantially reduce delay at this intersection. The implementation of adaptive signal timing could reduce delays and improve intersection operation, but would not reduce cumulative impacts to a less-than-significant level. Any potential mitigation measure would require coordination with and approval by Caltrans and the City of Menlo Park.

This intersection is expected to operate at a poor level of service (LOS F) under the cumulative no project AM and PM peak-hour traffic volumes. Buildout of the Specific Plan would add a substantial number of trips to this intersection, which serves as a gateway to the East Bay. The threshold that defines a significant impact is an increase in the average control delay of four or more seconds. Buildout of the Specific Plan would increase the average control delay by as much as 34.6 seconds during the PM peak hour. Therefore, trip reduction measures alone would not be sufficient to fully mitigate the significant project impact at this intersection.

Significance after Mitigation: While implementation of TDM measures and/or passenger use the Dumbarton Rail Corridor project, could some-

what reduce the magnitude of the impact, the impact would remain ***significant and unavoidable***.

iii. University Avenue and Purdue Avenue

Impact TRA-CUM-3 (University Avenue and Purdue Avenue)**:** During the AM and PM peak hours, the stop-controlled movements on Purdue Avenue are expected to operate at LOS F with over 100 seconds of delay under cumulative no project conditions. The loop road would reduce the traffic on Purdue Avenue. However, the project would add traffic to University Avenue. The addition of project-generated traffic on University Avenue is expected to cause the average delay for the stop-controlled movements on Purdue Avenue to increase by over 100 seconds, and the approach volumes on Purdue Avenue are expected to continue to satisfy the Peak-Hour Volume Warrant. This constitutes a ***significant adverse impact*** according to the thresholds established by the City of East Palo Alto.

Mitigation Measure TRA-CUM-3: A new traffic signal shall be installed at this intersection. Along with a new traffic signal, appropriate pedestrian and bicycle accommodation should be provided. This includes pedestrian countdown timers, Americans with Disabilities Act (ADA) compliant curbs, and bicycle detection loops. With this improvement, the intersection would operate at LOS A with 6.2 seconds of delay during the AM peak hour and LOS C with 24.6 seconds of delay during the PM peak hour. To facilitate this, the City must implement **Specific Plan Policy TRA-2.5**, which requires a "nexus study" be undertaken and a traffic impact fee developed that ensures that developers pay their "fair share" of necessary traffic improvements in the Specific Plan Area.

Significance after Mitigation: With this improvement and implementation of **Specific Plan Policy TRA-2.5**, the intersection would operate at an acceptable level and the impact would be ***less than significant***.

iv. University Avenue and Bay Road

Impact TRA-CUM-4 (University Avenue and Bay Road): This intersection is expected to operate at an unacceptable level (LOS F) during the AM and PM peak hours under cumulative no project conditions. The addition of project-generated traffic is expected to cause the intersection critical-movement delay to increase by at least 143 seconds and the V/C ratio to increase by at least 0.3 during the AM and PM peak hours. The average delay would be 265.1 seconds during the AM peak hour and 346.9 seconds during the PM peak hour. This constitutes a ***significant adverse impact*** according to the thresholds established by the City of East Palo Alto.

Mitigation Measure TRA-CUM-4: Fully mitigating the project impacts at this intersection under cumulative conditions would require adding through lanes on University Avenue and/or Bay Road. Because such improvements would entail extensive right-of-way acquisition and roadway widening extending beyond the Plan Area, this mitigation measure is considered to be infeasible.

Under cumulative conditions, the impact from buildout of the Specific Plan could be partially mitigated by constructing the following improvements: an exclusive northbound right-turn lane and a second northbound left turn lane on University Avenue, a second westbound left-turn lane on Bay Road, a second southbound left-turn lane on University Avenue, and modified signal phasing. These recommended improvements would require additional right-of-way and roadway widening affecting only those properties in the immediate vicinity of the intersection. At least 14 feet of additional right-of-way would be required along the east side of University Avenue. About 12 feet of additional right-of-way would be required on the north side of Bay Road. Roadway widening has the potential to make pedestrian and bicycle travel more difficult through the intersection. Therefore, any intersection widening or reconstruction should incorporate pedestrian and bicycle accommodation. This includes pedestrian countdown timers, Americans with Disabilities Act (ADA) compliant curbs, and bicycle detection loops. With the rec-

ommended improvements, the intersection would continue to operate at an LOS F (124.5 seconds and 217.7 seconds in the AM and PM peak hours, respectively).

The implementation of TDM measures outlined in the Specific Plan and the future construction of the Dumbarton Rail Corridor may cause a reduction in the vehicle trips generated by the buildout of the Specific Plan. In order to fully mitigate the Specific Plan's impact under cumulative conditions, a 19 percent reduction in trips would need to be achieved in addition to the above listed intersection improvements.

Significance after Mitigation: Because the TDM measures and rail service are uncertain, the impact is considered to be ***significant and unavoidable.***

v. University Avenue and Donohoe Street

Impact TRA-CUM-5 (University Avenue and Donohoe Street): This intersection is expected to operate at an unacceptable level (LOS F) during the AM and PM peak hours. The addition of Specific Plan-generated traffic is expected to cause the intersection critical-movement delay to increase by at least 35 seconds and the V/C ratio to increase by at least 0.09 during the AM and PM peak hours. The resulting delay would be 116 seconds during the AM peak hour and 186.7 seconds during the PM peak hour. This constitutes a ***significant adverse impact*** according to the thresholds established by the City of East Palo Alto.

Mitigation Measure TRA-CUM-5: An exclusive southbound right-turn lane on University Avenue, restriping the westbound approach on Donohoe Street to include dual left-turn lanes, one through lane and one right-turn only lane, shall be installed, and the signal phasing on Donohoe Street should be modified from split phase operation to a standard phase sequence with protected left turns. The recommended mitigation measure would require the acquisition of additional right-of-way and roadway widening that affects properties outside the Plan Area. About 12 feet of

additional right-of-way would be required on the west side of University Avenue.

Roadway widening has the potential to make pedestrian and bicycle travel more difficult through the intersection. Therefore, any intersection widening or reconstruction should incorporate pedestrian and bicycle accommodation. This includes pedestrian countdown timers, Americans with Disabilities Act (ADA) compliant curbs, and bicycle detection loops. With this improvement, the intersection would continue to operate at a LOS F, however the average delay (84.1 seconds and 93.1 seconds during the AM and PM peak hours, respectively) would be less than that under cumulative no project conditions. The Plan includes the requirement for TDM programs for new development. An effective TDM program would reduce the project impact at this intersection. However, to reduce the impact to a level of insignificance without any geometric improvements, the TDM program would need to achieve over a 50 percent reduction in trip generation. This level of reduction is unlikely to be achieved. To facilitate this, the City must implement **Specific Plan Policy TRA-2.5**, which requires a "nexus study" be undertaken and a traffic impact fee developed that ensures that developers pay their "fair share" of necessary traffic improvements in the Specific Plan Area.

Significance after Mitigation: With this improvement and implementation of **Specific Plan Policy TRA-2.5**, the intersection would operate at an acceptable level and the impact would be ***less than significant***.

vi. University Avenue and Highway 101 SB Off-Ramp

Impact TRA-CUM-6 (University Avenue and Highway 101 SB Off-Ramp): This intersection is expected to operate at an unacceptable level (LOS F) during the PM peak hour under cumulative no project conditions. The addition of Specific Plan-generated traffic is expected to cause the intersection critical-movement delay to increase by 45.9 seconds and the V/C ratio to increase by 0.14 during the PM peak hour. The resulting average delay would be 155.2

seconds. This constitutes a ***significant adverse impact*** according to the thresholds established by the City of East Palo Alto.

Mitigation Measure TRA-CUM-6: Mitigation of the Specific Plan's impact at this intersection under cumulative conditions is considered to be infeasible as it would require reconstructing the interchange and/or widening the University Avenue overpass. Implementing such improvements would require the coordination with and approval of Caltrans. The Specific Plan includes the requirement for TDM programs for new development. An effective TDM program would reduce the project impact at this intersection. However, to reduce the impact to a level of insignificance, the TDM program would need to achieve over a 50 percent reduction in trip generation. This level of reduction is unlikely to be achieved.

Significance after Mitigation: As there is no feasible mitigation measure, the cumulative impact remains ***significant and unavoidable.***

vii. University Avenue and Woodland Avenue

Impact TRA-CUM-7 (University Avenue and Woodland Avenue): This intersection is expected to operate at an unacceptable level (LOS F) during the PM peak hour under cumulative no project conditions. The addition of project-generated traffic is expected to cause the intersection critical-movement delay to increase by 8.5 seconds and the V/C ratio to increase by 0.02 during the PM peak hour. The resulting average delay would be 144.4 seconds. This constitutes a ***significant adverse impact*** according to the thresholds established by the City of East Palo Alto.

Mitigation Measure TRA-CUM-7: Mitigation of the Specific Plan's impact at this intersection under cumulative conditions is considered to be infeasible at it would require extensive right-of-way acquisition in order to add through lanes to University Avenue and/or Woodland Avenue. The Specific Plan includes the requirement for TDM programs for new development. An effective TDM program would reduce the project im-

pact at this intersection. However, to reduce the impact to a level of insignificance, the TDM program would need to achieve over a 50 percent reduction in trip generation. This level of reduction is unlikely to be achieved.

Significance after Mitigation: As there is no feasible mitigation measure, the impact would remain ***significant and unavoidable***.

viii. Clarke Avenue and Bay Road

Impact TRA-CUM-8 (Clarke Avenue and Bay Road): The intersection is expected to operate at acceptable levels (LOS B) during the AM and PM peak hours under cumulative no project conditions. The addition of Specific Plan-generated traffic is expected to cause the intersection to degrade to LOS F with 115.7 seconds of delay during the AM and peak hour and 95.4 seconds of delay during the PM peak hour, and the intersection traffic volumes are expected to satisfy the Peak-Hour Volume Warrant. This constitutes a ***significant adverse impact*** according to the thresholds established by the City of East Palo Alto.

Mitigation Measure TRA-CUM-8: A new traffic signal shall be installed at this intersection. Along with a new traffic signal, appropriate pedestrian and bicycle accommodation should be provided. This includes pedestrian countdown timers, Americans with Disabilities Act (ADA) compliant curbs, and bicycle detection loops. With this improvement, the intersection would operate at an acceptable level (LOS C) with 28.1 seconds of delay during the AM peak hour and 24.0 seconds of delay during the PM peak hour under cumulative plus project conditions. To facilitate this, the City must implement **Specific Plan Policy TRA-2.5**, which requires a "nexus study" be undertaken and a traffic impact fee developed that ensures that developers pay their "fair share" of necessary traffic improvements in the Specific Plan Area.

Significance after Mitigation: With implementation of **Specific Plan Policy TRA-2.5** and implementation of the improvements identified in

Mitigation Measure TRA-CUM-8, this intersection would operate at acceptable levels and the impact would be ***less than significant***.

ix. Demeter Street and Bay Road

Impact TRA-CUM-9 (Demeter Street and Bay Road): The intersection is expected to operate at acceptable levels (LOS A and B during the AM and PM peak hours, respectively) under cumulative no project conditions. The addition of project-generated traffic is expected to cause the stop-controlled movements on Demeter Street to degrade to an unacceptable level (LOS F) with over 100 seconds of delay during the AM and PM peak hours, and the intersection traffic volumes are expected to satisfy the Peak-Hour Volume Warrant. This constitutes a ***significant adverse impact*** according to the thresholds established by the City of East Palo Alto.

Mitigation Measure TRA-CUM-9: A new traffic signal shall be installed at this intersection. Along with a new traffic signal, appropriate pedestrian and bicycle accommodation should be provided. This includes pedestrian countdown timers, Americans with Disabilities Act (ADA) compliant curbs, and bicycle detection loops. With this improvement, the intersection would operate at LOS B with 18.6 seconds of delay during the AM peak hour and LOS C with 27.6 seconds of delay during the PM peak hour under cumulative plus project conditions. To facilitate this, the City must implement **Specific Plan Policy TRA-2.5**, which requires a "nexus study" be undertaken and a traffic impact fee developed that ensures that developers pay their "fair share" of necessary traffic improvements in the Specific Plan Area.

Significance after Mitigation: With this improvement and implementation of **Specific Plan Policy TRA-2.5**, the intersection would operate at an acceptable level and the impact would be ***less than significant***.

x. Pulgas Avenue and Bay Road

Impact TRA-CUM-10 (Pulgas Avenue and Bay Road): The intersection is expected to operate at an acceptable level (LOS B) during the AM and PM

peak hours under cumulative no project conditions. The addition of project-generated traffic is expected to cause the stop-controlled movements on Pulgas Avenue to degrade to LOS F with over 100 seconds of delay during the AM and PM peak hours, and the intersection traffic volumes are expected to satisfy the Peak-Hour Volume Warrant. This constitutes a ***significant adverse impact*** according to the thresholds established by the City of East Palo Alto.

Mitigation Measure TRA-CUM-10: A new traffic signal shall be installed at this intersection. Along with a new traffic signal, appropriate pedestrian and bicycle accommodation should be provided. This includes pedestrian countdown timers, Americans with Disabilities Act (ADA) compliant curbs, and bicycle detection loops. With this improvement, the intersection would operate at LOS C with 23.2 seconds of delay during the AM peak hour and LOS D with 48.2 seconds of delay during the PM peak hour under cumulative plus project conditions. To facilitate this, the City must implement **Specific Plan Policy TRA-2.5**, which requires a "nexus study" be undertaken and a traffic impact fee developed that ensures that developers pay their "fair share" of necessary traffic improvements in the Specific Plan Area.

Significance after Mitigation: With this improvement and implementation of **Specific Plan Policy TRA-2.5**, the intersection would operate at an acceptable level and the impact would be ***less than significant***.

xi. Pulgas Avenue and Bayshore Road

Impact TRA-CUM-11 (Pulgas Avenue and Bayshore Road): This intersection is expected to operate at an acceptable level (LOS D) during the PM peak hour under cumulative no project conditions. The addition of project-generated traffic is expected to cause the intersection to degrade to LOS E with 74.5 seconds of delay during the PM peak hour. This constitutes a ***significant adverse impact*** according to the thresholds established by the City of East Palo Alto.

Mitigation Measure TRA-CUM-11: Mitigation of the Specific Plan's impact at this intersection under cumulative conditions is considered to be infeasible at it would require acquisition of additional right-of-way and demolition of existing structures on abutting parcels in order to widen the roadway.

The possible implementation of TDM measures may cause a reduction in the vehicle trips generated by the proposed project. While the precise magnitude of trip reduction that may be achieved through TDM measures is uncertain, it is expected to be below the 50 percent reduction in trips that would be needed to fully mitigate the project impact under cumulative conditions.

Significance after Mitigation: As there are no feasible mitigation measures, the impact would remain ***significant and unavoidable***.

xii. Embarcadero Road and Bayshore Road

Impact TRA-CUM-12 (Embarcadero Road and Bayshore Road): This intersection is expected to operate at an unacceptable level (LOS E) during the AM peak hour under cumulative no project conditions. During the AM peak hour, the addition of project-generated traffic is expected to cause the intersection critical-movement delay to increase by 21.4 seconds and the V/C ratio to increase by 0.056. The intersection would degrade to LOS F with an average delay of 97.4 seconds. During the PM peak hour, the intersection is expected to operate at an acceptable level (LOS D) under cumulative no project conditions. The addition of project-generated traffic is expected to cause the intersection to degrade to LOS E with 67.3 seconds of delay. This constitutes a ***significant adverse impact*** according to the thresholds established by the City of Palo Alto.

Mitigation Measure TRA-CUM-12: There are no feasible improvements that would fully mitigate the project impact under cumulative conditions at this intersection. This intersection is expected to operate at an acceptable LOS D under the cumulative no project PM peak-hour traffic vol-

umes; however the intersection average control delay (53.0 seconds) is very close to the LOS D/E threshold (55.1 seconds). Thus, an increase in average control delay of only 2.1 seconds would be considered a significant impact since the intersection would degrade to an unacceptable level. Buildout of the Specific Plan would increase the average control delay by 14.3 seconds during the PM peak hour. Therefore, trip reduction measures alone would not be sufficient to fully mitigate the significant impact at this intersection.

Significance after Mitigation: While implementation of TDM measures could somewhat reduce the magnitude of the impact, the impact would remain ***significant and unavoidable.***

xiii. University Avenue and Loop Road (new intersection)

Impact TRA-CUM-13 (University Avenue and Loop Road (new intersection): This intersection would be constructed as part of the Specific Plan. The projected traffic volumes and assumed lane geometry under cumulative plus project conditions is expected to result in LOS F with 98.6 seconds of delay during the PM peak hour. This constitutes a ***significant adverse impact*** according to the thresholds established by the City of East Palo Alto.

Mitigation Measure TRA-CUM-13: There are no feasible improvements that would achieve an acceptable level of service under cumulative plus project conditions at this intersection. The poor level of service is primarily due to the heavy traffic volumes forecast on University Avenue in the year 2035. A major roadway widening project to add through lanes on University Avenue would be necessary to achieve an acceptable level of service at this intersection under cumulative plus project conditions. The Plan includes the requirement for TDM programs for new development. An effective TDM program would reduce the project impact at this intersection. However, to reduce the impact to a level of insignificance, the TDM program would need to achieve over a 50 percent reduction in trip generation. This level of reduction is unlikely to be achieved.

Significance after Mitigation: As there are no feasible improvements that would achieve an acceptable level of service under cumulative plus project conditions at this intersection, this impact would remain ***significant and unavoidable***.

c. Freeway Segment Level of Service Impacts Under Cumulative Plus Project Conditions

Impact TRA-CUM-14 (Freeway): The project trips on study area freeways are expected to be the same under the cumulative plus project scenario as under the existing plus project scenario. Thus, as previously concluded, the Specific Plan is expected to result in ***significant adverse impacts*** to segments of Highway 101 and State Route 84 in the vicinity of the project.

Mitigation Measure TRA-CUM-14: It is infeasible for the City of East Palo Alto to undertake an extensive freeway widening project as it is outside City of East Palo Alto jurisdiction.

Impact after Mitigation: Project impacts on freeway segments under the cumulative scenario would remain ***significant and unavoidable.***

d. Cumulative Plus Project Conditions without Loop Road

The previous analysis of traffic conditions with the proposed project assumed the completion of the proposed new Loop Road. For comparison, an analysis of cumulative plus project conditions also was conducted without the Loop Road. Table 4.14-12 presents the results of the level of service analysis for cumulative plus project conditions without the Loop Road. The table includes only those study intersections that would be affected by the Loop Road. All other study intersections would operate at the same level of service with or without the Loop Road.

Compared to the cumulative plus project scenario with the Loop Road, the traffic volumes on segments of University Avenue and Bay Road would be higher without the Loop Road resulting in an increase in average delay at the following study intersections:

TABLE 4.14-12 *CUMULATIVE INTERSECTION LEVEL OF SERVICE (WITHOUT LOOP ROAD)*

					Cumulative No Project			Cumulative + Project Without Loop Road					Mitigated Cumulative + Project Without Loop Road	
Int. No.	Intersection Name	Jurisdiction	Existing Control	Peak Hour	Avg. Delay[a]	Worst Delay[b]	LOS	Avg. Delay[a]	Worst Delay[b]	LOS	Incr. in Crit. Delay	Incr. in Crit. V/C	Avg. Delay[a]	LOS
4	Demeter Street & Bay Road	EPA	2-Way Stop	AM	0.8	9.8	A	**26.2**	OVFL	F	OVFL	**1.412**	16.9	B
				PM	1.1	10.2	B	**175.3**	OVFL	F	OVFL	**1.305**	38.7	D
7	Clarke Avenue & Bay Road	EPA	All-Way Stop	AM	11.0	–	B	**244.3**	–	F	**233.3**	**1.423**	33.9	C
				PM	11.0	–	B	**202.5**	–	F	**191.5**	**1.324**	25.7	C
13	University Avenue & Loop Road (new)	EPA	Future Signal	AM	N/A	NA	N/A	N/A	–	N/A	N/A	N/A	N/A	N/A
				PM	N/A	NA	N/A	N/A	–	N/A	N/A	N/A	N/A	N/A
17	University Avenue & Purdue Avenue	EPA	2-Way Stop	AM	**51.6**	**OVFL**	**F**	**79.6**	**OVFL**	**F**	**OVFL**	**2.589**	9.5	A
				PM	**OVFL**	**OVFL**	**F**	**OVFL**	**OVFL**	**F**	**OVFL**	**OVFL**	45.6	D
21	University Avenue & Bay Road	EPA	Signal	AM	**128.3**	–	**F**	**304.9**	–	**F**	**196.7**	**0.429**	**130.5**	**F**
				PM	**200.1**	–	**F**	**389.8**	–	**F**	**236.6**	**0.525**	**272.3**	**F**

Notes: Only those intersections affected by the Loop Road are shown. The level of service at all other study intersections is the same with or without the Loop Road.
Asterisk (*) denotes CMP intersection
Bold = denotes an unacceptable level of service.
OVFL = denotes delay is beyond the limits of the equation.
Shading = denotes a significant adverse impact.

[a] Whole intersection weighted average control delay, including uncontrolled movements at unsignalized intersections, expressed in seconds per vehicle.

[b] The worst case delay is the average delay on the worst stop-controlled approach, expressed in seconds per vehicle.

Source: Hexagon, 2011.

- University Avenue and Purdue Avenue
- University Avenue and Bay Road
- Clarke Avenue and Bay Road

At the intersection of Demeter Street and Bay Road, some turn movements would experience an increase in traffic volume while other movements would see a decrease in traffic volume without the Loop Road. Compared to the cumulative plus project scenario with the Loop Road, the intersection would operate with lower delays during the AM peak hour and higher delays during the PM peak hour.

Although the traffic volumes and delays at certain intersections would differ depending on whether or not the Loop Road is constructed, ***significant impacts*** would occur at the same intersections. Furthermore, the same improvements are recommended to mitigate intersection impacts.

It should be noted however, that although is it not possible to fully mitigate the impact at the intersection of University Avenue and Bay Road under either cumulative scenario, the recommended improvements would result in significantly more delay without the Loop Road (130.5 and 272.3 seconds in the AM and PM, respectively) than with the Loop Road (124.5 and 217.7 seconds in the AM and PM, respectively). Thus, by providing an alternative route and diverting traffic away from a congested intersection, constructing the Loop Road would partially mitigate the significant impact at the University/Bay intersection. TDM measures implemented by new development within the Specific Plan area may further reduce the cumulative impact at this intersection. However, to reduce the impact to a level of insignificance without the loop road, the TDM program would need to achieve over a 50 percent reduction in trip generation. This level of reduction is unlikely to be achieved.

4.15 UTILITIES AND SERVICE SYSTEMS

This chapter describes the existing wastewater, water supply, stormwater, and solid waste services the Ravenswood/4 Corners Transit-Oriented Development Specific Plan area and evaluates the potential impacts of the Plan on wastewater, water supply, stormwater, and solid waste services. A summary of the relevant regulatory setting and existing conditions is followed by a discussion of Plan-specific and cumulative impacts.

A. Wastewater

1. Regulatory Framework

This section describes the regulatory setting as it relates to wastewater in the Ravenswood/4 Corners Transit-Oriented Development Specific Plan area.

a. Biosolids Disposal Requirements

The Code of Federal Regulations, Title 40, Part 503 regulates the treatment, reuse and disposal of solid residues from wastewater treatment, known as biosolids. After treatment, these can be made into fertilizer, incinerated or buried in a Dedicated Land Disposal (DLD) site. Some of the biosolids produced in East Palo Alto are sent to a DLD.

b. California Regional Water Quality Control Board

In California, all wastewater treatment and disposal systems fall under the overall regulatory authority of the California State Water Resources Control Board (SWRCB) and the nine Regional Water Quality Control Boards (RWQCBs). Each are charged with the responsibility of protecting beneficial uses of State waters (ground and surface) from a variety of waste discharges, including wastewater from individual and municipal systems.

The RWQCBs regulatory role involves the formation and implementation of basic policies for water protection. These are reflected in the RWQCBs Basin Plan in the form of guidelines, criteria and/or prohibitions related to the siting, design, construction, and maintenance of on-site sewage disposal systems. The SWRCB has historically provided overall policy direction, organizational and technical assistance, and a communications link to the State legislature.

Information on the role of the RWQCBs and permits for wastewater discharge is contained in Section 4.9, Hydrology and Water Quality.

2. Existing Conditions

There is a topographic divide in the natural drainage system along a line running approximately east-west at the southern margin of the 391 Demeter Street property.[1] South of this topographic divide, gravity-driven flows in the sanitary sewer and storm water system are southwards. North of this divide, gravity-driven flows are northwards. Because of this divide, the Plan Area is served by two different Sanitary Districts. Wastewater conveyance and treatment services to the northern half of the Plan Area are provided by the West Bay Sanitary District (WBSD). The East Palo Alto Sanitary District (EPASD) serves the southern half of the Plan Area, which is where most of the development activity would occur.

a. East Palo Alto Sanitary District

The EPASD, established in 1939, serves the majority of East Palo Alto and a portion of Menlo Park. In the east of the Plan Area, it serves the industrial areas south of 391 Demeter Street, and in the west, it serves the residential areas south of Michigan Avenue.

i. Existing Wastewater Flows

The average dry weather flow for the EPASD is 1.8 million gallons per day (MGD). Currently, the EPASD is operating below its system dry weather flow capacity of 3.06 MGD. The average wet weather flow for the EPASD is 5 MGD.[2] Wastewater is treated at the Palo Alto Regional Water Quality Control Plant (PARWQCP), which is described below.

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[1] The 391 Demeter Street property has a triangular shaped portion which would be designated as Industrial/Office Flex under the Plan and an area with wetlands that would be designated as Resource Management. The triangular shaped portion has also been referred to as the "Stanford Fill" area.

[2] Laureta, Rich. President, Freyer & Laureta, Inc. Personal e-mail communication with Carey Stone, DC&E, October 29, 2009.

ii. Projected Wastewater Flows

The EPASD population was expected to grow by 27 to 49 percent within the district's area in East Palo Alto and by 15 percent within the district's area in Menlo Park by 2030.[3,4] The EPASD estimated that by 2025 the average dry weather flow would be 2.9 MGD, and that average peak wet weather flows would be 8 MGD.[5]

iii. Collection System

There are approximately 3,300 single-family residential connections, 23,500 multi-family connections, and 300 commercial, industrial, and institutional connections within the district.[6] EPASD infrastructure includes approximately 30 miles of sewer pipeline and 560 manholes.[7]

b. Palo Alto Regional Water Quality Control Plant

Sewage collected by the EPASD is treated at the PARWQCP. The PARWQCP treats wastewater from the EPASD, Los Altos, Los Altos Hills, Mountain View, Palo Alto, and Stanford University. Discharge from the PARWQCP is required to meet stringent standards to protect the health of the South Bay, where the water is discharged.[8] The PARWQCP operates under the conditions of a RWQCB discharge permit that regulates the dis-

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[3] San Mateo LAFCO, 2009, *Municipal Service Review and Sphere of Influence Update for the East Palo Alto Sanitary District*, page 5.

[4] These population growth estimates came from the 2006 Urban Water Management Plan. However growth as estimated in the 2011 Water Supply Assessment (which included growth under the Specific Plan) was 47 percent for East Palo Alto. This is within the range given.

[5] Laureta, Rich. President, Freyer & Laureta, Inc. Personal e-mail communication with Carey Stone, DC&E, October 29, 2009.

[6] San Mateo LAFCO, 2009, *Municipal Service Review and Sphere of Influence Update for the East Palo Alto Sanitary District*, page 2.

[7] San Mateo LAFCO, 2009, *Municipal Service Review and Sphere of Influence Update for the East Palo Alto Sanitary District*, page 4.

[8] City of Palo Alto, 2007. *Utilities Newsletter*, pages 33 and 34.

charge limits. The discharge permit (NPDES Permit No. CA0037834), adopted on April 8, 2009, is in effect until May 31, 2014.[9]

The City of Palo Alto owns, maintains and upgrades the PARWQCP, based on the RWQCB permit, and the contributing jurisdictions purchase capacity rights. The City of Palo Alto bills each contributing agency for its share of facility construction, maintenance and upgrade costs. Costs to each contributing agency are allocated proportionately based on each agency's purchased capacity. When an agency's flow reaches 80 percent of its capacity rights, the agency is required to perform an engineering study to redefine future needs.[10]

The City of Palo Alto owns meters that measure and record flows into the plant. The meters at the plant track average flows from each agency for the purposes of determining the proportionate cost of maintaining the plant. As of September 2011, all of the contributing agencies were operating under their capacity right.[11]

i. Wastewater Treatment Capacity

The PARWQCP has a dry weather capacity of 39 MGD and a wet weather capacity of 80 MGD. Of this total, the EPASD is allocated a total treatment capacity of 3.06 MGD for dry weather flow. The PARWQCP does not limit the treatment of wet weather flow for its contributing agencies. Peak wet weather flows into the plant typically do not exceed 70 MGD. Peak dry weather flows are typically 35 MGD.[12]

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[9] City of Palo Alto website, NPDES Permit For Discharge to San Francisco Bay, http://www.cityofpaloalto.org/depts/pwd/rwqcp.asp, accessed on December 6, 2011.

[10] Sanitary Sewer Management Plan, http://cc.mcanet.com/cwea/webuploads/37_City%20of%20Los%20Altos%20SSMP.pdf, accessed on January 6, 2008.

[11] Allen, Jamie. Acting Plant Manager, Regional Water Quality Control Plant. Personal communication with Nicola Swinburne, DC&E, September 12, 2011.

[12] Allen, Jamie. Acting Plant Manager, Regional Water Quality Control Plant. Personal communication with Nicola Swinburne, DC&E, September 12, 2011.

The City of East Palo Alto Redevelopment Agency estimates that it will need an additional 1.4 MGD of wastewater capacity within the jurisdiction of the EPASD, which is approximately a 33 percent increase to the District's allotted 2.9 MGD treatment capacity. To acquire additional capacity, East Palo Alto would have to purchase treatment rights from the City of Los Altos, the City of Mountain View, and/or the City of Palo Alto. [13]

ii. Planned Facilities

The PARWQCP is currently in good condition and will be subject to regular maintenance. The plant converted to ultraviolet disinfection, from chlorine disinfection, in 2010. In general, the PARWQCP is considered to have sufficient capacity to serve the community for 30 years without the need for expansion. There will be an ongoing need to repair and/or replace aging facilities.[14]

c. West Bay Sanitary District

The West Bay Sanitary District (WBSD), established in 1902, serves the City of Menlo Park and parts of Atherton, East Palo Alto, Portola Valley, Woodside and unincorporated areas in San Mateo and Santa Clara Counties. In the east of the Plan Area, it serves 391 Demeter Street, and in the west, it serves residential neighborhoods from Michigan Avenue northwards.

i. Existing Wastewater Flows

Average dry weather flow for the WBSD is 4.5 MGD. Currently, the WBSD is operating below its system dry weather flow capacity of 7.9 MGD. Average wet weather flow for the WBSD is 14.4 MGD, which is also the system capacity for wet weather flow.[15] Wastewater is treated at the South Bayside System Authority (SBSA) treatment plant, which is discussed below.

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[13] San Mateo LAFCO, 2009, *Municipal Service Review and Sphere of Influence Update for the East Palo Alto Sanitary District*, pages 4 and 5.

[14] Allen, Jamie. Acting Plant Manager, Regional Water Quality Control Plant. Personal communication with Nicola Swinburne, DC&E, September 12, 2011.

[15] Laureta, Rich. President, Freyer & Laureta, Inc. Personal e-mail communication with Carey Stone, DC&E, November 9, 2009.

ii. Projected Wastewater Flows

The WBSD population was expected to grow by 16 percent, or approximately 8,460 people, by 2035.[16,17] The WBSD estimates that by 2030 the average dry weather flow will be 5.5 MGD, and that average peak wet weather flows will be 16.4 MGD.[18]

iii. Collection System

There are approximately 18,380 single-family residential connections and 635 commercial connections within the district.[19] System infrastructure consists of approximately 207 miles of sewer mains and 12 pump stations.[20] Wastewater from the WBSD is delivered to a pump station and is then pumped to the SBSA treatment plant located in Redwood Shores.

d. South Bayside System Authority Regional Treatment Plant

Wastewater collected within the West Bay Sanitary District is treated by the SBSA, a Joint Powers Authority managed by one elected official each from Belmont, Redwood City, San Carlos, and the West Bay Sanitary District. The SBSA serves about 200,000 people and businesses in an area that covers about 45 square miles.[21] The SBSA operates under the conditions of a RWQCB discharge permit that regulates the discharge limits. The discharge

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[16] San Mateo LAFCO, 2009, *Municipal Service Review and Sphere of Influence Update for the West Bay Sanitary District*, page 6.

[17] These figures are based on growth as projected by ABAG in 2006 which was estimated as 49 percent by 2035 for the City of East Palo Alto. This is comparable to the growth figure of 47 percent estimated in the 2011 Water Supply Assessment (which included growth under the Specific Plan) for East Palo Alto.

[18] Laureta, Rich. President, Freyer & Laureta, Inc. Personal e-mail communication with Carey Stone, DC&E, November 9, 2009.

[19] San Mateo LAFCO, 2009, *Municipal Service Review and Sphere of Influence Update for the West Bay Sanitary District*, page 3.

[20] San Mateo LAFCO, 2009, *Municipal Service Review and Sphere of Influence Update for the West Bay Sanitary District*, page 5.

[21] South Bayside System Authority, http://www.sbsa.org/SBSA/html/WastewaterTreatment, htm, accessed on October 29, 2009.

permit (NPDES Permit No. CA0038369), adopted on January 23, 2007, is in effect until March 31, 2012.[22]

i. Wastewater Treatment Capacity

The capacity of the SBSA plant is 29 MGD. Of this total, the WBSD is allocated a total treatment capacity of 6.6 MGD for dry weather flow and 14.4 MGD of peak wet weather flow at the SBSA plant.[23] The average dry weather flow in 2009 was 4.5 MGD or 68 percent of its capacity rights. When the capacity is temporarily exceeded, as might occur during wet weather, wastewater is stored in WBSD's Flow Stabilization Facility which can hold 9.2 million gallons. As discussed above, WBSD is projected to have an average dry weather flow of 5.5 MGD by 2030. Therefore, it is likely that the SBSA plant will have sufficient capacity to treat wastewater flows from the WBSD in the future.

ii. Planned Facilities

The SBSA plant is now over 25 years old. To maintain capacity, the SBSA has launched a $339 million, 10-year Capital Improvement Program to upgrade its facilities, including improving the sewer main. In addition, the Capital Improvement Program will assure compliance with new environmental standards.[24]

iii. Recycled Water

In 2000, the SBSA produced a small quantity of recycled water for landscaped irrigation at several sites in Redwood Shores. There is currently no supply of recycled water for the City of East Palo Alto. However, Redwood City is close to completing a recycled water distribution facility that is designed for

[22] California Regional Water Quality Control Board, ORDER NO. R2-2007-0006, http://www.waterboards.ca.gov/sanfranciscobay/board_decisions/adopted_orders/2007/R2-2007-0006.pdf , accessed on December 6, 2011.

[23] San Mateo LAFCO, 2009, *Municipal Service Review and Sphere of Influence Update for the West Bay Sanitary District*, page 5.

[24] South Bayside System Authority, 2008, "Press Advisory: SBSA Announces $339 Million, 10-Year Capital Improvement Program."

the distribution of recycled water to Redwood City and neighboring agencies. East Palo Alto would have to store and distribute any recycled water that it wishes to receive from Redwood City.[25]

3. Standards of Significance

Wastewater impacts associated with the Plan would be considered significant if the Plan would:

a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board.

b. Require or result in the construction of new wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

c. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments.

4. Impact Discussion

This section describes the environmental impacts to wastewater services that would result from implementation of the Ravenswood/4 Corners TOD Specific Plan.

A new system of sanitary sewer main pipes would be installed as part of the Specific Plan along Demeter Street, Pulgas Avenue (south of the new connector road), Tara Street (to the end of the existing street), Bay Road and Weeks Street. These pipes connect to an existing pipe in the levee south of Weeks Street which runs to the PARWQCP south of the Palo Alto Airport. The existing 18-inch pipe in the levee at Weeks Street would be replaced with a 21-inch pipe. This may not be necessary for several decades until sufficient de-

[25] Ezell, Justin. Public Works Superintendent, City of Redwood City. Personal email communication with Carey Stone, DC&E, April 16, 2009.

velopment has occurred to warrant it. The timing of this replacement would be determined by the EPASD.

The 391 Demeter Street property and the northernmost part of the industrial area are currently not served by a sanitary sewer. This portion of the Plan Area is served by the WBSD. No upgrades were included in the City of East Palo Alto's 2008 Draft Engineering Plan (DEPLAN), and therefore, no upgrades were included in the Specific Plan, for 391 Demeter Street.

a. Exceed Wastewater Treatment Requirements ***(LTS)***

With construction of additional pipes, the sanitary sewer system of the Plan Area would be upgraded so that it could convey additional wastewater to the PARWQCP in Palo Alto (for the southern part of the Plan Area in the EPASD). The PARWQCP discharges to surface water after meeting all current regulatory criteria for wastewater discharge and there would be a ***less-than-significant*** impact to exceeding the wastewater treatment requirements from this part of the Plan Area.

There are no upgrades planned to the sanitary sewer system that feeds the SBSA treatment plant in Redwood Shores (for the northern part of the Plan Area in the WBSD). The 391 Demeter Street property is the only part of the Area that would be developed under the Plan, in the WBSD. Development under the Specific Plan includes **Specific Plan Policy UTIL-1.1**, which ensures that development of this area includes sanitary and stormwater infrastructure for all parts of the Plan Area to prevent discharge of untreated wastewater to the San Francisco Bay. With adherence to this policy, there would be a ***less-than-significant*** impact.

b. Require or Result in the Construction of New Wastewater Treatment Facilities or Expansion of Existing Facilities ***(LTS)***

The PARWCP is in good condition and, according to the plant manager, is considered to have sufficient capacity to serve the community for 30 years without the need for expansion.[26]

The SBSA has begun a Capital Improvement Program to upgrade its facilities including improving the sewer main. This will ensure that it can comply with current RWQCB discharge limits. The SBSA is seeking loans to cover the expenditure and these will be paid back through increased wastewater fees from existing and new development.[27]

Environmental analysis of the trenching required for extension and upgrades of the piping system serving the Plan Area is addressed in this EIR. With these programs in place to ensure adequate treatment capacity, there would be a ***less-than-significant*** impact from construction of new wastewater treatment facilities.

c. Result in a Determination by the Wastewater Treatment Provider that it has Adequate Capacity to Serve the Project's Projected Demand ***(LTS)***

An additional capacity of 1.4 MGD would be needed from the EPASD to treat wastewater above the amount it has agreed to treat during dry weather; The EPASD treatment plant in Palo Alto (PARWQCP) does not limit the treatment of wet weather flows. The increase in dry weather flows represents a 33 percent increase in the District's allotted 2.9 MGD treatment capacity. To acquire this additional capacity, East Palo Alto would have to purchase treatment rights from either the City of Los Altos, Mountain View, or Palo Alto. For development that would cause wastewater to be generated in excess of the East Palo Alto current treatment capacity with the EPASD, **Specific**

[26] Allen, Jamie. Acting Plant Manager, Regional Water Quality Control Plant. Personal communication with Nicola Swinburne, The Planning Center | DC&E, September 12, 2011.

[27] South Bayside System Authority, 2008, "Press Advisory: SBSA Announces $339 Million, 10-Year Capital Improvement Program."

Plan Policy UTIL-1.2 requires this additional treatment capacity to be in place before development proceeds.

With **Specific Plan Policy UTIL-1.2** in place, there would be a ***less-than-significant*** impact from resulting in a determination by the EPASD that it has insufficient treatment capacity as a consequence of development under the Specific Plan.

The WBSD has estimated that wastewater flows in dry weather into its treatment plant would increase from 4.5 MGD to 5.5 MGD by 2035 when development under the Specific Plan is included in addition to other foreseeable development in its service area. WBSD is allocated a total treatment capacity of 6.6 MGD for dry weather at the SBSA plant in Redwood Shores. WBSD has therefore adequate capacity to treat dry weather flows from projected growth under the Specific Plan.

Average wet weather flow for the WBSD is 14.4 MGD and this is the plant's current capacity. When the capacity is temporarily exceeded, as in wet weather, it is stored at WBSD's Flow Stabilization Facility which can hold 9.2 million gallons. **Specific Plan Policy UTIL-1.3** requires the City to ensure that peak wet weather flows do not increase to the degree that the capacity of the Flow Stabilization Facility is exceeded. This would be accomplished through increased maintenance of the sanitary sewer system so that there are fewer points of entry for rainwater.

With **Specific Plan Policy UTIL-1.3** in place, there would be a ***less-than-significant*** impact from resulting in a determination by the WBSD that it has insufficient treatment capacity as a consequence of development under the Specific Plan.

5. Cumulative Impacts

As described above, long-term planning by the WBSD and EPASD have taken into account development under the Specific Plan, together with anticipated development from neighboring jurisdictions. There would therefore

be ***no cumulative impacts*** to wastewater from implementation of the Specific Plan.

B. Water

1. Regulatory Framework

This section describes the regulatory setting as it relates to water supply in the Ravenswood/4 Corners Transit Oriented Development Specific Plan area.

A number of federal and State agencies manage and regulate water resources for the City of East Palo Alto with the intention of safeguarding these resources for domestic and agricultural use, environmental conservation, and power generation. As discussed in detail below, these regulations mandate local assessment of, and planning for, a long-term water supply.

a. State and Federal Water Quality Regulations

i. California State Water Resources Control Board

The SWRCB and the nine RWQCBs have the authority in California to protect and enhance water quality.

The RWQCB Region 2 office in Oakland regulates water quality for all waters that flow into the San Francisco Bay, which includes all rivers, streams, and tributaries within the nine-county San Francisco Bay region. The RWQCB establishes water quality objectives, administers the National Pollutant Discharge Elimination System (NPDES) permit program for stormwater and construction site runoff, and regulates infill of jurisdictional wetlands or waters of the United States under Section 404 of the Clean Water Act.

ii. Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act of 1969 (Porter-Cologne Act or Water Code Section 13000 et seq.) requires the State to adopt water quality policies, plans and objectives to protect the State's waters for the use and enjoyment of the people. The Act states that the SWRCB and RWQCBs must adopt and periodically update water quality control plans, as required by the Clean Water Act and the Porter-Cologne Act, to establish water qual-

ity objectives and implementation programs for each of the nine regions in California. East Palo Alto falls under the Water Quality Control Plan (Basin Plan) for the San Francisco Bay Basin.[28] The Act also requires waste dischargers to notify the RWQCBs of their activities via Reports of Waste Discharge. It authorizes the SWRCB and RWQCBs to issue and enforce waste discharge requirements, NPDES permits, Section 401 water quality certifications, and other approvals.[29]

iii. Water Quality Control Plan for the San Francisco Bay Basin

The RWQCB Region 2 office regulates water quality in the San Francisco Bay Basin in accordance with the Basin Plan.[30] The Basin Plan presents the beneficial uses that the Regional Board has identified for surface water, groundwater, marshes, and mudflats, as well as the water-quality objectives and criteria that must be met to protect these uses. A number of existing beneficial uses have been designated for San Francisquito Creek, part of which runs through East Palo Alto, and are considered reasonably applicable to their tributaries. The existing beneficial uses for San Francisquito Creek include cold and warm freshwater habitat, fish migration, and fish spawning.

iv. Safe Drinking Water Act

The Safe Drinking Water Act (SDWA), passed in 1974, is the initial federal legislation passed to ensure the quality of drinking water. The law was amended in 1986 and 1996, and requires many actions to protect drinking water and its sources, such as rivers, lakes, reservoirs, springs, and ground water wells.[31] Under SDWA, the US Environmental Protection Agency (US EPA) sets standards for drinking water quality and oversees the water suppli-

[28] California Regional Water Quality Control Board (RWQCB), 2007, *SF Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)*, Figure 1-1.

[29] State Water Resources Control Board, www.swrcb.ca.gov/, accessed on October 16, 2009.

[30] California Regional Water Quality Control Board (RWQCB), 2007, *SF Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)*.

[31] United States Environmental Protection Agency, http://water.epa.gov/lawsregs/rulesregs/sdwa/, accessed on November 16, 2011.

ers that implement those standards. Regulatory standards established by the SDWA include maximum allowable levels of chemicals and other substances in drinking water, protocols for monitoring drinking water quality and methods for treating drinking water.

In 1976, California enacted its own Safe Drinking Water Act (Health and Safety Code Section 116270 et seq.), granting the California Department of Health Services (CDHS) primary enforcement responsibility. In 1989, the California Legislature passed Assembly Bill 21 (Sher, Chapter 823, Statutes of 1989), which amended California's Safe Drinking Water Act.[32] The law requires the California Department of Public Health (CDPH) to regulate drinking water by:

- Setting and enforcing federal and State drinking water standards;
- Administering water quality testing programs; and
- Administering permits for public water system operations.

The standards established by CDPH are found in the California Code of Regulations, Title 22.

v. Senate Bill 610, Senate Bill 221, and Assembly Bill 901

Senate Bills (SB) 610 and 221 and Assembly Bill (AB) 901, Water Supply Planning, amend the Public Resources and Water Codes as they pertain to consultation with water supply agencies, urban water management plans, and State funding restrictions for agencies who do not prepare urban management plans and water supply assessments. SB 610 requires water supply assessments (WSAs) for "projects" (as defined by Water Code § 10912 and of which the Specific Plan is one such "project"), that are subject to the California Environmental Quality Act (CEQA). SB 221 establishes consultation and analysis

[32] California Senate Office of Research, http://www.sor.govoffice3.com/vertical/Sites/%7B3BDD1595-792B-4D20-8D44-626EF05648C7%7D/uploads/%7BEBDEB6F2-DBD7-4728-B2D3-C627BE99185A%7D.PDF, accessed on November 16, 2011.

requirements related to water supply planning for residential subdivisions including more than 500 dwelling units.[33]

The basic requirement of WSAs is that they include a discussion of whether projected water supplies available during normal, single dry and multiple dry water years during a 20-year projection will meet the projected demand of existing and planned future uses, plus the demand of the proposed project. If water demand is accounted for in an adopted Urban Water Management Plan (UWMP), the WSA may incorporate UWMP information. If the UWMP does not account for the project's projected demand, the WSA must be based on the available evidentiary record. If a project's water supply includes groundwater, the WSA must include a review of UWMP information, a description of the relevant groundwater basin(s), a detailed description and analysis of the amount and location of groundwater pumped by the public water system, a detailed description and analysis of the amount and location of groundwater projected to be pumped by the public water system and an analysis of whether groundwater is sufficient to supply projected water demand.

vi. Urban Water Management Planning Act

Through the Urban Water Management Act of 1983 (California Water Code Section 10610 *et seq.*), the California Water Code requires all urban water suppliers within California to prepare and adopt an UWMP and update it every five years. The Act is intended to support conservation and efficient use of urban water supplies at the local level. The Act requires that total projected water use be compared to water supply sources over the next 20 years in five-year increments; that planning occur for single and multiple dry water years; and that plans include a water recycling analysis that incorporates a

[33] SB 610 (2201), SB 221 (2001), AB 901 (2001) http://www.sen.ca.gov/, accessed on November 16, 2009.

description of the wastewater collection and treatment system within the agency's service area, along with current and potential recycled water uses.[34]

vii. Groundwater Management Act

The Groundwater Management Act (California Water Code Section 10753 *et seq.*, originally AB 3030) provides guidance for applicable local agencies to develop a voluntary Groundwater Management Plan (GMP) in State-designated groundwater basins. GMPs can allow agencies to raise revenue to pay for measures influencing the management of the basin, including extraction, recharge, conveyance, facility maintenance, and water quality.[35]

viii. Regulations for Water Use Efficiency

The California Constitution prohibits the waste, unreasonable use, unreasonable method of use, and unreasonable method of diversion of water. It also declares that the conservation and use of water "shall be exercised with a view to the reasonable and beneficial use thereof in the public interest and for the public welfare." Water Code Section 275 directs the California Department of Water Resources and SWRCB to "take all appropriate proceedings or actions before executive, legislative, or judicial agencies to prevent waste or unreasonable use of water."[36]

ix. Area of Origin Protections

Area of origin protections were added to the California Water Code to protect local water supplies in Northern California from being depleted by water projects. County of origin statutes reserve water supplies for counties from which the water originates when, in the judgment of the SWRCB, transporting water out of a county would deprive that county of water necessary for its present and future development.

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[34] Department of Water Resources, Urban Water Management Planning Program, http://www.owue.water.ca.gov/urbanplan/index.cfm, accessed October 16, 2009.

[35] California Department of Water Resources, http://www.water.ca.gov/groundwater/gwmanagement/ab_3030.cfm, accessed on October 16, 2009.

[36] California Law, http://www.leginfo.ca.gov, accessed November 16, 2009.

x. Statewide Bond Measures

In recent years, a number of statewide bond measures has been approved by California voters, establishing funding for a wide range of water-related programs and improvements aimed at protecting the State's critical water resources.

These measures include the Safe Drinking Water, Clean Water, Watershed Protection and Flood Protection Bond Act, passed in 2000. This bond authorized $1.97 billion for water-related projects throughout the State. The SWRCB was authorized to allocate $763.9 million of these funds to local projects, such as pollution control programs for coastal and inland waters, watershed protection programs and pesticide source and mitigation programs, mostly through competitive grants.[37]

Passed in March 2002, Proposition 40, the California Clean Water, Clean Air, Safe Neighborhood Parks, and Coastal Protection Act, authorizes over one billion dollars for a broad range of water conservation programs, including land acquisition. Later in 2002, an additional $3 billion in bonds was authorized by the voters as part of the Water Quality, Supply and Safe Drinking Water Projects bond measure. The bond funds are to be directed to a wide variety of water resource programs including the CALFED Bay-Delta Program, safe drinking water programs, and integrated regional water management programs, among others.[38]

In November 2006, voters approved Proposition 84, allowing the State to sell $5.4 billion in bonds for projects related to safe drinking water, water quality and supply, flood control, natural resource protection and park improvements.[39]

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[37]California State Water Resources Board, http://www.waterboards.ca.gov, accessed on November 16, 2009.

[38] California State Water Resources Board, http://www.waterboards.ca.gov, accessed on November 16, 2009.

[39] California State Water Resources Board, http://www.waterboards.ca.gov, accessed on November 16, 2009.

b. Local Regulations and Plans

Water and other public utilities in San Mateo County are under the jurisdiction of the San Mateo County Local Agency Formation Commission (LAFCO). San Mateo LAFCO develops and updates the sphere of influence (SOI) for local jurisdictions within the county, and therefore is involved in drawing service area boundaries. As part of the SOI determination report, called a Municipal Service Review (MSR), LAFCOs must also examine the adequacy of public services and capacity of public facilities within the SOI. San Mateo LAFCO produced a Draft East Palo Alto MSR on June 10, 2009.

i. Urban Water Management Plan

The 2010 UWMP prepared by the City of East Palo Alto describes water supply sources, historical and projected water use, and existing water supply and demand within the city boundary.[40] It fulfills the requirements of the California Urban Water Management Planning Act.

ii. Water Supply Assessment

A 2011 Water Supply Assessment (WSA) was performed for the Plan Area, as required under SB 610.[41] It presents similar conclusions to the 2010 Water System Management Plan. Water demand from the Plan Area was incorporated into the Water Supply Assessment using the proposed Specific Plan land uses. These uses were also incorporated into the 2010 UWMP.[42] The contents of the UWMP and WSA two planning documents are described below under Existing Conditions.

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[40] City of East Palo Alto, 2011. *2010 Urban Water Management Plan.* Prepared by Integrating Resource Management, Inc. Adopted June 21, 2011.

[41] Integrated Resource Management, Inc, 2011. *Water Supply Assessment. Ravenswood/4 Corners Transit Oriented Development Specific Plan.* For the City of East Palo Alto. Final Draft. August 30, 2011.

[42] Integrated Resource Management, Inc, 2011. *Water Supply Assessment. Ravenswood/4 Corners Transit Oriented Development Specific Plan.* For the City of East Palo Alto. Final Draft. August 30, 2011. Page 19.

iii. East Palo Alto Municipal Code

Chapter 13.24, Article VI of the East Palo Alto Municipal Code outlines the City's water conservation plan. The code identifies three phases of conservation pending a 20, 40, or 60 percent shortage of the City's water supply.

2. Existing Conditions

East Palo Alto's municipal water system is managed by American Water Enterprises under contract with the City's Department of Public Works. Additionally, the Palo Alto Park Mutual Water Company and the O'Connor Tract Co-Operative Water Company serve small areas that are outside the municipal water system, but within the city limits. Since the Plan Area is completely served by the municipal water system, only American Water Enterprises is discussed below.

a. Existing Water Supply

All water supplied to the City of East Palo Alto by American Water Enterprises comes from the San Francisco Public Utilities Commission (SFPUC) supply.[43] The main source of the SFPUC's water, approximately 85 percent, is from the upper Tuolemne River watershed in the Sierra Nevada, and is stored in three major reservoirs: Hetch Hetchy Reservoir, Lake Lloyd, and Lake Eleanor. It is delivered to the Bay Area via a system of aqueducts. The remaining 15 percent of the water supply comes from Bay Area reservoirs in the Alameda and Peninsula watersheds. Crystal Springs and San

[43] Approximately 10 percent of the City's water comes from the Palo Alto Park Mutual Water Company (PAPMWC) and the O'Connor Tract Co-Operative Water Company (OTCWC). PAPMWC obtains its water from groundwater wells located on its property, 0.6 miles south west of Bay Road and University Avenue: http://www.paloaltoparkmutualwatercompany.com/. OTCWC also obtains water from groundwater wells. It is located south of I-101 and close to San Francisquito Creek. The Urban Water Management Plan, 2010, page 11 includes a map of the service areas.

Andreas Reservoirs in San Mateo County capture the runoff for the City of East Palo Alto.[44]

The Hetch Hetchy Reservoir water is a relatively pure supply and requires only pH adjustment to control pipeline corrosion and disinfection to kill bacteria. Water from all other sources is treated at treatment plants. The Harry Tracy Water Treatment Plant (HTWTP), near San Bruno and Millbrae, treats water from the Peninsula System reservoirs. It has a peak capacity of 140 mgd and a sustainable capacity of 120 mgd. A new ultraviolet treatment facility is planned for the Hetch Hetchy System to further enhance water quality. Other upgrades for the HTWTP are also in progress and expected to be finished in June 2012. [45]

There is currently one groundwater supply well in East Palo Alto at Gloria Way and Bay Road, which is approximately 700 feet west of the southwestern corner of the Plan Area. [46] The well had the capacity to produce 350 gallons per minute. Installed in 1981, the well was used for potable water until it was taken out of service in 1989 due to odor complaints (although samples passed the California Department of Public Health State drinking water standards at the time). The water from this well has since only been used for non-potable purposes such as street cleaning, dust-control, and sewer-line flushing.

There is currently no storage within the City of East Palo Alto's managed water system. The City is reliant upon the SFPUC supply system for the necessary storage for equalization, fire flows, and emergency use.[47]

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[44] San Francisco Public Utilities Commission, 2005, *2005 Urban Water Management Plan for the City and County of San Francisco*, page 11.

[45] San Francisco Public Utilities Commission, 2005, *2005 Urban Water Management Plan for the City and County of San Francisco*, page 11.

[46] City of East Palo Alto, 2010. *Water System Master Plan.*

[47] City of East Palo Alto, 2010. *Water System Master Plan*, page 6.

b. Existing Water Demand

American Water Enterprises serves 4,183 accounts in the City of East Palo Alto, of which 3,923 are residential accounts. Between July 2009 and June 2010, residential, commercial, and municipal accounts used 1,906 AFY of water as shown in Table 4.15-1.

c. Estimate of Future Water Supply Needs

The City and Specific Plan's water use in 2011 and at buildout was described in both the 2010 UWMP and a separate 2011 WSA for the Plan Area.[48,49] These point to an existing shortfall and are therefore described in this section.

In 2010, the total water demand was 1,906 acre feet per year (AFY), or 1.7 MGD. The total water use was 2,033 AFY (1.81 MGD), which includes the approximately 8 percent of unaccounted water lost in the system due to leaks. The City has purchased more water from SFPUC than its guaranteed allocation in several years since 2002. This has been possible only because other users have not purchased their entire allocation.

As part of the adoption of its Water System Improvement Program in October 2008, SFPUC is limiting its sales of water to each customer until 2018. It has established an Interim Supply Allocation of 2,199 AFY (1.96 MGD) for East Palo Alto. In times of drought, this would be less.

The UWMP and WSA projected future water demand until 2035. Included in these figures was buildout under the Specific Plan. Table 4.15-2 shows water demand per sector for the whole of East Palo Alto at five year increments and

[48] City of East Palo Alto, 2011. *2010 Urban Water Management Plan.* Prepared by Integrating Resource Management, Inc. Adopted June 21, 2011.

[49] Integrated Resource Management, Inc, 2011. *Water Supply Assessment. Ravenswood/4 Corners Transit Oriented Development Specific Plan.* For the City of East Palo Alto. Final Draft. August 30, 2011. Note: This used essentially the same estimates for buildout as the Urban Water Management Plan

TABLE 4.15-1 ***EXISTING WATER DEMAND IN EAST PALO ALTO (JULY 2009 – JUNE 2010)***

	Number of Accounts	Amount of Water Sold (AFY)
Single-Family Residential	3,703	910
Multi-Family Residential	220	607
Commercial	100	202
Industrial	112	108
Municipal	47	62
Portable/Other	1	17
Total	**4,183**	**1,906**

Source: City of East Palo Alto, 2010 Urban Water Management Plan.

TABLE 4.15-2 ***WATER SUPPLY AND DEMAND FOR EAST PALO ALTO IN ACRE FEET PER YEAR***

	2015	2020	2025	2030	2035
Normal Water Year					
Supply totals	2,199	2,199	2,199	2,199	2,199
Demand totals	2,658	2,780	2,960	3,161	3,400
Surplus or (Shortfall)	(459)	(581)	(761)	(962)	(1,201)
Single or Multiple Dry Years*					
Supply totals	2,033	2,033	2,033	2,033	2,033
Demand totals	2,658	2,780	2,960	3,161	3,400
Surplus or (Shortfall)	(625)	(747)	(927)	(1,128)	(1,367)

* Figures are the same for a single dry year or for the first, second and third dry year under the multiple dry year scenario.
Source: City of East Palo Alto, 2011. *Urban Water Management Plan.*

total water use for a normal water year, single dry year, and for multiple dry years.

Water demand from the development under the Specific Plan was included in these calculations as per the totals in Table 4.15-3. For detailed information on the phasing that was assumed, the reader is referred to the UWMP.

Buildout of the Specific Plan would require 820 acre feet per year of water. Compared to the current water demand, this is an increase in 41 percent and represents a 60 percent of the total demand increase in 2035. The UWMP evaluated various options to increase the supply and proposed augmenting it by pumping and treating from the existing Gloria Bay well, installing new groundwater wells, and using recycled water. An increase in the supply by these or other methods would have to undergo separate CEQA review to ensure feasibility.

d. Water Quality

As of 2010, potable water delivered to the City of East Palo Alto by the SFPUC through the Hetch Hetchy Aqueduct met all federal and State standards for watershed protection, treatment, and operational standards.[50]

e. Existing Water Transmission and Distribution System

Water is distributed from SFPUC to East Palo Alto via three turnouts located at O'Brien Drive. These turnouts connect with the Hetch Hetchy Aqueduct, which runs through the northern portion of the city and through the Plan Area. Water flows under pressure from the turnouts and is distributed throughout the city. The distribution network consists of a mix of 12-, 10-, 8-, and 6-inch pipes and smaller cast iron and PVC pipes.[51] The 6-inch pipes do not meet the Menlo Fire Protection District requirement of a minimum

[50] San Francisco Public Utilities Commission, 2011, *2010 Urban Water Management Plan for the City and County of San Francisco*, page 31.

[51] Nathan, Gopi, Superintendent, American Water Enterprises. Personal communication with Sean Charpentier, City of East Palo Alto, November 24, 2009.

TABLE 4.15-3 ***SPECIFIC PLAN WATER DEMANDS***

Land Use	Acres	Acre Feet Per Acre	Water Demand in Acre Feet
Residential (single family)	0.75	9.33	7.00
Residential (mixed use)	20.12	16.02	322.28
Industrial	23.78	10.19	242.35
Commercial	26.78	7.99	214.19
Municipal (including parks)	31.2	1.11	34.49
Total	**102.63**	**7.99**	**820.31**

Source: Integrated Resource Management, Inc, 2011. *Water Supply Assessment. Ravenswood/4 Corners Transit Oriented Development Specific Plan.* For the City of East Palo Alto.

8-inch pipe diameter.[52] There is a groundwater well at Bay Road and Gloria Way, but it is not used due to poor water quality.[53] A groundwater well at Cooley Landing is not potable but would be used for irrigation in the redevelopment of Cooley Landing as a community park.[54]

3. Standards of Significance

Water supply impacts associated with the Plan would be considered significant if the Plan would:

a. Require or result in the construction of new water treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

[52] City of East Palo Alto, 2009, *City Staff Report on Draft Engineering Plan for the Ravenswood Business District (RBD),* page 1.

[53] City of East Palo Alto, 2011. *2010 Urban Water Management Plan.* Prepared by Integrating Resource Management, Inc. Adopted June 21, 2011.

[54] City of East Palo Alto, 2010. *Initial Study Cooley Landing.*

b. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed.

4. Impact Discussion

This section describes the environmental impacts to water supply that would result from implementation of the Ravenswood/4 Corners TOD Specific Plan.

A new system of 12-inch pipes would be required for the Plan Area. This additional system would also provide more security in the event of damage to the existing system. Water would be supplied under pressure from a new connection to the SFPUC aqueduct at Purdue Avenue. Water would be used for fire suppression in addition to consumption. As recommended by the Fire Department, a new 1.8-million-gallon water tank would provide emergency storage for the City-managed water system, and provide a fire flow of 3,000 gallons per minute.

a. Require or result in the construction of new water treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. ***(LTS)***

A WSA for the Plan Area has calculated the water demands from the Plan development and a new piping system has been included in the Specific Plan to convey the quantity of water required.

To supplement its existing supply from the SFPUC, the WSA recommended pumping more groundwater from the existing Gloria Bay well, and pumping from one or two new groundwater wells. This water would need to be treated before being blended with the SFPUC supply. The WSA also recommended that recycled water produced in Palo Alto and Redwood City could be conveyed to the Plan Area for non-potable uses.

The environmental effects of obtaining an increased water supply from groundwater wells would need to undergo environmental review in a separate document. Potential impacts from the increased groundwater pumping in-

clude land subsidence and exacerbation of existing flood risks, salt-water infiltration of the aquifer, and entrainment of contamination, as well as cumulative effects from drawdown of the aquifer. The environmental analysis would also need to cover discussion of impacts from construction of a new treatment facility, including storage reservoirs, and installation of additional piping. Analysis of use of recycled water would need to include verification that the water quality is adequate and that there would be no adverse health effects from its use. This is covered in **Specific Plan Policy UTIL-2.1**.

With this policy in place, there would be a ***less-than-significant*** impact from the construction of new water treatment facilities.

b. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed. ***(LTS)***

A WSA prepared for the Plan concluded that water demand would increase by 820 acre feet annually, which represents a 41 percent increase from the current demand and 60 percent of the total demand increase through 2035.[55] The WSA further concluded that the City's existing water supplies are not sufficient to meet the demands of the project in normal years, and the deficiency would be worst in times of drought. The City already uses more water from the SFPUC supply – which is its only supply – than its entitlement and this is only possible because other jurisdictions are not using their entire allocation. **Specific Plan Policy UTIL-2.2** prevents development under the Specific Plan from occurring until new water supplies have been obtained. **Specific Plan Policy UTIL-2.1** ensures that the environmental impacts of the expansion of the water supply by increased groundwater pumping, installation of new groundwater wells, construction of facilities for groundwater treatment, and distribution of recycled water, and other means, are analyzed in a separate CEQA document.

[55] Integrated Resource Management, Inc, 2011. *Water Supply Assessment. Ravenswood/4 Corners Transit Oriented Development Specific Plan.* For the City of East Palo Alto. Final Draft. August 30, 2011.

With these policies in place, there would be a ***less-than-significant*** impact from having an insufficient water supply.

5. Cumulative Impacts

The SFPUC has analyzed its future capacity to supply water to its peninsula cities until 2035, taking into account projected growth. The UWMP and WSA also include a cumulative assessment of the Specific Plan's water supply needs until 2035 in conjunction with growth in East Palo Alto and the region in general. By 2035, water demand would exceed supply in the Water Service Area. However, because of **Specific Plan Policy UTIL-2.2**, the Plan Area would not contribute towards this as new development would have to secure additional water supplies. There would therefore be ***no cumulative impacts***. New water treatment facilities might be required for the Plan Area. **Specific Plan Policy UTIL-2.1** requires environmental analysis of any necessary expansion of treatment facilities. With this policy in place, there would be no project contribution to inadequate water treatment facilities. There are therefore ***no cumulative impacts.***

C. Stormwater

The following describes regulations and existing conditions with regard to stormwater management service in East Palo Alto.

1. Regulatory Framework

This section describes the regulatory setting as it relates to stormwater in the Ravenswood/4 Corners Transit Oriented Development Specific Plan area.

Several federal, State, and local regulations pertain to stormwater management service in East Palo Alto.

a. Federal Clean Water Act and National Pollutant Discharge Elimination System

The 1987 amendments to the Federal Clean Water Act (Section 402(p)) provided for US EPA regulation of several new categories of nonpoint pollution

sources within the existing NPDES Program. The SWRCB is responsible for issuing NPDES permits to cities and counties through the RWQCBs. Phase 2 implementation of NPDES permitting, effective March 10, 2003, extended urban runoff discharge permitting to cities of 50,000 to 100,000 people, and to construction sites that disturb between 1 and 5 acres. Under Phase 2, federal regulations allow two permitting options for stormwater discharges: individual permits and general permits. The California SWRCB elected to adopt a Statewide general permit (Water Quality Order No. 2003-0005-DWQ) for Small Municipal Separate Storm Sewer System (MS4s) operators to efficiently regulate stormwater discharges under a single permit. Permittees must develop and implement a Stormwater Management Plan (SWMP) with the goal of reducing the discharge of pollutants to the maximum extent practicable.

b. NPDES Municipal Regional Stormwater Permit

The Plan Area is covered under the regulations of the new Municipal Regional Stormwater NPDES Permit issued by the RWQCB. This Permit falls under Order R2-2009-0074, adopted on October 14, 2009. Above and beyond post-construction stormwater management practices, the permit also requires municipalities to adopt trash and street sweeping programs to regulate discharges into storm drain systems or directly into Waters of the United States. The permit's stormwater management provisions supersede those in the San Mateo Countywide Pollution Prevention Program's 2004 Stormwater Management Plan.

2. Existing Conditions

Stormwater in East Palo Alto drains into two major drainage systems: the Runnymede Storm Drain System and the O'Connor Storm Drain System. The Plan Area is closest to the Runnymede Storm Drain System.[56] Stormwater infrastructure within the Plan Area is inadequate. Many of the streets do

[56] Wilsey Ham Engineers, 2008, *Draft Ravenswood Business District Construction Cost Estimates for Infrastructure*, page 7.

not have storm drains, and those that do are unable to handle stormwater during peak events.[57]

a. Runnymede Storm Drain System

Approximately one-third of the city's stormwater drains into the Runnymede Storm Drain System outfall.[58] Stormwater for the Runnymede Storm Drain System is carried through a 72-inch reinforced concrete pipe (RCP) and ultimately flows into the San Francisco Bay.[59] Average stormwater discharge for the Runnymede Storm Drain System is 229 cubic feet per second (cfs) for a 10-year storm, 277 cfs for a 25-year storm, and 342 cfs for a 100-year storm. During peak stormwater events, the existing stormwater pipes are unable to handle stormwater flow.[60]

Stormwater is discharged through two TideFlex gates, located at the eastern terminus of Runnymede Street. The TideFlex gates discharge stormwater while preventing tidal inundation. During extremely high tides (at or above elevation 7.6 feet), the gates cease to function, which causes stormwater backup and local flooding. The TideFlex gates also operate at a reduced capacity, between 50 to 100 percent, during high tides greater than elevation 4.6 feet.

b. O'Connor Storm Drain System

The O'Connor Storm Drain System collects stormwater from multiple areas of the city and drains to the O'Connor detention pond and the O'Connor Pump Station.

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[57] Charpentier, Sean. Project Coordinator II, City of East Palo Alto. Personal e-mail communication with Carey Stone, DC&E, November 9, 2009.

[58] City of East Palo Alto, 2009, *City Staff Report on Draft Engineering Plan for the Ravenswood Business District (RBD),* page 4.

[59] Wilsey Ham Engineers, 2009, *Runnymede Street Storm Drain Deficiencies Letter*, page 1.

[60] Wilsey Ham Engineers, 2008, *Draft Ravenswood Business District Construction Cost Estimates for Infrastructure*, page 7.

The O'Connor Pump Station receives stormwater from throughout the city and an at-grade canal, which runs along the eastern city limit.[61] The O'Connor Pump Station distributes stormwater outfall into San Francisquito Creek. The pump station has a capacity of 234 cfs.[62]

c. Planned Storm Sewer Infrastructure Improvements for the Specific Plan Area

Over most of the Plan Area, south of the topographic divide that is approximately at the southern boundary of 391 Demeter Street, stormwater flows southwards into the Runnymede Storm Drain System. As it drains northwards and cannot be connected to the gravity-driven system of the rest of the plan area, development of 391 Demeter Street would require a separate storm drain system.

The DEPLAN reviewed the capacity of the existing storm water system of the south of the Plan Area and proposed construction of a new, additional, Ravenswood Storm Water System. The Ravenswood Storm Water System would join the Runnymede system at the point of discharge into the existing surface channel at the end of Runnymede Street. The channel runs parallel to the levee to the O'Connor pumping station where the water is pumped over the levee back to the San Francisco Bay.

In addition, the stormwater channel from the end of Runnymede Street to the detention basin on O'Connor Street would be dredged, graded, and culverted next to the levee to accommodate 100-year flows. A berm would be built along the west side of the length of the detention channel to restrict the main channel overflows and allow water to back up from the pumping station and be held in the channel. In addition, the detention basin would be dredged and enlarged to provide additional storage capacity. The City is already moving forward with the offsite improvements associated with the

[61] Charpentier, Sean. Project Coordinator II, City of East Palo Alto. Personal e-mail communication with Carey Stone, DC&E, November 9, 2009.

[62] Wilsey Ham Engineers, 2008, *RBD Storm Drainage Study: Re-routed to the Channel and the O'Conner Pump Station Memorandum*, page1.

Runnymede Storm Drain Phase II Project, which include the channel and pond improvements.[63]

The new system would be designed to protect most of the Plan Area for which redevelopment is proposed, from flooding as a consequence of storm drain back-up. The system would be designed to cope with largest storm that could realistically be expected once every 25 years (the 25-year storm).

3. Standards of Significance

Stormwater impacts associated with the Plan would be considered significant if the Plan would:

a. Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

4. Impact Discussion

This section describes the environmental impacts to stormwater that would result from implementation of the Ravenswood/4 Corners TOD Specific Plan.

a. Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. ***(LTS)***

Infrastructure upgrades are included in the Specific Plan to ensure that the southern part of the Plan Area, where most of the development would occur, would have an adequate storm drainage system. Development in the northern part of the Plan Area is restricted to the 391 Demeter Street Property.

Development under the Specific Plan includes Policy UTIL-1.1 that ensures development of this area includes adequate infrastructure for all parts of the Plan Area.

[63] City of East Palo Alto website. http://www.ci.east-palo-alto.ca.us/planningdiv/runnymede.html, accessed September 1, 2011.

Installation of the new stormwater drainage system for the southern part of the Plan Area, as included in the Specific Plan, and for any development in the northern part, which is not included in the Plan, could cause environmental impacts that would be analyzed in separate CEQA reviews.

With these policies in place, there would be a ***less-than-significant*** impact from provision of adequate stormwater facilities.

5. Cumulative Impacts

Development of the Plan Area in conjunction with other planned development that would affect the inflows to the Runnymede storm drainage system has been taken into account in the calculations in the DEPLAN.

Planned upgrades to the storm water system due to development in the northern part of the Plan Area, if upgrades are connected to the existing system, would need to assess the cumulative load from existing and planned development. This would be part of the CEQA review of any infrastructure extension. There would therefore be ***no cumulative impacts***.

D. Solid Waste and Recycling

1. Regulatory Framework

This section describes the regulatory setting as it relates to solid waste and recycling in the Ravenswood/4 Corners Transit Oriented Development Specific Plan area.

a. State Regulation

i. California Integrated Waste Management Act

California Integrated Waste Management Act of 1989 (AB 939 or Public Resources Code Section 40050 et seq.)[64] set a requirement for cities and counties

[64] Public Resources Code Section 40050-40063, http://www.leginfo.ca.gov/cgi-bin/displaycode?section=prc&group=40001-41000&file=40050-40063, accessed on November 16, 2011.

throughout the State to divert 50 percent of all solid waste from landfills by January 1, 2000, though source reduction, recycling and composting. To help achieve this, the Act requires that each city and county prepare and submit a Source Reduction and Recycling Element. AB 939 also established the goal for all California counties to provide at least 15 years of on-going landfill capacity. As part of the California Integrated Waste Management Board's (CIWMB) Zero Waste Campaign, regulations affect what common household items can be placed in the trash. As of February 2006, household materials including fluorescent lamps and tubes, batteries, electronic devices and thermostats that contain mercury are no longer permitted in the trash.[65]

In 2007, SB 1016 amended AB 939 to establish a per capita disposal measurement system. The per capita disposal measurement system is based on two factors: a jurisdiction's reported total disposal of solid waste divided by a jurisdiction's population. CIWMB sets a target per capita disposal rate for each jurisdiction. Each jurisdiction must submit an annual report to CIWMB with an update of its progress in implementing diversion programs and it's current per capital disposal rate.[66]

ii. California Solid Waste Reuse and Recycling Access Act of 1991

The California Solid Waste Reuse and Recycling Access Act (Public Resources Code Sections 42900 et seq.)[67] requires areas to be set aside for collecting and loading recyclable materials in development projects. The Act required the CIWMB to develop a model ordinance for adoption by any local agency relating to adequate areas for collection and loading of recyclable materials as part of development projects. Local agencies are required to adopt

[65] California Integrated Waste Management Board's Zero Waste Campaign's website, http://www.zerowaste.ca.gov, accessed on August 20, 2007.

[66] California Integrated Waste Management Board, http://www.calrecycle.ca.gov/LGCentral/Basics/PerCapitaDsp.htm#Jurisdiction, accessed on July 30, 2010.

[67] Public Resources Code Section 42900-42901, http://www.leginfo.ca.gov/cgi-bin/waisgate?WAISdocID=47078826743+0+0+0&WAISaction=retrieve, accessed on November 16, 2011.

the model, or an ordinance of their own, governing adequate areas for collection and loading of recyclable materials in development projects.

b. Local Regulation

i. East Palo Alto General Plan

Solid waste is addressed in the Conservation and open Space Element of the General Plan. Goal 3.0 calls for the City to reduce per capital volume of solid waste. Policy 3.1 calls for the City to work in concert with San Mateo County source reduction and recycling plans to reduce the per capita production of solid waste.

2. Existing Conditions

East Palo Alto is a member of the South Bay Waste Management Authority (SBWMA), a joint powers agency whose other members include Atherton, Belmont, Burlingame, Foster City, Hillsborough, Menlo Park, Redwood City, San Carlos, San Mateo, West Bay Sanitary District, and San Mateo County. The Shoreway Environmental Center (SEC) serves as a regional solid waste and recycling facility for the receipt, handling, and transfer of solid waste and recyclables collected from the SBWMA service area (southern and central San Mateo County). The SEC receives solid waste and recyclables and consolidates them into large transfer trailers for shipment offsite to the Ox Mountain Landfill and to recycling facilities for construction and demolition waste, and organics materials.[68]

a. Transfer Station

Solid waste and recyclable materials collected in East Palo Alto are initially taken to the SEC, the former Shoreway Recycling and Disposal Center, located in San Carlos. The SEC is operated by SBWMA and is a solid waste transfer station and material recovery facility with a permitted operating ca-

[68] RethinkWaste website, http://www.rethinkwaste.org/, accessed on December 5, 2011.

pacity of 3,000 tons per day (TPD).[69] On average, the SEC receives 772 TPD, of which 494 TPD are diverted from the landfill.

The City of East Palo Alto contributes a daily average of 40 TPD to the SEC. Of the 40 TPD of solid waste, 13 TPD are diverted from the landfill. In 2008, East Palo Alto sent 1,327 tons of recyclable material and 2,087 tons of yard trimming/compostable materials to the SRDC.[70]

There are plans to reconfigure the transfer station and build a new recycling facility capable of handling a single stream recycling program for the 12 partner agencies that use this facility.[71] This reconfiguration will increase the level of recycling in East Palo Alto and help the City meet its 50 percent recycling goal under AB 939.

b. Landfills

The majority of the solid waste generated in East Palo Alto is transported to the Ox Mountain Landfill near Half Moon Bay. The landfill, owned and operated by Allied Waste, is expected to reach capacity in 2028.[72] In 2008, the landfill received 643,870 tons of solid waste, of which 2.3 percent was from East Palo Alto.[73]

In 2004, East Palo Alto exceeded the 50 percent diversion goal required by the IWMA, diverting 84 percent of the solid waste collected in the city. According to the most recent data available from the San Mateo Recycle Works pro-

[69] Gans, Hilary. Facility Operations Contract Manager, SBWMA. Personal email communication with Alejandro Huerta, DC&E, March 3, 2009.

[70] Mennie, Carl. Assistant General Manager, Allied Waste. Personal email communication with Carey Stone, DC&E, November 12, 2009.

[71] Future Plans, http://www.rethinkwaste.org/shoreway-facility-future-plans, accessed on March 18, 2009.

[72] Boyd, Evan. General Manager, Allied Waste. Personal communication with Alejandro Huerta, DC&E, May 26, 2009.

[73] Mennie, Carl. Assistant General Manager, Allied Waste. Personal email communication with Carey Stone, DC&E, November 12, 2009.

gram, the diversion rate slightly decreased to 83 percent in 2005 and to 82 percent in 2006.[74]

3. Standards of Significance

Solid waste supply impacts associated with the Plan would be considered significant if the Plan would:

a. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs.

b. Comply with federal, state, and local statutes and regulations related to solid waste.

4. Impact Discussion

This section describes the environmental impacts to solid waste services that would result from implementation of the Ravenswood/4 Corners TOD Specific Plan.

a. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs. ***(LTS)***

The Plan Area is served by the SBWMA. Long term planning indicates that the Ox Mountain Landfill that takes East Palo Alto's waste has capacity until 2028. Programs in all SBWMA member cities are working to divert waste from the Ox Mountain Landfill to prolong its life. East Palo Alto accounts for a relatively small percentage (2.3 percent in 2008) of the waste disposed at this landfill. The City of East Palo Alto has several General Plan policies that aim at reducing the per capita waste disposal volume. Development under the Specific Plan would have a ***less-than-significant*** impact on solid waste disposal and landfill capacity.

[74] Diversion Rates of San Mateo County Jurisdictions, http://www.recycleworks.org/div_rates/html, accessed on November 12, 2009.

b. Comply with federal, state, and local statutes and regulations related to solid waste. ***(LTS)***

As part of the City of East Palo Alto, the Plan Area would be subject to existing Municipal Code and General Plan policies that govern compliance with existing federal, state, and local statutes and regulations pertaining to solid waste, and there would be a ***less-than-significant*** impact.

5. Cumulative Impacts

As part of the City of East Palo Alto, solid waste disposal from the Plan Area is provided by the SBWSA. Waste disposal needs for all member agencies are considered together in long-term planning by the SBWSA. The SBWSA has determined that, given current population projections, there is sufficient capacity at the Ox Mountain Landfill until 2028. There would therefore be ***no cumulative impacts.***

5 ALTERNATIVES

The following discussion is intended to inform the public and decision makers of feasible alternatives to the proposed Plan. Section 15126.6 of the CEQA guidelines states that:

> *An EIR shall describe a range of reasonable alternatives to the project, or the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation.*

A No Project Alternative is required as one of the "reasonable range of alternatives" that could feasibly attain most or all of the project's objectives. Each alternative is analyzed against the significance thresholds considered in Chapter 4. The alternatives to the Plan are:

1. **No Project Alternative.** Under this alternative, the Specific Plan would not be adopted, and future development in the Plan Area would be subject to existing policies, regulations, and land use designations as per the existing General Plan.
2. **Reduced Density Alternative.** Development under this alternative would occur as under the policies of the Specific Plan, but with less intensive development of office and mixed uses, achieved through height restrictions, setbacks and reduced floor-area ratios.
3. **Housing on 391 Demeter Street Alternative.** Development under this alternative would occur as under the policies of the Plan, but the developable area of the property at 391 Demeter Street is assumed to be developed with residential land uses (at approximately 20 dwelling units per acre) rather than office/industrial flex uses.
4. **Wetlands Setback Alternative.** Development under this alternative would occur as under the policies of the Specific Plan. However, with this alternative, a 300-foot buffer zone would be drawn around the existing wetland edge, and new development would be prohibited in this

zone. The buffer zone would be restored as upland plant and wildlife habitat that would also serve to absorb flood waters. The same level of development would be accommodated on land set back from the wetlands edge, but at higher densities than the project. An optional item would be to build a new levee system on the landward side of the buffer and remove the existing levee to connect the newly restored area to the tidal wetlands in the Ravenswood Open Space area. An additional option would build a bridge over the wetlands area to Cooley Landing Park and restore the wetlands under the bridge, creating a continuous corridor for wildlife habitat from Menlo Park to Palo Alto.

A comparison of the buildout figures for the proposed Plan and each alternative is provided in Table 5-1, below. A comparison of potential impacts of each alternative to those of the Plan is provided in Table 5-2, below. Figures 5-1 to 5-4 show the land uses for the No Project Alternative, Reduced Density Alternative, Housing on 391 Demeter Street Alternative, and Wetlands Setback Alternative, respectively.

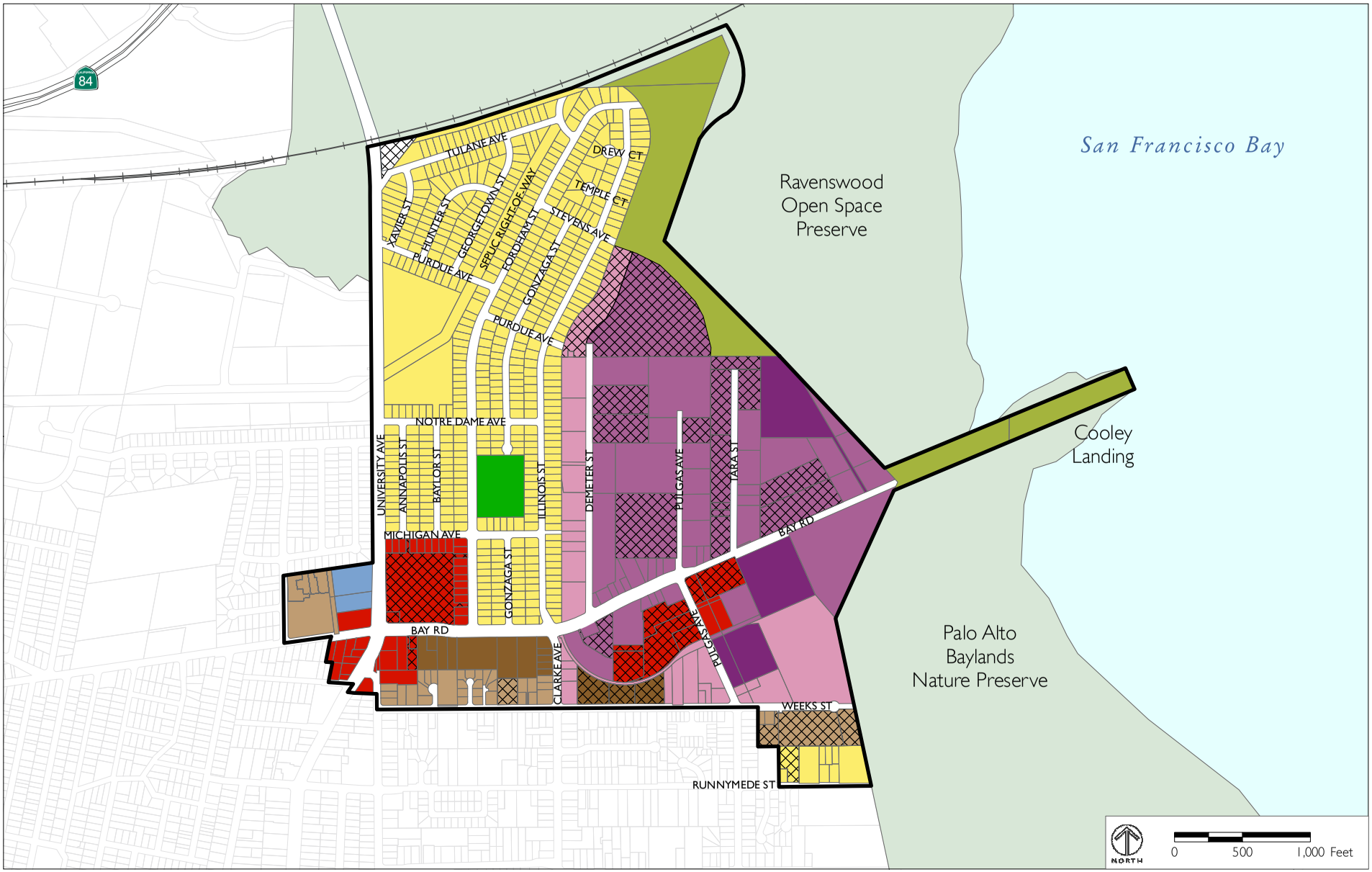
Under each alternative there is a discussion of how each measures up to the Specific Plan objectives presented in Chapter 3, Project Description. Table 5-3 summarizes how each alternative meets, or fails to meet, each project objective.

A. No Project Alternative

1. Principal Characteristics

Under the No Project Alternative, the proposed Specific Plan would not be adopted, and future development would occur under the existing General Plan land use designations and policy direction.

The General Plan density requirements in the Plan Area are shown in Figure 5-1. Height requirements under this alternative would be based on current Zoning Ordinance requirements. It is estimated that buildout of the No Project Alternative would result in approximately 474 new housing units in the



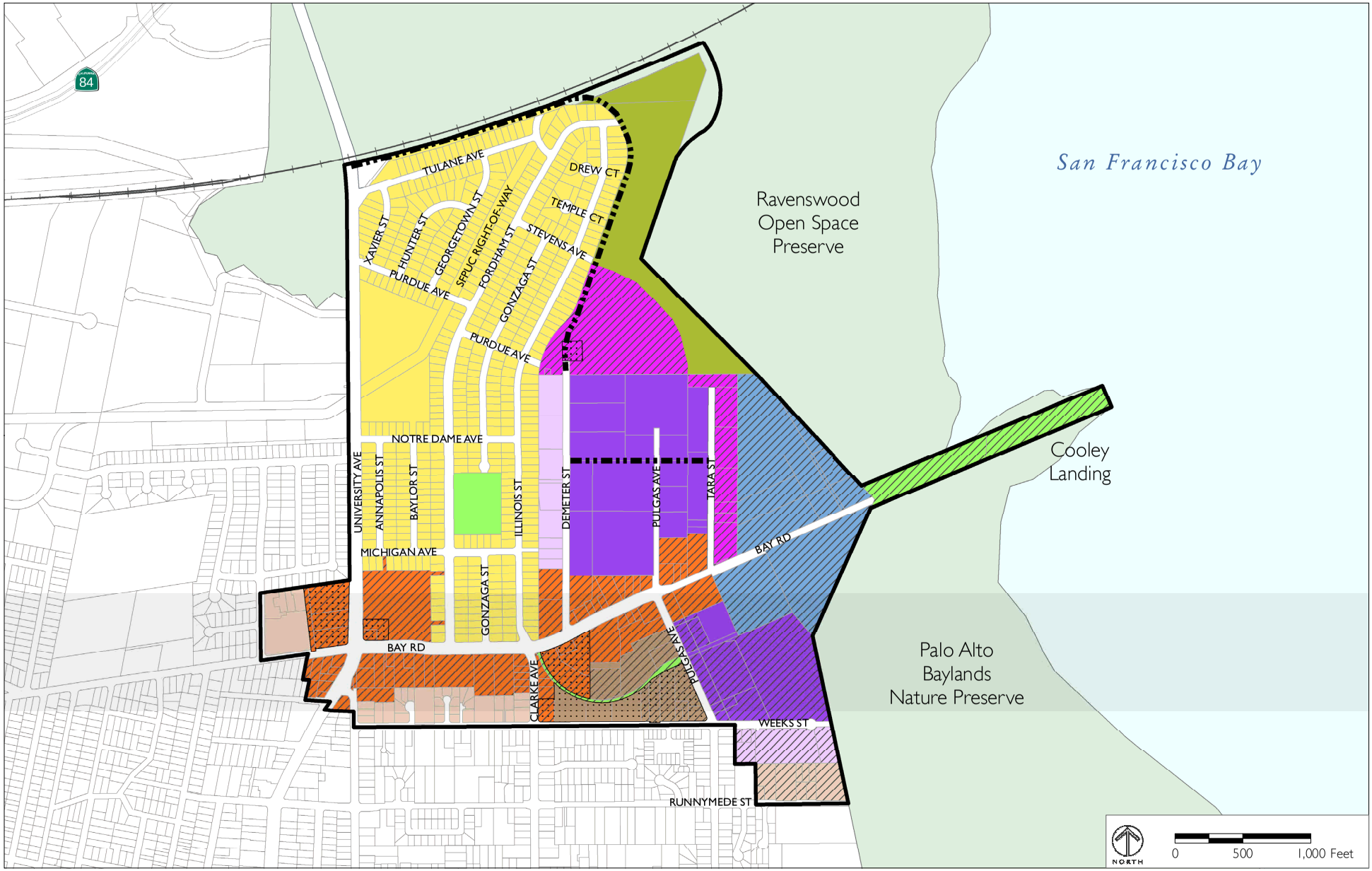
Source: City of East Palo Alto, 2009.

- No Project Alternative
- Vacant Parcel

General Plan Land Use

- Low/Medium Density Residential
- Medium/High Density Residential
- High Density Residential
- General Commercial
- Office
- General Industrial
- Heavy Industrial
- Industrial Buffer
- Community Open Space Conservation
- Resource Management

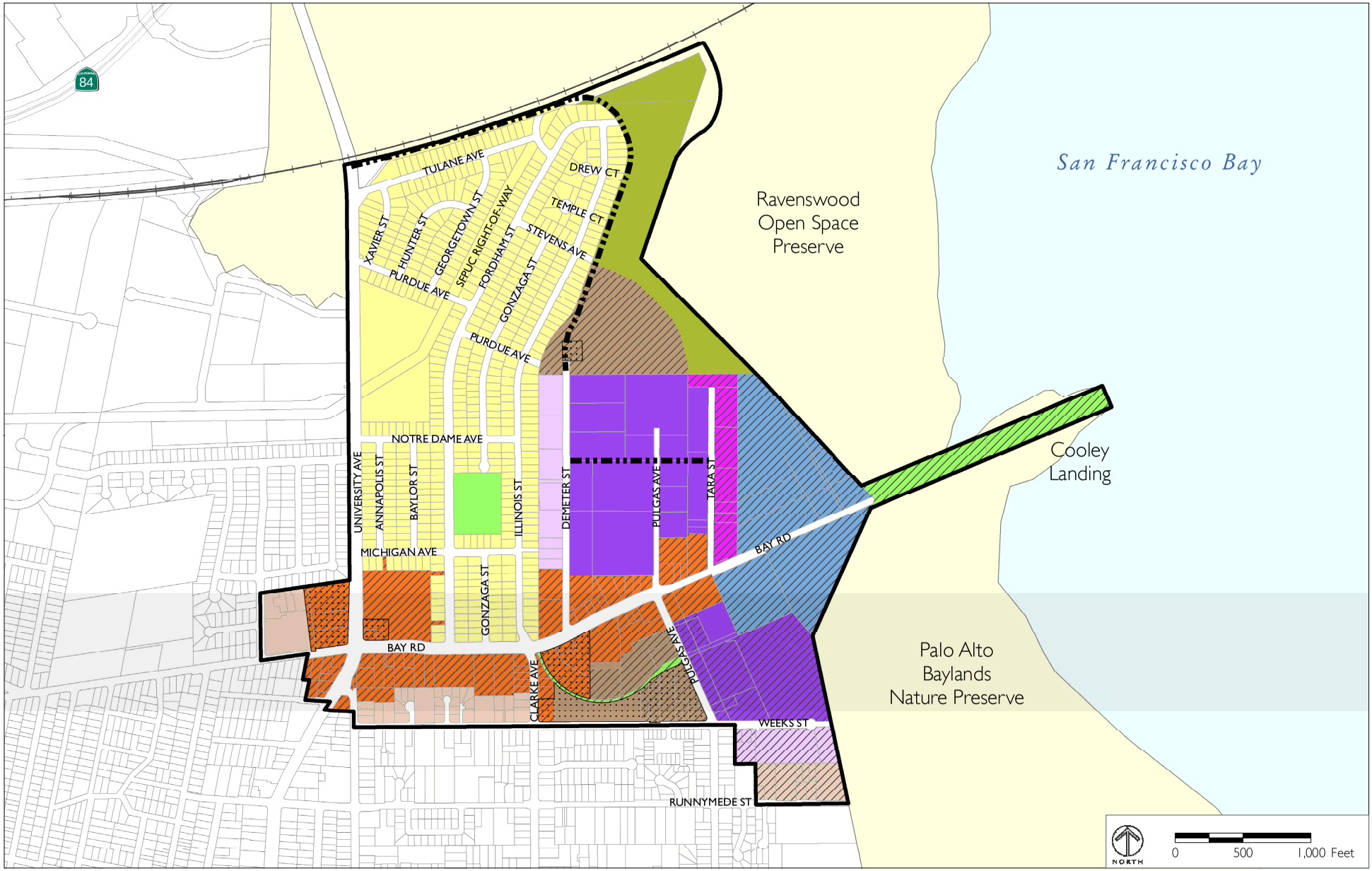
FIGURE 5-1
NO PROJECT ALTERNATIVE



Source: City of East Palo Alto, 2009.

- Reduced Density Alternative
- Change in Designation
- Civic Use Envisioned
- Proposed Vehicle Connection
- Mixed-Use
- Office
- R&D/Industrial
- Light Industrial
- Industrial/Office Flex
- High Density Residential
- Medium/High Density Residential
- Low/Medium Density Residential
- Community Open Space Conservation
- Resource Management

FIGURE 5-2
REDUCED DENSITY ALTERNATIVE

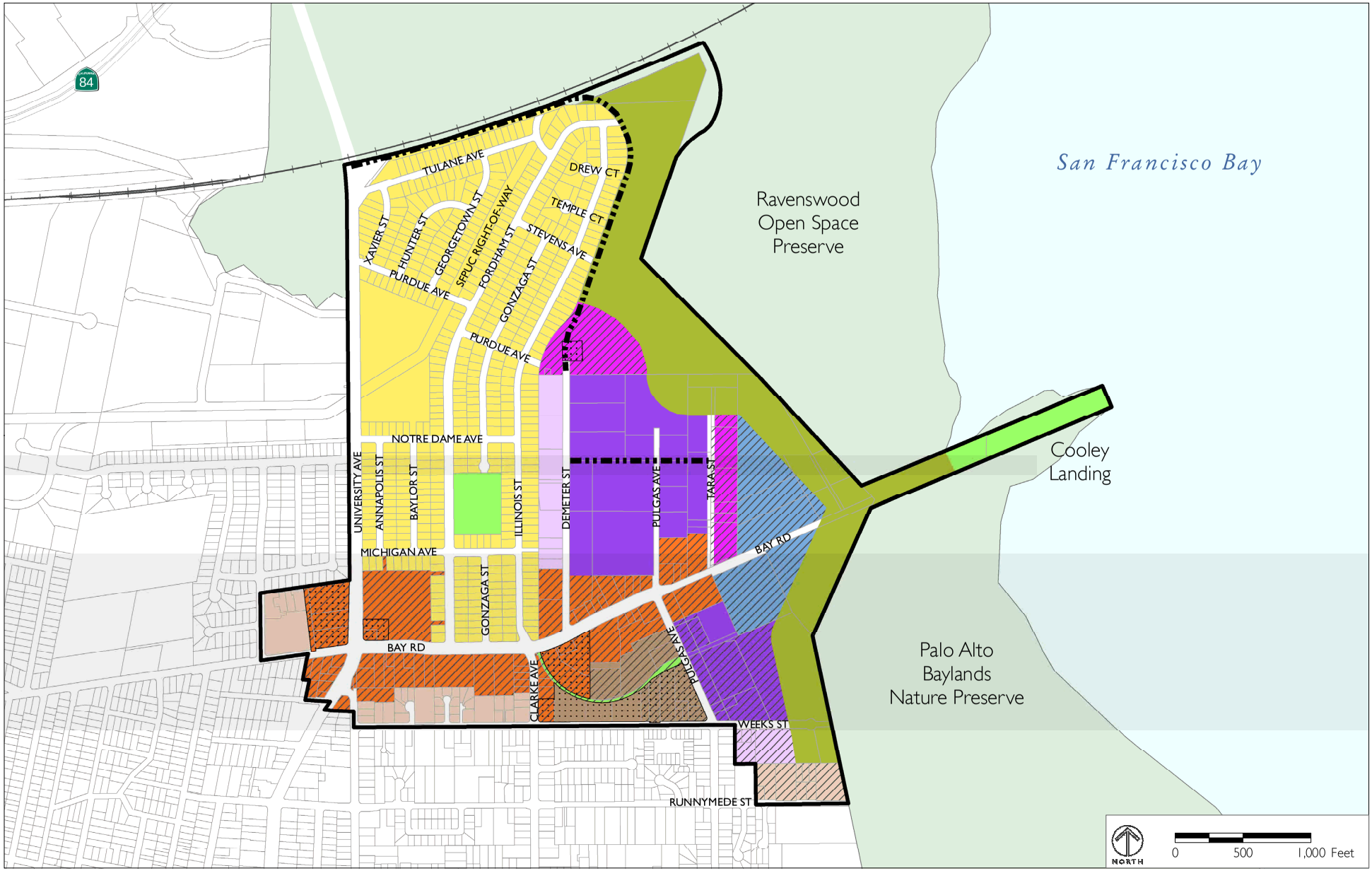


Source: City of East Palo Alto, 2009.

- Project Area
- Civic Use Envisioned
- Change in Designation
- Proposed Vehicle Connection
- Mixed-Use
- Office
- R&D/Industrial
- Light Industrial
- Industrial/Office Flex
- High Density Residential
- Medium/High Density Residential
- Low/Medium Density Residential
- Community Open Space Conservation
- Resource Management

FIGURE 5-3

HOUSING ON 391 DEMETER STREET ALTERNATIVE



Source: City of East Palo Alto, 2009 and The Planning Center | DC&E, 2011.

- Proposed Vehicle Connection
- Civic Use Envisioned
- Project Area
- Change in Designation
- Mixed-Use
- Office
- R&D/Industrial
- Light Industrial
- Industrial/Office Flex
- High Density Residential
- Medium/High Density Residential
- Low/Medium Density Residential
- Community Open Space Conservation
- Resource Management

FIGURE 5-4
WETLANDS SETBACK ALTERNATIVE

TABLE 5-1 **COMPARISON OF BUILDOUT FIGURES**

	Proposed Plan	No Project Alternative[a]	Reduced Density Alternative[b]	Housing on 391 Demeter Street Alternative[c]	Wetlands Setback Alternative[d]
Single-Family Residential (units)	19	42	17	269	19
Multi-Family Residential (units)	816	432	734	816	816
Residents	2,766	1,591	2,489	3,741	2,766
Office (square feet)	1,268,500	-	1,141,650	1,056,145	1,268,500
Retail (square feet)	112,400	227,383	101,160	112,400	112,400
Industrial/Commercial (square feet)	351,820	754,400	316,638	297,370	351,820
Employees	4,851	1,537	4,366	4,079	4,851

[a] By definition, land uses would occupy the same land area, and there would be fewer residents and employees. Buildout figures for the No Project Alternative assume expected dwelling units per acre and average floor area ratios identified in Table LU-2 in the East Palo Alto General Plan and that all new development expected to occur on parcels designated as General Commercial in the East Palo Alto General Plan would be developed with retail uses and that office uses would not be developed.
[b] By definition, land uses would occupy 10 percent less area and have 10 percent fewer residents and employees.
[c] By definition, land uses would occupy the same land area, except that high-density residential uses would replace Industrial/Office uses at the property on 391 Demeter Street. Consequently, there would be more residents and fewer employees.
[d] By definition, land uses would occupy the same land area, and there would be the same number of residents and employees.

TABLE 5-2 ***COMPARISON OF IMPACTS FROM PROJECT ALTERNATIVES***

Topic	No Project Alternative	Reduced Density Alternative	Housing on 391 Demeter Street Alternative	Wetlands Setback Alternative
Aesthetics	=	+	+	=
Agriculture and Forestry Resources	=	=	=	=
Air Quality	+	+	-	=
Biological Resources	+	=	+	+ +
Cultural Resources	=	=	=	=
Geology, Soils, and Mineral Resources	+	+	+	=
Greenhouse Gas Emissions	=	+	-	=
Hazards and Hazardous Materials	+	+	-	=
Hydrology and Water Quality	+	+	-	+ +
Land Use and Planning	=	=	=	=
Noise	+	+	=	=
Population and Housing	=	+	=	=
Public Services and Recreation	+	+	-	=
Transportation/ Traffic	+ +	+	-	=
Utilities and Service Systems	+	+	-	=

++ Substantial improvement compared to the proposed project.
+ Slight improvement compared to the proposed project.
= Similar to the proposed project.
– Slight deterioration compared to the proposed project.

TABLE 5-3 ***COMPARISON OF PROJECT ALTERNATIVES TO OBJECTIVES***

#	Objective	No Project Alt.	Reduced Density Alt.	Housing on 391 Demeter St. Alt.	Wetlands Setback Alt.	Specific Plan
1	Enhance 4 Corners and Bay Road with new development and streetscape improvements that will enliven the street, create a "downtown" feeling for pedestrians, and improve safety by providing "eyes on the street."	No	Yes	Yes	Yes	Yes
2	Transform Ravenswood into a thriving employment center that provides a variety of new jobs.	No	~ Yes, although fewer jobs	~ Yes, although fewer jobs	Yes	Yes
3	Encourage new development in Ravenswood by promoting new R&D uses as part of a broader mix of uses.	No	~ Yes, although fewer jobs	~ Yes, although fewer jobs	Yes	Yes
4	Capitalize on the commercial potential of offices with Bay views by encouraging the development of tall office buildings close to the Bay.	No	~ Yes, but not as tall	~ Yes, although fewer tall buildings	~ Yes, although slightly farther	Yes
5	Provide strong regional connectivity to the Ravenswood employment centers through an improved road system.	Adequate for now?	Yes	Yes	Yes	Yes
6	Create better public spaces in Ravenswood through streetscape improvements and by providing new plazas and parks.	No	Yes	Yes	Yes	Yes
7	Facilitate non-auto linkages through a network of off-street pedestrian and bicycle facilities, an improved sidewalk network, and connections to existing and planned public transportation.	No	Yes	Yes	Yes	Yes
8	Strengthen and enhance the University Village neighborhood by providing public improvements, promoting homeowner investment, and establishing the SFPUC right-of-way as a public park.	No current finance	~ Yes, but less revenue to pay for it	Yes	Yes	Yes

TABLE 5-3 ***COMPARISON OF PROJECT ALTERNATIVES TO OBJECTIVES*** (CONTINUED)

#	Objective	No Project Alt.	Reduced Density Alt.	Housing on 391 Demeter St. Alt.	Wetlands Setback Alt.	Specific Plan
9	Seek to provide new community facilities, including a community center where people can gather for special events; a new school; an expanded health clinic and public library; and a recreation center that would provide a safe and welcoming place for the city's youth.	No current finance	~Yes, but less revenue to pay for it	Yes	Yes	Yes
10	Facilitate the cleanup of contaminated sites by providing new development opportunities in those locations.	No	Yes	Yes	No	Yes

Source: The Planning Center | DC&E, 2011.

Plan Area and 1,591 residents, 227,383 square feet of retail development, and 754,400 square feet of office development for a working population of 1,537 by 2035.

2. Impact Discussion

a. Aesthetics

Views and visual landscapes would remain as they are now. As the area is low-lying and buildings generally one or two stories, there are no prominent Bay views, although there are some hill views. However, although they are limited in extent, existing eastwards views of the baylands could also be intersected by tall industrial buildings of up to 7 stories in height under the No Project Alternative. Similarly, views from the Bay Trail looking west towards the hills could potentially be intersected by tall buildings. Visual landscapes would remain in their current state, with functional-looking industrial buildings and auto-oriented streets. However, this is not a CEQA impact. Overall, the impact would be *equivalent.*

b. Agriculture and Forestry Resources

The project area has no agricultural or forestry resource and no impacts from the Plan implementation. This alternative would be *equivalent* to the proposed project in that regard.

c. Air Quality

Development under the No Project Alternative would result in fewer residents, employees, and vehicle miles traveled, resulting in lower emissions of criteria pollutants. As development would not be catalyzed in the same way in the absence of the Specific Plan, there would probably be lower construction emissions; however, the ongoing transportation-related emissions would dominate. The impact would be *reduced* compared to the proposed project, and the No Project Alternative would be an improvement.

d. Biological Resources

Most of the Plan Area is already developed. Vacant sites are mainly highly disturbed and do not support much, if any, vegetation. This is also true for

the triangular area of fill on the 391 Demeter Street property. One notable exception is that under the Specific Plan, a loop road is proposed on this property, around the existing residential development across the fill area, connecting to Demeter Street. Development of this area is highly likely to involve filling of some wetland areas. In addition, under the Specific Plan, the 2008 Draft Engineering Plan (DEPLAN) for infrastructure improvements would be implemented, and several utilities would be undergrounded through wetlands. Buildout under the General Plan would not necessitate this encroachment into wetlands, resulting in *reduced* impacts compared to the proposed project. The No Project Alternative would therefore be an improvement.

e. Cultural Resources

Since development could occur anywhere within the Plan Area as regulated by the General Plan and zoning, the impact on cultural resources would be *equivalent* to the proposed project.

f. Geology and Soils

Although the No Project Alternative does not contain office uses or mixed uses including offices (except for a small portion west of University Avenue), General Industrial uses can be up to 75 feet tall. Therefore, in theory the new development under the existing General Plan would require the same foundation designs as under the Specific Plan. Under current code, buildings already have to be built above the flood plain. However, the No Project Alternative brings in fewer people to the Plan Area, which is an active seismic area, compared to the proposed project. There would therefore be a *reduced* impact from this alternative compared to the proposed project, and the No Project Alternative would be an improvement.

g. Greenhouse Gas Emissions

Buildout of the existing General Plan under the No Project Alternative would cause less intensive development and a lower square footage. This would reduce the energy use from building operation, and the number of people traveling and therefore vehicle miles traveled. Both of these effects would reduce

GHG emissions. However, the Specific Plan contains Transportation Demand Management (TDM) requirements and other policies to reduce GHG emissions. Overall, this alternative would have an *equivalent* impact compared to the proposed project.

h. Hazards & Hazardous Materials

This alternative does not promote redevelopment of developed areas that are already contaminated, and so does not disturb the existing soil/groundwater system, but it also does not promote remediation of those sites through their redevelopment. Vacant sites that may have contaminated fill, including the 391 Demeter Street property, could still be developed. However, this alternative brings fewer people living and working in the area and coming in close contact with heavy industry. There would therefore be no overall change in the impact, and it would be *reduced* to the proposed project and the No Project Alternative would be an improvement.

i. Hydrology and Water Quality

Buildout of the General Plan would utilize the same footprint as the Specific Plan. Existing regulations governing new development in flood plains would apply, and structures would also be placed on fill to raise them above the flood plain. There would be little difference in the impacts from this alternative with regards to placing people and structures in the 100-year flood hazard zone. However, since buildout under the General Plan would result in fewer dwelling units, fewer people would be subject to the flooding risk. There would therefore be a *reduced* impact from this alternative compared to the proposed project, and the No Project Alternative would be an improvement.

j. Land Use and Planning

By definition, the No Project Alternative would not cause a land use impact, as it represents development under existing approved plans. As the proposed project was found to be broadly consistent with existing plans and policies, this alternative would be *equivalent* to the proposed project.

k. Noise

Buildout under the General Plan would result in fewer residents, employees, and vehicle miles traveled compared to buildout of the Specific Plan. As vehicle noise along busy streets is the dominant noise source, noise would be slightly lower under the No Project Alternative. With fewer construction projects for new buildings and infrastructure, temporary construction noise would also be less. The impact would therefore be *reduced* compared to the proposed project, and the No Project Alternative would be an improvement.

l. Population and Housing

Development under the General Plan and Specific Plan would add new population to the area. However, existing population projections by ABAG in 2009 included development projections for the Plan Area with at least the number included in the Specific Plan. In addition, implementation of the Specific Plan would not displace people who live or work in the area and has no impact on population and housing. The No Project Alternative, which also has no impact, would be *equivalent* to the proposed project.

m. Public Services and Recreation

Buildout under the existing General Plan would result in fewer residents and employees than buildout under the Specific Plan. There would therefore be fewer service calls to fire and police and a reduced need for new schools and libraries. In addition, the Specific Plan contains a policy to ensure that fire service expansion would be paid for by proportional development fees. School and library service expansion are already covered by development fees mandated by State law. As the need for police service expansion is not measured using adopted service ratios, an increase in need would not necessarily trigger expansion of service. With less development in the Specific Plan Area, the need for expanded police services would be less and the impact would be *reduced* compared to the proposed project. The No Project Alternative would therefore be an improvement.

n. Transportation/Traffic

The Specific Plan buildout would produce eight significant and unavoidable impacts to traffic from unacceptable levels of service at study intersections. These impacts would be unavoidable because the intersections are not within the City of East Palo Alto's jurisdiction and mitigation could not necessarily be implemented by the City; because there is no funding mechanism in place to ensure that the mitigation is provided; or because no mitigation is available. Under cumulative conditions, there would be impacts at 13 intersections.

Although buildout under the General Plan would also produce significant and unavoidable impacts due to increased traffic volumes resulting from regional growth, in addition to buildout of the existing General Plan, buildout under the General Plan would have lower vehicle miles traveled due to having fewer residents and employees in the Plan Area. The effect would therefore be less. Impacts would be *reduced*, and the No Project Alternative would be an improvement.

o. Utilities and Service Systems

With fewer people in the service area, less water would be consumed. There is already insufficient water to support the existing population, and the situation deteriorates with buildout under the General Plan. The Specific Plan contains a policy restricting development until new water rights have been obtained. Without this policy, buildout under the General Plan would proceed without the provision that new developers secure additional water rights. This would be an increased impact compared to the proposed project. Additional water treatment rights with the East Palo Alto Sanitary District (EPASD) would be needed for growth under the General Plan or Specific Plan. As the population increased, this situation would become more acute, and the General Plan would not have a policy in place to ensure these treatment rights are obtained prior to development. Implementation of the DEPLAN for infrastructure upgrades would provide adequate infrastructure for the new development and would improve the existing flooding situation over the southern part of the Plan Area. With the No Project Alternative, pre-

sumably the DEPLAN would not be implemented and the existing flooding situation would continue, which would be an increased impact compared to the proposed project. Overall, however, due to the water availability issue, there would be a *reduced* impact compared to the proposed project, and the No Project Alternative would be an improvement.

3. Feasibility and Comparison to Project Objectives

Table 5-3 summarizes the consistency between the No Project Alternative and the objectives outlined in Chapter 3, Project Description. The No Project Alternative would meet very few of the objectives. The 4 Corners and Bay Road arteries would continue to receive little foot traffic, fail to provide a "downtown" experience, and feel unsafe at night. There would not be a substantial increase in jobs. The bayside space would still be occupied by broad, low-rise industrial buildings, many now vacant due to contamination issues. There would be no increased likelihood that these former contaminated sites would be completely cleaned up due to new development on the sites.

With current City revenue, there would still be insufficient funding to pay for public improvements such as community facilities and parks that would improve the quality of life for local residents. The road system would remain in its current state. However, the industrial buffer zone to the east of the main industrial area, and the residential land use designations to the south of Bay Road, would continue to provide a degree of protection to existing housing from incompatible development.

B. Reduced Density Alternative

1. Principal Characteristics

Development under this alternative would occur as under the policies of the Specific Plan, but with less intensive development of office and mixed uses, which would be achieved through height restrictions, increased setbacks, and reduced floor-area ratios. The square footage proposed would be reduced by 10 percent for each land use to achieve a 10 percent decrease in resident popu-

lation and employees. This would reduce the traffic-generated impacts and water demands of the project.

2. Impact Discussion

a. Aesthetics

To achieve the reduction in land uses, building footprints and heights would be lower than under the Specific Plan. Eastwards views of the baylands, and westward views from the Bay Trail on the baylands, would potentially be less impeded by tall office buildings. There would therefore be a *reduced* impact compared to the proposed project, and the Reduced Density Alternative would be an improvement.

b. Agriculture and Forestry Resources

The project area has no agricultural or forestry resource and no impacts from the Plan implementation. This alternative would be *equivalent* to the proposed project in that regard.

c. Air Quality

Development under the Reduced Project Alternative would result in fewer residents, employees, and vehicle miles traveled, resulting in lower emissions of criteria pollutants. As development would be less intensive, there would probably be lower construction emissions; however, the ongoing transportation-related emissions would dominate. The impact would be *reduced* compared to the proposed project, and the No Project Alternative would be an improvement.

d. Biological Resources

The footprint of development would be essentially unchanged with this alternative, although some increased setbacks would result in increased landscaping around buildings. There would be no change to biological resource impacts through adoption of this alternative, and this would be *equivalent* to the proposed project.

e. Cultural Resources

With essentially the same development footprint, aside from increased landscaped area, there would be no change to the cultural resource impacts from this alternative, and this alternative would be *equivalent* to the proposed project.

f. Geology and Soils

Although the footprint of the development would be essentially the same, the height, and therefore the weight, of some development would be reduced. Foundations might have to be less deep, and less imported fill would be needed to raise the level of the buildings from the flood plain. The Reduced Density Alternative would bring fewer people into the project area, which is an active seismic zone. There would therefore be a slightly *reduced* impact from this alternative compared to the proposed project, and the Reduced Density Alternative would be an improvement.

g. Greenhouse Gas Emissions

Reduction of the developed square footage would reduce the energy use from building operation, and the number of people traveling and therefore vehicle miles traveled. Both of these effects would reduce GHG emissions. The alternative would have a *reduced* impact compared to the proposed project, and the Reduced Density Alternative would be an improvement.

h. Hazards and Hazardous Materials

With essentially the same development footprint, there would be no change to the hazards and hazardous materials impacts resulting from disturbing subsurface contamination and redeveloping contaminated sites. However, this alternative brings fewer people living and working in the area and coming in close contact with heavy industry. The impact would therefore be *reduced* compared to the proposed project.

i. Hydrology and Water Quality

With greater setback requirements, and therefore more space for landscaping, the footprint of the development would be less, leaving more space for

stormwater absorption. The reduced height, and therefore weight, of some of these buildings would mean that foundations might not have to be as deep, and less imported fill would be needed to raise the level of the buildings from the flood plain. There would therefore be a *reduced* impact from this alternative compared to the proposed project, and the Reduced Density Alternative would be an improvement.

j. Land Use and Planning

This alternative would have the same layout of land uses as the proposed project and would not significantly differ. It would therefore be *equivalent* to the proposed project.

k. Noise

The lower number of residents and employees, and therefore vehicle miles traveled, would produce less vehicle noise along busy streets. Construction noise would be approximately the same as under the Plan. Overall, the impact would be *reduced* compared to the proposed project, and the Reduced Density Alternative would be an improvement.

l. Population and Housing

The population of the Plan Area with buildout under the Specific Plan is within the estimates forecasted by ABAG in 2009 and causes no impact. There is also no significant displacement of people as a result of the Specific Plan development. There is therefore no difference in impact with the Reduced Density Alternative, and the impact would be *equivalent.*

m. Public Services and Recreation

A lower population in the Plan Area requiring police and fire services would reduce the need for service expansion. Although this could be paid for through development impact fees, police service needs are not currently covered by an adopted service ratio. With fewer people in the Plan Area needing services, the impact to services would therefore be *reduced*, and the Reduced Density Alternative would be an improvement.

n. Transportation/Traffic

With fewer residents and employees in the Plan area and a lower number of vehicle miles travelled, traffic congestion would be slightly less. Impacts would be *reduced*, and the Reduced Density Alternative would be an improvement.

o. Utilities and Service Systems

With fewer people in the service area, less water would be consumed. There is already insufficient water to support the existing population. The Specific Plan contains a policy restricting development until new water rights have been obtained. With a reduced population, the need for additional water rights would be less acute, and the impact would be reduced compared to the proposed project. Additional water treatment rights with EPASD would be needed for growth. The Specific Plan policy to ensure that these treatment rights are obtained prior to development would still be in place. However, with the reduced density alternative, the impact would be reduced. The DE-PLAN for infrastructure upgrades would still be implemented under this alternative, providing adequate infrastructure for the new development and improving the existing flooding situation over the southern part of the Plan Area. Overall, there would be a *reduced* impact compared to the proposed project, and the Reduced Density Alternative would be an improvement.

3. Feasibility and Comparison to Project Objectives

As shown in Table 5-3, the Reduced Density Alternative would meet all of the project objectives, although some would be fulfilled less well. The lower building square footage and smaller buildings would provide fewer jobs and less revenue to the City to fund capital improvements and public amenities. With height restrictions, although offices would still have Bay views, they would be slightly less impressive than if the building were taller. With a change in uses, there could be more incentives to redevelop contaminated sites near the Bay.

C. Housing on 391 Demeter Street Alternative

1. Principal Characteristics

Development under this alternative would occur as under the policies of the Plan, but the developable area of the property at 391 Demeter Street is assumed to be developed with residential land uses (at approximately 20 dwelling units per acre) rather than office/industrial flex uses.

2. Impact Discussion

a. Aesthetics

As this alternative accommodates high density residential uses instead of office/industrial flex development on the 391 Demeter Street property, building footprints and heights would on average be lower than under the Specific Plan. In the northern parts above Purdue Avenue, eastward views of the baylands and westward views from the Bay Trail on the baylands would potentially be less impeded by tall office buildings. There would therefore be a *reduced* impact compared to the proposed project, and the Housing on 391 Demeter Street Alternative would be an improvement.

b. Agriculture and Forestry Resources

The project area has no agricultural or forestry resource and no impacts from the Plan implementation. This alternative would be *equivalent* to the proposed project in that regard.

c. Air Quality

Under this alternative, the population increase would be slightly higher than the proposed plan. As a result, there would be a slightly higher number of new traffic trips generated and more pollutant emissions associated with the additional residential development. All mitigation measures that are applicable to the proposed project would also be applied to this alternative. Overall, impact would be *increased* and this alternative would be a deterioration compared to the proposed project.

d. Biological Resources

With fewer tall office buildings close to the Bay, there would also be less opportunity for bird strikes. There would therefore be a slightly *reduced* impact from this alternative compared to the proposed project, and the Housing on 391 Demeter Street Alternative would be an improvement.

e. Cultural Resources

With the change in development type, there would be little change to the cultural resource impacts from this alternative, and this alternative would be *equivalent* to the proposed project.

f. Geology and Soils

As there would be fewer tall buildings on land close to the Bay, the weight of development would be reduced and less imported fill would be needed to raise the level of the buildings from the flood plain. There would therefore be a slightly *reduced* impact from this alternative compared to the proposed project, and the Housing on 391 Demeter Street Alternative would be an improvement.

g. Greenhouse Gas Emissions

This alternative would result in a relative increase in the number of residents, but reduction in the number of jobs in the Specific Plan area, compared to the proposed project, leading higher number of vehicle miles traveled. Although the reduction of the developed square footage overall would reduce the energy use from building operation, the ongoing transportation-related emissions would dominate. Therefore there would be an *increased* impact, and the Housing on 391 Demeter Street Alternative would be a deterioration.

h. Hazards and Hazardous Materials

With the smaller development footprint, there would be no change to the hazards and hazardous materials impacts resulting from disturbing subsurface contamination and redeveloping contaminated sites, except that sites would have to be cleaned up to the higher standards required for residential rather than commercial/industrial development. However, since the property

would be located immediately adjacent to the land designated for R&D/Industrial uses, this alternative would bring more people living in the area and coming in close contact with heavy industry. The impact would therefore be *increased*, and the Housing on 391 Demeter Street Alternative would be a deterioration.

i. Hydrology and Water Quality

This alternative would bring more residents in the 100-year flood hazard zone in the Plan Area. Therefore there would be an *increased* impact from construction of housing and structures in the flood plain under this alternative compared to the proposed project, and the Housing on 391 Demeter Street Alternative would be deterioration.

j. Land Use and Planning

As the proposed project was found to be broadly consistent with existing plans and policies, this alternative would not alter that situation, and the impacts would be *equivalent* to the proposed project.

k. Noise

The slightly higher number of residents and employees, and therefore vehicle miles traveled, would produce more vehicle noise along busy streets. However, because of the smaller footprints and lower building heights of single-family residential development, construction noise would be slightly less than under the Plan. Overall, this alternative would be *equivalent* to the proposed project.

l. Population and Housing

The population of the Plan Area with buildout under this alternative is within the estimates forecasted by ABAG in 2009 and causes no impacts. There is also no significant displacement of people as a result of this alternative development. There is therefore no difference in impacts with the Housing on 391 Demeter Street Alternative, and the impacts would be *equivalent.*

m. Public Services and Recreation

A higher population in the Plan Area requiring police and fire services would increase the need for service expansion. Although this could be paid for through development impact fees, police service needs are not currently covered by an adopted service ratio. With more people in the Plan Area needing services, the impact to services would therefore be *increased*, and the Housing on 391 Demeter Street Alternative would be a deterioration.

n. Transportation/Traffic

With more residents and less jobs in the Plan area and the higher number of vehicle miles traveled, traffic congestion would be slightly greater. Impacts would be *increased*, and the Housing on 391 Demeter Street Alternative would be a deterioration.

o. Utilities and Service Systems

With more people in the service area, more water would be consumed. There is already insufficient water to support the existing population. The Specific Plan contains a policy restricting development until new water rights have been obtained. With an increased population, the need for additional water rights would be more acute, and the impact would be increased compared to the proposed project. Overall, there would be an *increased* impact compared to the proposed project, and the Housing on 391 Demeter Street Alternative would be a deterioration.

3. Feasibility and Comparison to Project Objectives

As shown in Table 5-3, the Housing on 391 Demeter Street Alternative would meet all of the project objectives, although some would be fulfilled less well. The replacement of office/industrial flex with high density residential developments would provide fewer jobs and less revenue to the City to fund capital improvements and public amenities. This alternative is only feasible if contamination could be remediated to standards suitable for residential development.

D. Wetland Setback Alternative

1. Principal Characteristics

With this alternative, a 300-foot wide buffer zone would be drawn around the existing wetland edge, and new development and infrastructure would be prohibited in this zone. A 300-foot buffer around tidal wetlands is one of the goals of the *Baylands Ecosystem Habitat Goals*, prepared in 1999 by the U.S. Environmental Protection Agency and San Francisco Water Quality Control Board.[1]

Structures on vacant properties could be demolished and the land restored and remediated to provide an upland area of habitat, with a refuge for wildlife in the event of a very high tide. At a later date, the existing levee system with the Bay Trail could be moved inland and the buffer zone habitat be connected to the wetland. The easternmost portion of Bay Road could be replaced with a road bridge to the end of Cooley Landing, and wetlands underneath the bridge restored, creating a continuous corridor for wildlife through the Palo Alto Baylands to the Ravenswood Open Space Preserve and Don Edwards National Wildlife Reserve. Public access to this zone would be restricted to a trail around the external levee and a boat launch point at Cooley Landing, accessed via a bridge with a marsh overlook.

The buffer zone would be important for flood protection to areas inland by accommodating changes to water levels during exceptionally high tides and storms and providing space for water to flood. The same degree of development would be accommodated on land set back from the wetlands edge. If the developed vacant properties in the buffer zone were restored as wildlife habitat rather than being developed, and the undeveloped land were not de-

[1] U.S. Environmental Protection Agency and San Francisco Water Quality Control Board, 1999. *Baylands Ecosystem Habitat Goals*. Part of the Series: Goals Project. A report of habitat recommendations prepared by the San Francisco Bay Area Wetlands Ecosystem Goals Project

veloped, as under the Plan, an estimated 20 acres would be made available for groundwater recharge.[2]

Several properties in the proposed buffer zone are contaminated by past industrial activities, most notably those at the eastern ends of Bay Road and Weeks Street. These include the former Romic Environmental Technologies hazardous waste management facility at 1990 Bay Road, which is a federal Superfund site. The subsurface remediation would have to be completed, and the 20-foot deep sub-surface barrier preventing offsite migration of contaminants would have to be removed for this alternative to function. The area of contaminated soil on the 391 Demeter Street property would also partially fall within the 300-foot setback from the wetland areas and would need to be remediated and restored. The Pacific Gas and Electric Company (PG&E) substation would also be moved for this alternative.

The existing residential development to the north and the small amount south of Weeks Street would remain. This alternative does not preclude construction of the loop road, and if it were placed on a levee, it could serve as a flood protection device. Provided it did not compromise flood protection, the levees around the Ravenswood Open Space Preserve area could then be removed.

2. Impact Discussion

a. Aesthetics

As, by definition, this alternative accommodates the same degree of development on a reduced amount of land, building heights would on average be taller, although height limits would not necessarily be greater. However, the tallest buildings would not be located as close to the tidal marsh edge. There would be little difference in views or visual landscapes from the Wetlands Setback Alternative, and the impact would be *equivalent* to the proposed project.

[2] Only the unsaturated portion of the upland area above the water table would be available for water storage.

b. Agriculture and Forestry Resources

The project area has no agricultural or forestry resource and no impacts from the Plan implementation. This alternative would be *equivalent* to the proposed project in that regard.

c. Air Quality

This alternative assumes the same number of residents, employees, and vehicle miles traveled. The impact would therefore be *equivalent* to the proposed project.

d. Biological Resources

This alternative would restore the existing wetland habitat and create some contiguous upland habitat. A small amount of wetland area would still be used for flood defense and the loop road. Although during restoration there could be temporary impacts to special-status species and sensitive natural communities, on project completion there would be substantial improvements to habitats that support special-status species. As a consequence of the project a small area of wetlands would still be filled; however a larger amount would be restored. There would be no conflict with the goals of the Baylands Ecosystem Habitat Goals project. In conclusion, the impact from this alternative would be *reduced* compared to the proposed project, and the Wetland Setback Alternative would be a substantial improvement.

e. Cultural Resources

Under this alternative, the easternmost 300 feet (as much as 500 feet in the triangular area of the 391 Demeter Street property) would be restored rather than developed or redeveloped. Much of this area has already been disturbed for construction of industrial facilities. Archaeological remains are found throughout the Plan Area, and paleontologic remains and human remains have the potential to be found throughout the Plan Area. The impacts from restoration and utility burial are likely to involve as much ground disturbance as would redevelopment. It is unlikely that any historic buildings would be

affected in this zone. In conclusion, the impact from this alternative would be *equivalent* to the proposed project.

f. Geology and Soils

As shown on Figure 4.6-1, the easternmost 300 to 500 feet of land is underlain directly by Bay Mud, artificial fill, or coarser basin deposits. Bay Mud is probably present beneath the fill and coarser deposits, and most of the building foundations would penetrate it. Groundwater is very shallow in this zone, between 0 and 8 feet below the ground surface, and the sediments below this level are saturated. This zone will experience amplified shaking in an earthquake relative to areas farther from the Bay. There could also be lateral spreading and differential settling from construction on Bay Mud as a result of earthquakes. The muddy substrate is also expansive. Although construction in these zones is difficult, there are engineering solutions to allow structures to be built that can withstand these effects and comply with all the provisions of the California Building Code. The impact from this alternative would therefore be *equivalent* to the proposed project.

g. Greenhouse Gas Emissions

This alternative contains the same amount of square footage of development as the proposed project, although that development would be distributed differently. Most of the greenhouse gas (GHG) emissions from the Plan implementation would be generated from energy used in building operations, industrial processes, and traffic. There could be a small benefit from increasing development density in the area away from the buffer zone, but overall, this alternative would be *equivalent* to the proposed project.

h. Hazards and Hazardous Materials

Development under the Wetlands Setback Alternative would result in no changes to the impacts from bringing residential development into relatively close proximity with industry. There would be a slightly reduced impact from the proximity of the Palo Alto Airport by locating fewer people in this area.

Under this alternative, new development in the easternmost zone would be restricted, and the developed and disturbed sites close to the Bay would be restored if and when those sites became vacant. This would still involve disturbing subsurface contamination and demolishing existing contaminated structures. This would then facilitate a complete remediation and restoration effort. Instead of building new structures to prevent human contact with remnant contamination, or restricting the degree of contact by preventing residential development, human access would be prevented. In conclusion, overall, this alternative would be *equivalent* to the proposed project.

i. Hydrology and Water Quality

If an area of approximately 20 acres closest to the Bay is either preserved in its natural state or converted to permeable upland areas for groundwater recharge, this would provide some storage capacity for flood waters. The area closest to the Bay would not be developed with tall, heavy office and/or apartment buildings requiring deep foundations, compacted engineering fill, and elevation out of the flood plain. There would be a *reduced* impact from construction of housing and structures in the flood plain under this alternative compared to the proposed project, and the Wetland Setback Alternative would be a substantial improvement.

j. Land Use and Planning

As the proposed project was found to be broadly consistent with existing plans and policies, this alternative would not alter that situation, and the impacts would be *equivalent* to the proposed project.

k. Noise

This alternative would include the same number of residents and employees in the Plan Area with the same amount of traffic and construction noise. The noise would be concentrated in the core of the Specific Plan area away from the tidal marsh edge. However, overall the impact would be *equivalent* to the proposed project.

l. Population and Housing

This alternative includes the same number of people with a slightly different distribution. The impact would be *equivalent* to the proposed project.

m. Public Services & Recreation

With the same population as under the Specific Plan, this impact would be *equivalent* to the proposed project.

n. Transportation/Traffic

With the same population as under the Specific Plan, this impact would be *equivalent* to the proposed project.

o. Utilities and Service Systems

With the same population as under the Specific Plan, the impacts from increased water supply demand and wastewater treatment needs would be *unchanged*. There would be a minor change to the location of new pipes and their sizing, but generally the impact would be *equivalent* to the proposed project.

3. Feasibility and Comparison to Project Objectives

As shown in Table 5-3, the Wetlands Setback Alternative would meet all the project objectives, with the exception of the last which is to facilitate the cleanup of contaminated sites by providing new development opportunities in those locations. It is possible that the commercial potential of the bayside offices would be slightly reduced if they were set back slightly farther from the Bay with intervening upland areas. If this alternative were taken further, its feasibility would have to be closely examined. It requires density to be slightly increased away from the Bay in order to provide for the same square footage of mixed-use, office, and industrial uses. If development in the areas closest to the Bay were not allowed, there would be no stimulus provided by new development to complete the cleanup of contaminated sites. Developments in this area that have already received entitlements, such as 151 Tara Road, would presumably still go forward. Most notably, restoration of this

area would be dependent upon large funding sources that have not been identified.

E. Environmentally Superior Alternative

The No Project Alternative would represent an improvement over the proposed project in 9 out of 15 subject areas. Although is unlikely to prevent all significant and unavoidable impacts due to traffic congestion that would result from the proposed project, it would be a substantial improvement in that regard. It is therefore the most environmentally superior.

When the No Project Alternative is the environmentally superior alternative, CEQA requires selection of the next most environmentally superior. The Reduced Density Alternative and Wetlands Setback Alternative are approximately equivalent as the next most environmentally superior alternative. The Reduced Density Alternative would produce improvements for 11 out of 15 issues, although none would be a substantial improvement. The Wetlands Setback Alternative would reduce the impacts in 3 out of 15 issues. However, improvements in two of subject areas would be substantial. There would be a major improvement in lowering risks to people and structures from flooding, especially with sea level rise. There would be a considerable benefit to biological resources from reduction of construction in wetland areas, encroachment on them, and possible wetland deterioration due to hydrological changes from filling of bayside land.

The Housing on 391 Demeter Street Alternative would be the least environmentally superior, resulting in a slight deterioration for 7 environmental issues compared to the proposed project and a slight improvement in relation to 3 of 15 issues examined in Table 5-2.

F. Recommended Alternative

The Wetland Setback Alternative would meet all of the objectives except the last, as it would require a funding source for the restoration of the bayside zone. It is environmentally superior to the proposed project, as it reduces the impacts to people and structures from flooding, including sea level rise, and to biological resources from construction in wetland areas.

G. Alternatives Considered But Rejected

An *Alternatives Analysis* for the Specific Plan was completed in October, 2010.[3] This included the following alternative scenarios also described in Table 5-4.

- **Alternative 1: Bay Road Focus.** This alternative extends the area of industrial uses east to the Bay with an area of office uses to the south but is otherwise similar to the Proposed Project. No loop road is included in this alternative.
- **Alternative 2: Mixed Use Village.** In this alternative, office uses are placed by the Bay, and mixed-use development is concentrated around the Bay Road/Pulgas Avenue intersection. The light industrial buffer between industrial and existing residential uses is replaced with additional residential uses, and the 391 Demeter Street property to the north is also designated as residential. No loop road is included in this alternative.
- **Alternative 3: Offices by the Bay.** This alternative is similar to the Proposed Project in its office uses placed north of Bay Road in the eastern part of the Plan Area, although it differs in that industrial is placed to the south, and office south of that. Mixed use replaces the light-industrial buffer as a transition from industrial to existing residential in the western part of the development area. The loop road would run around the existing residential area to connect to the north of Demeter Street, as in the proposed project.

[3] DC&E, 2010. *Ravenswood/4 Corners Transit Oriented Development Specific Plan. Alternatives Analysis*.

TABLE 5-4 ***NET DEVELOPMENT PROJECTIONS FOR ALTERNATIVES FROM ALTERNATIVES ANALYSIS***

Land Use	AA Alternative 1: Bay Road Focus	AA Alternative 2: Mixed-Use Village	AA Alternative 3: Offices by the Bay
Single-Family Residential	15 units	16 units	18 units
Multi-Family Residential	1,060 units	1,400 units	880 units
R&D/Industrial	552,000 square feet[a]	174,500 square feet[b]	240,200 square feet[c]
Retail	126,000 square feet	115,000 square feet	112,400 square feet
Office	356,700 square feet	1,258,000 square feet	1,703,800 square feet
Civic	91,000 square feet[d]	36,000 square feet[e]	1,000 square feet[f]
Parks and Trails	18 acres	18 acres	24 acres

[a] Includes +718,500 square feet new R&D/industrial and -166,500 square feet existing industrial.
[b] Includes +348,500 square feet new R&D/industrial and -174,000 square feet existing industrial.
[c] Includes +406,200 square feet new R&D/industrial and -166,000 square feet existing industrial.
[d] Includes +25,000 square feet performing arts center; +80,000 square feet school (500 students); +30,000 square feet health services; -44,000 square feet existing uses on opportunity sites.
[e] Includes +30,000 square feet community center; +50,000 square feet school (320 students); -44,000 square feet existing uses on opportunity sites.
[f] Includes +30,000 square feet library expansion; +15,000 square feet health services; -44,000 square feet existing uses on opportunity sites.
Source: The Planning Center | DC&E, 2010.

The Specific Plan as presented in this Draft EIR is the preferred alternative based on the comparison of alternatives presented in the Alternatives Analysis. It was judged and selected using these criteria:

- Built environment – land use compatibility and community character
- Transportation – vehicle traffic, public transit, pedestrians and bicyclists
- Economics – local job creation, overall job creation, revenue potential, economic feasibility

Alternatives evaluated in the EIR are those that would reduce the impacts created by the Specific Plan, as presented in Chapter 3, Project Description of this EIR. The Alternatives Analysis options were not tailored for the purpose of reducing the impacts, as the impacts had not been determined at that stage, and are therefore not the alternatives selected for analysis in the EIR.

6 CEQA-REQUIRED ASSESSMENT CONCLUSIONS

This chapter provides an overview of the impacts of the proposed project based on the technical analyses presented in Chapters 4 and 5. The topics covered in this chapter include growth inducement, unavoidable significant impacts and significant irreversible changes. A more detailed analysis of the effects the Plan would have on the environment and proposed mitigation measures to minimize significant impacts is provided in Chapter 4.

A. Growth Inducement

Section 15126.2(d) of the CEQA Guidelines requires that an EIR discuss the ways 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. Typical growth inducing factors might be the extension of urban services or transportation infrastructure to a previously unserved or under-served area, or the removal of major barriers to development. This section evaluates the proposed project's potential to create such growth inducements. Not all aspects of growth inducement are negative; rather, negative impacts associated with growth inducement occur only where the project growth would cause adverse environmental impacts.

The Plan would involve direct growth inducement through the construction of up 591 new housing units by 2035. However, as described in Chapter 4.10, Population and Housing, population and job growth that could occur under the Plan is in line with ABAG projections.

The Plan is not expected to result in indirect growth inducement because all development and infrastructure under the Plan would occur within already developed areas of East Palo Alto. The infrastructure extensions would serve the Plan Area, and no additional areas.

Longer-term employment would be provided through the various industrial, office and retail uses that would be developed under the Plan. These businesses and proposed residential uses would have the potential to create demand for other businesses that may choose to locate near the Plan Area. To

the extent that additional jobs would be created outside of the Plan Area, the Plan could have a growth-inducing effect in other areas of the city or nearby cities. However, since the Plan calls for infill, mixed-use development, and encompasses all of the Ravenswood Business District and 4 Corners area, it is expected that the Plan Area could absorb any demand for additional employment opportunities, and this effect is not be expected to be significant.

B. Unavoidable Significant Impacts

Section 15126.2(b) of the CEQA Guidelines requires that an EIR describe any significant impacts that cannot be avoided, even with the implementation of feasible mitigation measures. This section lists the impacts for the proposed project that were found to be significant and unavoidable. More information on these impacts is found in Chapter 4 of this Draft EIR.

Impact AQ-1: Conflict with Clean Air Plan Projections and Control Measures. The proposed Plan would increase the rate of vehicle use at a greater rate than population growth. This would lead to greater regional emissions of nonattainment air pollutants (or their precursors) than assumed in the latest Air Quality Plan.

Impact AQ-CUM-1: Conflict with Clean Air Plan Projections and Control Measures. The proposed Plan would contribute to a regional impact by increasing the rate of vehicle use at a greater rate than population growth. This would lead to greater regional emissions of nonattainment air pollutants (or their precursors) than assumed in the latest Air Quality Plan.

Impact TRA-1 (Willow Road and Bayfront Expressway): During the PM peak hour, the intersection currently operates at an unacceptable level of service (LOS E). The addition of project-generated traffic is expected to cause the critical-movement delay on the southbound approach to increase by three seconds. This constitutes a *significant adverse impact* according to the thresholds established by the City of Menlo Park.

Impact TRA-2 (University Avenue and Bayfront Expressway): During the PM peak hour, the intersection currently operates at an unacceptable level of service (LOS E). The addition of project-generated traffic is expected to cause the average control delay at the intersection to increase by 31.6 seconds. This constitutes a ***significant adverse impact*** according to the thresholds established by the City of Menlo Park.

Impact TRA-9 (Freeway): All of the freeway segments evaluated would be significantly impacted by the implementation of the Specific Plan. Project impacts on freeway segments would diminish as the distance from the Plan Area increases until eventually the project's impact on freeway segments would be below the threshold established for significant impacts. This would be considered a ***significant adverse impact*** to freeway segments close to the Plan Area.

Impact TRA-CUM-1 (Willow Road and Bayfront Expressway): During the PM peak hour, the intersection is expected to operate at an unacceptable level of service (LOS F) under cumulative no project conditions. The addition of project-generated traffic is expected to cause the critical-movement delay on the southbound approach to increase by 3.0 seconds. This constitutes a ***significant adverse impact*** according to the thresholds established by the City of Menlo Park.

Impact TRA-CUM-2 (University Avenue and Bayfront Expressway): During the AM and PM peak hours, the intersection is expected to operate at an unacceptable level of service (LOS F) under cumulative no project conditions. The addition of project-generated traffic is expected to cause the average control delay at the intersection to increase by 17 to 28 seconds. This constitutes a ***significant adverse impact*** according to the thresholds established by the City of Menlo Park.

Impact TRA-CUM-4 (University Avenue and Bay Road): This intersection is expected to operate at an unacceptable level (LOS F) during the AM and PM peak hours under cumulative no project conditions. The addition of pro-

ject-generated traffic is expected to cause the intersection critical-movement delay to increase by at least 143 seconds and the V/C ratio to increase by at least 0.3 during the AM and PM peak hours. The average delay would be 265.1 seconds during the AM peak hour and 346.9 seconds during the PM peak hour. This constitutes a ***significant adverse impact*** according to the thresholds established by the City of East Palo Alto.

Impact TRA-CUM-6 (University Avenue and Highway 101 SB Off-Ramp): This intersection is expected to operate at an unacceptable level (LOS F) during the PM peak hour under cumulative no project conditions. The addition of Specific Plan-generated traffic is expected to cause the intersection critical-movement delay to increase by 45.9 seconds and the V/C ratio to increase by 0.14 during the PM peak hour. The resulting average delay would be 155.2 seconds. This constitutes a ***significant adverse impact*** according to the thresholds established by the City of East Palo Alto.

Impact TRA-CUM-7 (University Avenue and Woodland Avenue): This intersection is expected to operate at an unacceptable level (LOS F) during the PM peak hour under cumulative no project conditions. The addition of project-generated traffic is expected to cause the intersection critical-movement delay to increase by 8.5 seconds and the V/C ratio to increase by 0.02 during the PM peak hour. The resulting average delay would be 144.4 seconds. This constitutes a ***significant adverse impact*** according to the thresholds established by the City of East Palo Alto.

Impact TRA-CUM-11 (Pulgas Avenue and Bayshore Road): This intersection is expected to operate at an acceptable level (LOS D) during the PM peak hour under cumulative no project conditions. The addition of project-generated traffic is expected to cause the intersection to degrade to LOS E with 74.5 seconds of delay during the PM peak hour. This constitutes a ***significant adverse impact*** according to the thresholds established by the City of East Palo Alto.

Impact TRA-CUM-12 (Embarcadero Road and Bayshore Road): This intersection is expected to operate at an unacceptable level (LOS E) during the AM peak hour under cumulative no project conditions. During the AM peak hour, the addition of project-generated traffic is expected to cause the intersection critical-movement delay to increase by 21.4 seconds and the V/C ratio to increase by 0.056. The intersection would degrade to LOS F with an average delay of 97.4 seconds. During the PM peak hour, the intersection is expected to operate at an acceptable level (LOS D) under cumulative no project conditions. The addition of project-generated traffic is expected to cause the intersection to degrade to LOS E with 67.3 seconds of delay. This constitutes a ***significant adverse impact*** according to the thresholds established by the City of Palo Alto.

Impact TRA-CUM-13 (University Avenue and Loop Road (new intersection): This intersection would be constructed as part of the Specific Plan. The projected traffic volumes and assumed lane geometry under cumulative plus project conditions is expected to result in LOS F with 98.6 seconds of delay during the PM peak hour. This constitutes a ***significant adverse impact*** according to the thresholds established by the City of East Palo Alto.

Impact TRA-CUM-14 (Freeway): The project trips on study area freeways are expected to be the same under the cumulative plus project scenario as under the existing plus project scenario. Thus, as previously concluded, the Specific Plan is expected to result in ***significant adverse impacts*** to segments of Highway 101 and State Route 84 in the vicinity of the project.

C. Significant Irreversible Changes

Section 15126.2(c) of the CEQA Guidelines requires an EIR to discuss the extent to which a proposed project would commit nonrenewable resources to uses that future generations would probably be unable to reverse. The three CEQA-required categories of irreversible changes are discussed below.

1. Changes in Land Use that Commit Future Generations

The Plan is intended to guide future development in the Ravenswood/4 Corners area. Although there are some vacant sites in the Plan Area for which development would be stimulated by the Plan, new development under the Plan would largely occur on sites either already developed or in close proximity to existing development. Therefore, the Plan is not expected to result in any land use changes that would commit future generations to uses that are not already prevalent in the Plan Area.

2. Irreversible Damage from Environmental Accidents

Potential environmental accidents of concern include those that would have adverse effects on the environment or public health due to the nature or quantity of material released during an accident and the receptors exposed to that release.

Demolition and construction activities associated with development under the Plan would involve some risk for environmental accidents. However, these activities would be monitored by City, State and federal agencies, and would follow professional industry standards for safety and construction. The land uses proposed by the Plan are similar to existing uses. As a result, the Plan would not pose a substantial additional risk of environmental accidents.

3. Large Commitment of Nonrenewable Resources

Consumption of nonrenewable resources includes issues related to increased energy consumption, conservation of agricultural lands, and lost access to mining reserves. The Plan would require additional electric and gas service, and it would require resources for construction. The City of East Palo Alto has adopted a Climate Action Plan with policies for energy conservation and promotion of renewable energy. These will help to reduce energy consumption and greenhouse gases produced by implementation of the Specific Plan. In addition, the new structures would generally be more energy efficient than the older structures that they replace since new development will need to comply with State regulations such as Title 24, which requires new develop-

ment to incorporate energy conserving features, as well as city regulations and policies that promote the use of renewable energy sources.

The Plan Area does not contain any agricultural land, nor does it provide access to a mining reserve, so it would not affect those natural resources.

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