Alameda County Transportation Authority
East-West Connector Project

Final Environmental Impact Report
(SCH# 2007102078)

Volume 1: Revised Draft EIR

Alameda County Transportation Authority

Oakland, California

April 2009

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East-West Connector Project

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Preface

The Final Environmental Impact Report (Final EIR) for the East-West Connector Project (proposed project) is comprised of two volumes. Volume 1 presents the Draft EIR, which includes the environmental analysis of the proposed project. Volume 2 presents comments received on the Draft EIR and responses to those comments. For clarification and in response to some comments, the Draft EIR includes revisions, but it does not introduce any new significant impacts or substantially more severe impacts.

This document is Volume 1 of the Final EIR.

Requirements for the Final EIR

The Final EIR has been prepared in accordance with the California Environmental Quality Act (CEQA) guidelines. Section 15132 of the CEQA Guidelines states:

The Final EIR shall consist of:

a. Draft EIR or a revision of the Draft EIR.

b. Comments and recommendations received on the Draft EIR, either verbatim or in summary.

c. List of persons, organizations, and public agencies commenting on the DEIR.

d. Responses of the lead agency to significant environmental concerns raised in the review and consultation process.

e. Any other information added by the lead agency.

The Final EIR is an informational document prepared by the Alameda County Transportation Authority (ACTA), the CEQA lead agency, and must be considered by decision-makers before approving or denying the proposed project.

The Draft EIR was made available to the public and regulatory agencies for review and comment during a 60-day comment period between December 11, 2008, and February 9, 2009. Additionally, two public hearings were held to receive verbal comments on the project on January 14, 2009, in Union City, and on January 15, 2009, in Fremont. The comments received on the Draft EIR, responses to the comments, and the revised Draft EIR constitute the formal Final EIR for the proposed project.

Format and Organization of Final EIR

This Final EIR comprises two volumes.

- **Volume 1: Revised Draft EIR** [April 2009]. This is a reprint of the December 2008 Draft EIR with text revisions made for clarification or in response to comments. Additions to the text are shown with underline, deletions are shown in ~~strikethrough~~, and all revisions are indicated with a line in the right margin. The contents include the following.
  - Executive Summary
  - Chapter 1. Introduction
  - Chapter 2. Project Description
  - Chapter 3. Environmental Setting and Impact Analysis
    - 3.1 Aesthetics
    - 3.2 Air Quality
    - 3.3 Biological Resources
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    - 3.6 Hazards and Hazardous Materials
    - 3.7 Hydrology and Water Quality
    - 3.8 Land Use and Planning
    - 3.9 Noise and Vibration
    - 3.10 Population and Housing
    - 3.11 Public Services, Utilities, and Recreation
    - 3.12 Transportation and Traffic
  - Chapter 4. Other Analyses Required by CEQA
  - Chapter 5. Project Alternatives
  - Chapter 6. Agency Consultation
  - Chapter 7. References
  - Appendices
- **Volume 2: Comments on the Draft EIR and Responses to Comments** [April 2009]. This includes comments received on the December 2008 Draft EIR and responses to those comments. The contents include the following.
  - Chapter 1. Public Review of the Draft EIR
  - Chapter 2. Comments on the Draft EIR
  - Chapter 3. Responses to Comments

A List of Preparers of the Final EIR, including agency staff and consultants, is included in Appendix D (Volume 1).

Copies of the Final EIR (Volumes 1 and 2) are on file at the ACTA office (Oakland), the Fremont and Union City Planning Departments, the Fremont and Union City libraries, and on the ACTA website (www.acta2002.com).

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Executive Summary

Executive Summary

Project Overview

The East-West Connector Project (proposed project) is a 3.0-mile roadway project that would provide improved east-west access between Interstate 880 (I-880) on the west and Mission Boulevard on the east in south Alameda County (Figure ES-1). The proposed project would achieve this objective by widening existing roadways (1.7 miles along Decoto Road and Paseo Padre Parkway) and constructing a new roadway (1.3 miles from Paseo Padre Parkway to Mission Boulevard). The proposed project would also provide other infrastructure improvements along its entire length, so upon completion there would be a continuous bike and pedestrian corridor from just east of I-880 to Mission Boulevard. In addition to the proposed project, three project alternatives under consideration are:

- Alternative 1: Historic Alignment in Union City,
- Alternative 2: Previously Studied Transportation System Management, and
- Alternative 3: No Project.

Alternative 1 represents a truncated version of the proposed project and is analyzed at the same level of detail as the proposed project.

Purpose of this Draft Environmental Impact Report

This Draft Environmental Impact Report (EIR) has been prepared to assess the impacts of the proposed project as required by the California Environmental Quality Act (CEQA). CEQA requires that public agencies consider the environmental consequences of projects over which they have discretionary authority before taking action on those projects (Public Resources Code [PRC] 21000 *et seq*.). For this project, the Alameda County Transportation Authority (ACTA) is the lead agency under CEQA because it has the primary responsibility for approving and implementing the proposed project, and therefore the principal responsibility for ensuring CEQA compliance.

This Draft EIR has been prepared pursuant to CEQA and the State CEQA Guidelines (14 California Code of Regulations [CCR] 15000 *et seq*.). An EIR is an informational document used in state, regional, and local planning and decision-making processes. The Draft EIR for a proposed project must identify environmental effects or impacts, including those found to be less than significant; measures to avoid or minimize environmental impacts; and environmental impacts that cannot be avoided. The EIR must also identify growth-inducing impacts and significant cumulative impacts.

This Draft EIR also provides the information necessary to obtain additional permits and approvals required by other agencies for implementation of the proposed project.

The EIR process provides opportunities for relevant agencies and the general public to review and provide input on the Draft EIR. Agencies and the public have an opportunity to comment on the document during the required 45-day public review period. In response to a request to extend the review period, this Draft EIR has a 60-day public review period. A public notice indicating that the Draft EIR is available for review and providing dates and locations of the public hearings has been distributed to over 7,000 residents, property owners, and agencies. The formal notice of availability (NOA) along with a copy of the Draft EIR has been provided to the following agencies and other entities listed in Appendix C.

- State Clearinghouse (with notice of completion) for distribution to responsible and trustee agencies and other concerned state and local agencies, including the California Department of Fish and Game (DFG), San Francisco Regional Water Quality Control Board (RWQCB), and Bay Area Air Quality Management District (BAAQMD)
- California Department of Transportation, District 4
- City of Fremont
- City of Union City

After the close of the review period, comments are reviewed and a Final EIR will be prepared, containing written responses to all comments received during the public review period and incorporating any appropriate revisions to the Draft EIR. The Final EIR will be presented to the governing Board of ACTA for review and certification of its accuracy in accordance with State CEQA Guidelines Section 15090. Certification of the Final EIR does not constitute approval of the proposed project. However, ACTA is required to consider the information in the Draft and Final EIRs before making a decision on the proposed project or Alternative 1.

Purpose of the Proposed Project

The primary objectives of the proposed project are to reduce local traffic congestion and travel time, and to provide a more direct east-west link in the transportation network in Fremont and Union City.

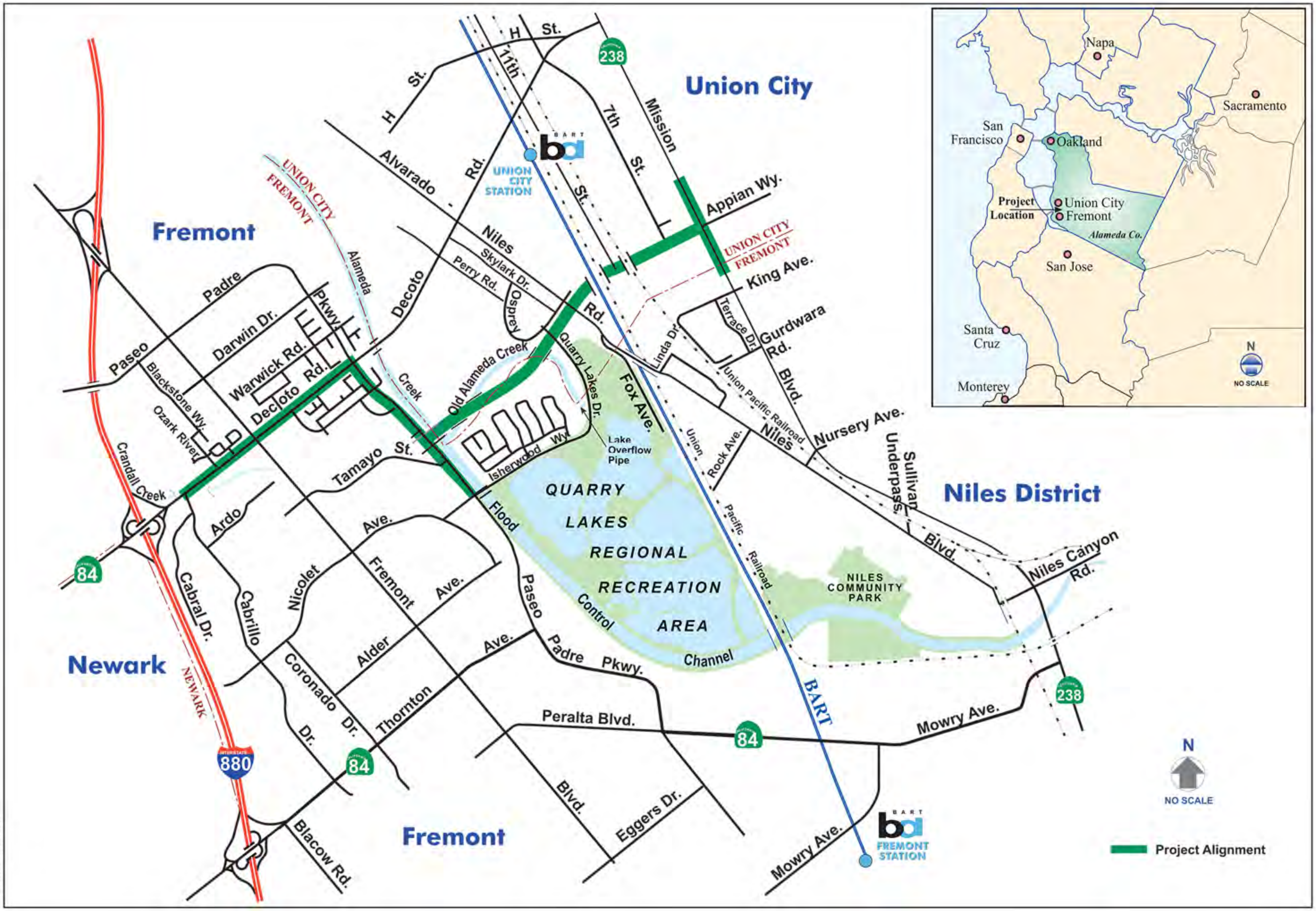

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Figure ES-1
Project Location
ACTA East-West Connector Project

Supporting objectives that would result from implementation of the proposed project and provide benefits to the community would:

- improve air quality by decreasing local traffic congestion,
- implement planned transportation improvements upon which completed and planned developments in Fremont and Union City depend,
- improve access to transit facilities and businesses in the vicinity,
- improve transit operations in the vicinity by reducing congestion along existing and future transit routes,
- promote the use of non-motorized transport, and
- maximize the use of publicly-owned rights-of-way in the Historic Corridor for transportation purposes.

Additionally, this proposed project would improve flood control because it would incorporate a diversion pipeline along the new roadway to supplement the existing Line M Channel, which does not have adequate capacity to handle major storm events.

Known Areas of Controversy

There has been local opposition to the proposed project, primarily from existing residents adjacent to the project alignment along Decoto Road, Paseo Padre Parkway, and the new roadway segment from the Alameda Creek Flood Control Channel to Mission Boulevard. Project opponents have attended the project scoping meetings and provided both verbal and written comments. The objections raised were focused on the following concerns.

- Potential noise impacts on neighboring residents and businesses.
- Potential air quality impacts on neighboring residents and businesses.
- Potential cut-through traffic through residential neighborhoods.
- Potential biological impacts on habitat around Old Alameda Creek.
- Loss of open space adjacent to Old Alameda Creek.
- High cost of the project.
- Need for the project.

Description of the Proposed Project

The 3.0-mile project alignment is located in the Cities of Fremont and Union City in Alameda County, California. The proposed project would widen existing roadways (1.7 miles along Decoto Road and Paseo Padre Parkway) and construct a new roadway (1.3 miles from Paseo Padre Parkway to Mission Boulevard).

The 1.7 miles of existing roadways include Decoto Road (~~0.8~~0.9 mile from Cabrillo Court to Paseo Padre Parkway) and Paseo Padre Parkway (~~0.9~~0.8 mile from Decoto Road to Isherwood Way). Both roadways are located in Fremont and would be widened to six lanes.

The 1.3 miles of new roadway would extend from Paseo Padre Parkway in the west to Mission Boulevard in the east through a corridor that is primarily undeveloped because it has been reserved for a roadway. The undeveloped area includes the Alameda Creek Flood Control Channel, Old Alameda Creek, transit and railroad tracks, two detention basins, and the Line M Stormwater Channel. The new four-lane roadway would meet the local design standards of Fremont and Union City and would not be designed as a freeway or expressway.

Table ES-1 lists the major project components or features of the proposed project.

Table ES-1. Summary of Project Components of the Proposed Project: East-West Connector Project

Improvements to Existing Roadway Segments	
Decoto Road	Widen 0.9-mile segment, from intersection at Cabrillo Court to Paseo Padre Parkway, to six lanes.
Paseo Padre Parkway	Widen 0.8-mile segment, from Decoto Road to Isherwood Way, to six lanes.
Decoto Road/Cabrillo Court	Signal modification at existing intersection. Signal adjusted/re-timed.
Decoto Road/Ozark River Way	Signal modification at existing intersection. Signal adjusted/re-timed.
Decoto Road/Fremont Boulevard	Signal and intersection modification at existing intersection. Signal adjusted/re-timed. Additional turn lanes will be provided.
Decoto Road/Brookmill Drive	New signal at existing intersection.
Decoto Road/Paseo Padre Parkway	Signal and intersection modification. Signal adjusted/re-timed. Additional turn lanes will be provided.
Paseo Padre Parkway/Wyndham Drive	New signal at existing intersection.
Paseo Padre Parkway/Tamayo Drive	New signal at existing intersection.
Paseo Padre Parkway/Isherwood Way	Signal modification at existing intersection. Signal adjusted/re-timed.
New Roadway and Other Infrastructure Improvements	
New Roadway	Construct 1.3 miles of new four-lane roadway from Paseo Padre Parkway to Mission Boulevard.
New or Improved Intersections	
Paseo Padre Parkway/ New Roadway	New intersection. Turn pockets and signals provided.
Quarry Lakes Drive/ New Roadway	New intersection. Realigned westward and signalized (3- or 4-way intersection, depending option selected)

Alvarado-Niles Road/ New Roadway	New intersection. Turn pockets and signals to be provided.
Alvarado-Niles Road/Olsen Way	Signal modification at existing intersection. Signal adjusted/re-timed.
11th Street/ New Roadway	New intersection. Turn pockets and signals to be provided.
7th Street/ New Roadway	New intersection with realigned 7th Street/Chesapeake Drive. Turn pockets and signals to be added.
Mission Boulevard/ New Roadway	Intersection modification at Mission Boulevard and Appian Way. New turn pockets added. Signal adjusted/re-timed.
Other Project Features	
Alameda Creek Flood Control Channel Bridge	New bridge crossing.
Old Alameda Creek Bridges	New bridge crossings at two locations.
Quarry Lakes Drive Realignment	Realignment of Quarry Lakes Drive approximately 450 feet to the southwest (old roadway to be removed).
Silva Farmhouse Demolition	Demolition of existing single-family residence and barn southwest of proposed alignment and intersection of Alvarado-Niles Road
Rail and Road Grade Separation	Addition of three grade separation structures for new roadway alignment extending beneath BART, UPRR Oakland Subdivision, and UPRR Niles Subdivision
Removal of Detention Basins	Removal of two detention basins (New Basin and Basin 2C) between Alvarado-Niles Road and Mission Boulevard
Line M Channel and Diversion Pipeline	Installation of drainage bifurcation facilities at Chesapeake Drive and of new 84-inch buried pipeline on south side of new road to Old Alameda Creek.
Modifications to 7th St and Corporation Yard	Realignment of 7th Street and reconfiguration of compressed natural gas refueling Island and replacement parking for Union City Corporation Yard and Drigon Park.
Wetlands Mitigation Site	Creation of a wetlands mitigation site along Old Alameda Creek to compensate for loss of wetlands and riparian vegetation.
Replacement of Old Alameda Creek Outlets	Possible replacement of drainage gates that keep water from Alameda Creek Flood Control Channel from backing up into Old Alameda Creek
Trail System Upgrades and Maintenance	Construction of a multi-use path on north side of new roadway; new trail segments at new bridge abutments and in Fremont.
Utility Relocation and Construction	Possible relocation of existing utility poles and lines; existing storm drains and drainage inlets may be relocated or modified

Description of Project Alternatives

CEQA requires that an EIR include consideration of a “reasonable range” of alternatives to the proposed project or project location and a brief discussion of the rationale for selecting the alternatives included. CEQA also requires analysis of the no-project alternative. CEQA does not require the alternatives to be evaluated in the same level of detail as the proposed project (State CEQA Guidelines Section 15126).

As part of the process for determining the proposed project, ACTA, in coordination with responsible agencies (Caltrans and the Cities of Fremont and Union City), considered a wide range of alternatives as identified in previous documents and studies. These alternatives are described in Chapter 5, Project Alternatives, of this Draft EIR. ACTA, Caltrans, and the Cities of Fremont and Union City entered into a Memorandum of Understanding (MOU), which included identifying the proposed project and the alternatives to be considered in this Draft EIR. The alternatives, evaluated qualitatively and in comparison to the proposed project (in Chapter 5, Project Alternatives), are listed below.

- Alternative 1: Historic Alignment in Union City
- Alternative 2: Previously Studied Transportation System Management
- Alternative 3: No Project

Alternative 1: Historic Alignment in Union City is a truncated version of the proposed project and is analyzed at an equal level of detail as the proposed project (in Appendix E of this Draft EIR). Table ES-2 lists the major project components or features of Alternative 1.

Table ES-2. Summary of Project Components of Alternative 1: Historic Alignment in Union City

New Roadway and Other Infrastructure Improvements	
New Roadway	Construct 0.6 miles of new four-lane roadway from Alvarado-Niles Road to Mission Boulevard
New or Improved Intersections	
Alvarado-Niles Road/ New Roadway	Intersection modification. Turn pockets and signals to be added
11th Street/ New Roadway	New intersection. Turn pockets and signals to be added
7th Street/ New Roadway	New intersection with realigned 7th Street/Chesapeake Drive. Turn pockets and signals to be added
Mission Boulevard/ New Roadway	Intersection modification at Mission Boulevard and Appian Way. New turn pockets added. Signal adjusted/re-timed
Other Project Features	
Silva Farmhouse Demolition	Demolition of existing single-family residence and barn southwest of proposed alignment and intersection of Alvarado-Niles Road

New Roadway and Other Infrastructure Improvements	
Rail and Road Grade Separation	Addition of three grade separation structures for new roadway alignment extending beneath BART, UPRR Oakland Subdivision, and UPRR Niles Subdivision
Removal of Detention Basins	Removal of two detention basins (New Basin and Basin 2C) between Alvarado-Niles Road and Mission Boulevard
Line M Channel and Diversion Pipeline	Installation of drainage bifurcation at Chesapeake Drive and of new 84-inch buried pipeline extending to Old Alameda Creek
Modifications to 7th St and Union City Corporation Yard	Realignment of 7th Street and reconfiguration of compressed natural gas refueling island and parking for Union City Corporation Yard
Wetlands Mitigation Site	Creation of a wetlands mitigation site along Old Alameda Creek to compensate for loss of wetlands
Replacement of Old Alameda Creek Outlets	Possible replacement of drainage gates that keep water from Alameda Creek Flood Control Channel from backing up into Old Alameda Creek
Utility Relocation and Construction	Possible relocation of existing utility poles and lines; existing storm drains and drainage inlets may be relocated or modified

Note: Alternative 1 (Historic Alignment in Union City) is a reduced version of the proposed project.

Impacts of the Proposed Project and Alternative 1

Most of the impacts of the proposed project and Alternative 1 (Historic Alignment in Union City) were determined to be less than significant or could be reduced to a less-than- significant level by implementing mitigation measures. Table ES-3 summarizes the anticipated environmental impacts of the proposed project, the level of significance of the impact, and any required mitigation measures. Table ES-4 provides the same information for Alternative 1. Tables ES-3 and ES-4 are provided at the end of this Executive Summary.

CEQA requires that the significant and unavoidable impacts, which are those that cannot be reduced to a less-than-significant level with mitigation, are listed in the Executive Summary. The following significant and unavoidable impacts would occur with the implementation of the proposed project and Alternative 1 with any differences indicated in parentheses. Most of the significant and unavoidable impacts are temporary construction impacts.

- Aesthetics—New Source of Light and Glare along BART Corridor during Construction
- Air Quality—Temporary Increase in Ozone Precursors (ROG and NO_X), CO, and PM10 Emissions during Grading and Construction Activities
- Noise and Vibration—Exposure of off-Site Noise-Sensitive Land Uses to Short-Term Construction Noise from Roadway Widening
- Noise and Vibration—Exposure of Off-Site Noise-Sensitive Land Uses to Short-Term Construction Noise from New Roadway Construction

- Noise and Vibration—Exposure of Off-Site Noise-Sensitive Land Uses to Short-Term Increases in Railroad Noise during Construction of the New Roadway Grade Separation
- Noise and Vibration—Exposure of Off-Site Noise-Sensitive Land Uses to Short-Term Increases in Railroad Vibration during Construction of the New Roadway Grade Separation
- Noise and Vibration—Contribution to Cumulative Impact on Noise-Sensitive Receptors along Existing Roadways
- Transportation and Traffic—Intermittent Interruption of Rail Service During Construction
- Transportation and Traffic—Reduction in Operations at 19 Intersections under Proposed Project Conditions Compared to No Project Conditions in 2015 (Under Alternative 1, it would be reduction in operations at 15 intersections)
- Transportation and Traffic—Reduction in Operations at 18 Intersections under Proposed Project Conditions Compared to No Project Conditions in 2035 (Under Alternative 1, it would be reduction in operations at 14 intersections)
- Transportation and Traffic—Contribution to Cumulative Impact of Intersections Operating Below Acceptable Thresholds in 2035

Comparison of the Proposed Project and Project Alternatives

This section provides a summary comparison of the project alternatives and the proposed project, including a summary of the environmental impacts, identification of an environmentally superior alternative, and a discussion regarding the ability of each to meet project objectives and the MOU.

Although CEQA does not require that alternatives be evaluated in the same level of detail as the proposed project, this Draft EIR does include an analysis of Alternative 1 (Historic Alignment in Union City) at the same level of detail as the proposed project. Alternative 2 (Previously Studied Transportation System Management) and Alternative 3 (No Project) were not evaluated to the same level of detail, but have been compared to the proposed project as required by CEQA.

Environmental Impacts

Table ES-5 at the end of the Executive Summary provides a summary comparison of the overall impacts of each alternative compared to the proposed project. For each issue area, the table presents the overall impact conclusion (significance determination) for the alternative, and in parentheses, it states whether overall impacts are less than, greater than, or similar to those of the proposed project. Table ES-6 at the end of the Executive Summary provides a specific comparison of the project alternatives to the proposed project for each impact identified for the proposed project.

Environmentally Superior Alternative

CEQA requires that an EIR identify the environmentally superior alternative from among the range of reasonable alternatives that are evaluated. This would ideally be the alternative that results in fewer (or no) significant and unavoidable impacts. CEQA Guidelines Section 15126(d)(2) states that if the environmentally superior alternative is the no project alternative, the EIR shall also identify an environmentally superior alternative from among the other alternatives. When comparing the three alternatives with the proposed project (refer to Tables ES-5 and ES-6), all three alternatives have less environmental impacts than the proposed project with the No Project Alternative (Alternative 3) having the least. However, because CEQA requires identification of an environmentally superior alternative other than the no project alternative, Alternative 1 (Historic Alignment in Union City) or Alternative 2 (Previously Studied Transportation System Management) must be identified as the environmentally superior alternative. When comparing the number of impacts identified in Table ES-6, Alternatives 1 and 2 would result in similar less than significant impacts and the same number of significant and unavoidable impacts. Both Alternatives 1 and 2 have fewer environmental impacts than the proposed project because they do not involve construction of a new roadway between Paseo Padre Parkway and Alvarado-Niles Road. This is common for infrastructure and transportation projects when the alternatives represent a smaller project. To determine whether Alternative 1 or Alternative 2 is environmentally superior, the amount of residential or commercial displacement that would have a substantial socioeconomic impact was considered. The road widening proposed as part of Alternative 2 would result in a substantial socioeconomic impact that would not occur with implementation of the proposed project or Alternative 1 and, therefore, is not captured in Table ES-6. Taking this into consideration, Alternative 1 is considered the environmentally superior alternative compared to Alternative 2 and the proposed project.

Meeting Project Objectives

Following is a comparison of how well the project alternatives meet the project objectives compared to the proposed project. Alternative 3: No Project does not meet project objectives and, therefore, is not included in this comparison.

Project Objectives **Will the project:**	**Alternative 1: Historic Alignment in Union City**	**Alternative 2: Previously Studied Transportation System Management**	**Proposed Project: East-West Connector Project**
Reduce local traffic congestion?	Yes, similar to the proposed project. Alternative 1 would improve operations at more intersections than the proposed project and reduce operations at fewer intersections than the proposed project during both the 2015 and 2035 timeframes. However, when taken on a whole, the proposed project is anticipated to offer greater savings in travel time for the studied corridors and the system overall (see below).	Yes, but not does not reduce to the same level in the project area as proposed project or Alternative 1. Although a quantitative analysis was not prepared for Alternative 2, it is anticipated that there would be some congestion reduction along individual corridors by widening and reconfiguring roadways and by signal synchronization, which would channel traffic from congestion corridors to improved corridors.	Yes. Although the proposed project would reduce operations at certain intersections while improving operations at others, it would reduce system-wide and corridor specific congestion during the peak hours.
Reduce local travel time?	Yes, but not as much as the proposed project. In the year 2035, Alternative 1 is anticipated to reduce travel time on specific roadway segments by up to 15% during the AM and PM peak hours and to reduce system-wide travel time by 18% during the PM peak hour, but it would increase the travel time by 7% during the AM peak. Whereas the proposed project is anticipated to reduce travel time on all seven studied corridors during both peak hours, Alternative 1 would offer less of a reduction and even slightly increase times on certain corridors. (Refer to Tables ES-7 and ES-8 at the end of the Executive Summary.)	Yes, but not as much as proposed project or Alternative 1. See above.	Yes. In the year 2035, the proposed project is anticipated to reduce travel time on specific roadway segments by 33% to 56% during the AM and PM peak hours and to reduce system-wide travel time by 12% to 19% during the AM and PM peak hours. (Refer to Tables ES-7 and ES-8 at the end of the Executive Summary.)
Provide a more direct east-west link in the transportation network?	No. Alternative 1 would only provide a short segment of the planned east-west roadway. Local traffic would continue to use Alvarado-Niles Road and Decoto Road to access I-880, as under existing conditions.	No. Alternative 2 would rely on existing routes.	Yes. The proposed project would provide a new, direct east-west link from Paseo Padre Parkway to Mission Boulevard.

Project Objectives Will the project:	**Alternative 1: Historic Alignment in Union City**	**Alternative 2: Previously Studied Transportation System Management**	**Proposed Project: East-West Connector Project**
Improve air quality by decreasing local traffic congestion?	Yes, but less than the proposed project. Alternative 1 would reduce emissions due to improved operations and reduced congestion during the PM peak, but a slight increase in congestion during the AM peak would lead to slight increases in emissions during this timeframe.	Yes, but less than the proposed project and Alternative 1. The reduction in congestion that would occur with Alternative 2 would likely improve air quality and transit operations, although it is likely that this would occur to a lesser extent than under the proposed project.	Yes. The considerable reduction in system-wide congestion during the AM and PM peak hours would translate to a reduction in local pollutant emissions.
Implement planned transportation improvements upon which completed and planned developments in Fremont and Union City depend?	Yes, but less than the proposed project. Alternative 1 would construct a new 0.6 mile road providing improved access to recent and planned residential and commercial developments.	No. Alternative 2 would provide no new access to completed or planned development because it solely relies on improving existing roads.	Yes. The proposed project would construct a new 1.3 mile road providing improved access to recent and planned residential and commercial developments. However, it would not complete the full Route 84 project (also called the Historic Parkway) that is shown in the Fremont and Union City General Plan, and included in the Alameda County Congestion Management Agency's countywide traffic model.
Improve access to transit facilities and businesses in the vicinity?	Yes. The new roadway under Alternative 1 would improve access to the Union City BART Station and local businesses. The BART station could be accessed directly from the new roadway via 7th Street and 11th Street.	Partial. Alternative 2 includes increased bus service and construction of a new park-and-ride which would improve access to transit facilities, but not as directly as the reduced travel time that would occur from implementing the proposed project and constructing the new roadway.	Yes. The new roadway and widening of existing roadways would improve access to the Union City BART Station and local businesses. The BART station could be accessed directly from the new roadway via 7th Street and 11th Street.

Project Objectives **Will the project:**	**Alternative 1: Historic Alignment in Union City**	**Alternative 2: Previously Studied Transportation System Management**	**Proposed Project: East-West Connector Project**
Improve transit operations in the vicinity by reducing congestion along existing and future transit routes?	Yes, but not as much as proposed project. Alternative 1 would improve transit operations by reducing congestion during the PM peak, but a slight increase in congestion during the AM peak would lead to slight reduction in transit service. Alternative 1 would also provide potential for new transit service on the new road.	Partial. Alternative 2 would improve transit operations by increasing bus service, but it would not directly provide potential for new transit service along the improved roadways and new roadway.	Yes. The proposed project would improve transit operations by reducing congestion during the AM and PM peaks, thereby facilitating flow of bus service. The proposed project would also provide potential for new transit service on the new road.
Promote the use of non-motorized transport?	Yes, but not as much as the proposed project. Alternative 1provides a bike and pedestrian corridor along the new 0.6 mile roadway, linking to existing and planned bike and pedestrian features in other Union City roadways.	Yes, but differently than the proposed project. Alternative 2 includes increased bus service and construction of a park-and-ride lot to encourage bus and transit travel. However, it would eliminate several miles of bike lanes in various streets, discouraging bicycle travel.	Yes. It provides a continuous bike and pedestrian corridor for 3 miles from just east of I-880 to Mission Boulevard, and enhances pedestrian and bicycle facilities along adjoining roadways.
Maximize the use of publicly owned right-of-way in the Historic Corridor for transportation purposes?	Partially. It would use 0.6 miles of the reserved corridor for transportation uses.	No. It does not use any portion of the reserved corridor.	Yes. The proposed project would use 1.3 miles of the reserved corridor for transportation uses.
Improve flood control by incorporating Line M diversion channel?	Yes	No	Yes
Summary	Meets the project objectives, but to a lesser extent than the proposed project.	Meets the project objectives, but to a lesser extent than the proposed project and Alternative 1.	Meets all the project objectives.

Note: A quantitative analysis was not conducted for Alternative 2. This table is intended to be qualitative and comparative. However, because a quantitative analysis was conducted for the proposed project and Alternative 1, quantification and detail are provided where appropriate.

Meeting MOU Requirements

The MOU constitutes a commitment by the signing agencies (ACTA, Caltrans, Fremont, and Union City) to implement the proposed project. The MOU also states that if the proposed project is not chosen as the preferred alternative at the conclusion of the environmental process, then Alternative 1 (Historic Alignment in Union City) would be implemented. This is why Alternative 1 has been evaluated at the same level of detail as the proposed project. Alternatives 2 and 3 would not meet MOU requirements. The MOU has been included in its entirety in Appendix A of the Draft EIR.

Process for Making a Decision on the Project

CEQA requires an EIR to identify the environmentally superior alternative from among the range of reasonable alternatives that are evaluated. CEQA does not require an agency to select the environmentally superior alternative. In response to preparing an EIR, a Lead Agency may: disapprove a project because it has significant environmental effects; require changes in a project to reduce or avoid a significant environmental effect; or approve a project despite its significant environmental effects, if the proper findings and statement of overriding considerations are adopted.

When making a decision on the project, ACTA will consider the environmental impacts of the project as identified in the Draft EIR, the comments on the Draft EIR and responses to those comments in the Final EIR, and the ability to meet the project objectives and the commitments made in the MOU.

Table ES-3. Summary of Impacts and Mitigation Measures for the Proposed Project: East-West Connector Project

Impact	Significance Determination	Mitigation Measure
AESTHETICS		
AES-1: Degradation of Visual Character or Visual Quality for Views Along Decoto Road and Paseo Padre Parkway	Less than Significant	None required
AES-2: Change to Scenic Vistas and Scenic Resources along Paseo Padre Parkway	Less than Significant	None required
AES-3: New Source of Substantial Light or Glare along Decoto Road and Paseo Padre Parkway	Less than Significant	None required
AES-4: Temporary Degradation of Visual Character or Visual Quality along New Roadway Segment between Paseo Padre Parkway and Alvarado-Niles Road during Construction	Less than Significant with Mitigation	AES-1: Provide Screened Fencing around Project Staging Areas during Construction
AES-5: Change of Visual Character or Visual Quality along New Roadway Segment between Paseo Padre Parkway and Alvarado-Niles Road	Less than Significant with Mitigation	AES-2: Prepare and Implement a ~~Incorporate a Vegetated Buffer in the Project~~ Landscape Plan ~~between Paseo Padre Parkway and Alvarado-Niles Road~~along the Project Alignment AES-3: Incorporate Aesthetically Sensitive Design into the Soundwalls between Paseo Padre Parkway and Alvarado-Niles Road
AES-6: Potential Placement of Soundwalls Adjacent to Residential Property between Paseo Padre Parkway and Alvarado-Niles Road	Less than Significant with Mitigation	AES-3: Incorporate Aesthetically Sensitive Design into the Soundwalls between Paseo Padre Parkway and Alvarado-Niles Road
AES-7: Encroachment of Quarry Lakes Drive Realignment Option 2 (Four-Way Intersection) into Arroyo Park	Less than Significant with Mitigation	AES-4: Provide Landscape Plan for Arroyo Park
AES-8: Obstruction of Scenic Vistas from Public Trails Adjacent to Old Alameda Creek	Less than Significant with Mitigation	AES-2: ~~Incorporate a Vegetated Buffer in the Project~~Prepare and Implement a Landscape Plan ~~between Paseo Padre Parkway and Alvarado-Niles Road~~along the Project Alignment AES-3: Incorporate Aesthetically Sensitive Design into the Sound Walls between Paseo Padre Parkway and Alvarado-Niles Road AES-5: Ensure the Landscape Plan Precludes Extremely Tall Vegetation along the New Roadway Alignment between the Two Old Alameda Creek Bridge Crossings

Impact	Significance Determination	Mitigation Measure
AES-9: New Source of Light and Glare from New Roadway between Paseo Padre Parkway and Alvarado-Niles Road	Less than Significant with Mitigation	AES-6: Install Low-Standing Light Standards with Directional Shields Downward along the New Roadway
AES-10: Degradation of Visual Character or Visual Quality along the Redevelopment Corridor between Alvarado-Niles Road and Mission Boulevard	Less than Significant	None required
AES-11: New Source of Light and Glare along BART Corridor during Construction	Significant and Unavoidable	NOI-2: Prepare a Community Awareness Program for Project Construction AES-7: Minimize Fugitive Light from Portable Sources
AES-12: New Source of Light and Glare from New Roadway between Alvarado-Niles Road and Mission Boulevard	Less than Significant with Mitigation	AES-6: Install Low-Standing Light Standards with Directional Shields Downward along the New Roadway
AIR QUALITY		
AIR-1: Temporary Increase in Ozone Precursors (ROG and NO_X), CO, and PM10 Emissions during Grading and Construction Activities	Significant and Unavoidable	AIR-1: Employ Measures to Reduce Criteria Pollutant Emissions during Construction
AIR-2: Violation of Carbon Monoxide NAAQS or CAAQS	Less than Significant / Beneficial	None required
AIR-3: Increase in Greenhouse Gas Contaminant Emissions	Less than Significant with Mitigation	AIR-2: Employ Measures to Reduce Project-Related Greenhouse Gas Emissions
AIR-4: Increase in Localized MSAT Emissions	Less than Significant	None required
BIOLOGICAL RESOURCES		
BIO-1: Degradation of Water Quality in Crandall Creek from Construction Activities Associated with the Roadway Widening	Less than Significant with Mitigation	HWQ-1: Comply with National Pollutant Discharge Elimination System Requirements and Develop and Implement a Stormwater Pollution Prevention Plan
BIO-2: Loss of or Disturbance to Special-Status Plants	Less than Significant	None required
BIO-3: Loss of or Disturbance to Western Burrowing Owls or their Nesting and Foraging Habitat	Less than Significant	None required

Impact	Significance Determination	Mitigation Measure
BIO-4: Loss of or Disturbance to California Red--Legged Frogs, California Tiger Salamanders, Western Pond Turtles, and their Habitat	Less than Significant with Mitigation	BIO-1: Provide Construction Worker with Awareness Training for Special-Status Species and Sensitive Habitats in the Construction Area BIO-2: Conduct Preconstruction Surveys and, If Necessary, Implement Measures to Protect California Red-Legged Frog, California Tiger Salamander, and Western Pond Turtle HWQ-1: Comply with National Pollutant Discharge Elimination System Requirements and Develop and Implement a Stormwater Pollution Prevention Plan
BIO-5: Potential Loss of Nesting Migratory Birds, including Raptors, or Loss of their Nests or Eggs	Less than Significant with Mitigation	BIO-3: Conduct Site Preparation and Construction Activities between September 1 and ~~March 14~~January 31 to Avoid the Typical Nesting Period of Migratory Birds, and Implement Preconstruction Surveys and Protective Measures if Necessary
BIO-6: Disturbance to Anadromous Steelhead and their Habitat from Construction Activities at Alameda Creek Flood Control Channel	Less than Significant with Mitigation	BIO-4: Conduct In-Water Construction Activities in Alameda Creek Flood Control Channel between May 1 and October 1 to Avoid Special-Status Fish Spawning and Migration Seasons BIO-5: Provide an Alternate Migration Corridor through the Alameda Flood Control Channel if Surface Flow Is Present during Construction BIO-6: Implement Channel Protection Measures during Construction HWQ-3: Implement Additional Water Quality Protection Measures to Reduce Sediment in Surface Waters during Construction
BIO-7: Loss of Disturbed or Non-Sensitive Habitats	Less than Significant	None required
BIO-8: Degradation of Water Quality in Aquatic Resources from Construction Activities	Less than Significant with Mitigation	HWQ-3: Implement Additional Water Quality Protection Measures to Reduce Sediment in Surface Waters during Construction
BIO-9: Permanent Loss and Temporary Disturbance of a Sensitive Community—Willow Riparian Woodland and Scrub	Less than Significant with Mitigation	BIO-7: Prepare and Implement a Wetlands Mitigation Plan that Includes the Creation of New Wetlands, ~~and~~ Waters of the United States and State, and Replacement and Enhancement of Willow Riparian Woodland and Scrub ~~to Replace Permanent Loss~~ BIO-8: ~~Identify~~ Protect Willow Riparian Woodland and Scrub Habitat ~~Temporarily Affected and Install Protective Fencing~~ during Project Construction

Impact	Significance Determination	Mitigation Measure
BIO-10: Potential Introduction or Spread of Noxious Weeds into a Sensitive Plant Community	Less than Significant with Mitigation	BIO-9: Implement Measures to Avoid or Minimize the Dispersal of Noxious Weeds into Sensitive Riparian Areas during Construction
BIO-11: Loss of Wetlands and Other Waters of the United States and of the State	Less than Significant with Mitigation	BIO-7: Prepare and Implement a Wetlands Mitigation Plan that Includes the Creation of New Wetlands, ~~and~~ Waters of the United States and State, and Replacement and Enhancement of Willow Riparian Woodland and Scrub ~~to Replace Permanent Loss~~ BIO-10: Identify Wetlands and Other Waters Temporarily Affected and Install Protective Fencing during Construction
BIO-12: Change in Steelhead Migratory Habitat Resulting from Installation of New Bridge at Alameda Creek Flood Control Channel	Less than Significant	None required
BIO-13: Loss of or Disturbance to Protected Trees	Less than Significant with Mitigation	BIO-11: Prepare an Arborist Report and Develop and Implement a Landscaping Plan that Includes Compensation for Loss of Protected Trees BIO-12: Install Temporary Fencing around Remaining Protected Trees
CULTURAL RESOURCES		
CUL-1: Construction Impacts on Archaeological Resources from Roadway Widening	Less than Significant with Mitigation	CUL-1: Conduct Earthwork Monitoring by Qualified Archaeologist during Construction and Implement Management Measures if Resources are Discovered
CUL-2: Construction Impacts on Historic Resources from Roadway Widening	Less than Significant	None required
CUL-3: Operational Impacts on Historic Resources from Roadway Widening	Less than Significant	None required
CUL-4: Construction Impacts on Archaeological Resources from New Roadway	Less than Significant with Mitigation	CUL-1: Conduct Earthwork Monitoring by Qualified Archaeologist during Construction and Implement Management Measures if Resources are Discovered
CUL-5: Change to Historic Resources from New Roadway	Less than Significant	None required

Impact	Significance Determination	Mitigation Measure
GEOLOGICAL RESOURCES		
GEO-1: Potential Structural Damage and Injury Caused by Fault Rupture	Less than Significant	None required
GEO-2: Potential Structural Damage and Injury from Ground Shaking	Less than Significant	None required
GEO-3: Potential Structural Damage and Injury from Development on Unsuitable Materials or Materials Subject to Liquefaction	Less than Significant	None required
GEO-4: Potential Accelerated Runoff, Erosion, and Sedimentation from Grading Activities	Less than Significant	None required
GEO-5: Potential Structural Damage as a Result of Development on Expansive Soils	Less than Significant	None required
HAZARDS AND HAZARDOUS MATERIALS		
HAZ-1: Creation of a Hazard to the Public or the Environment through the Routine Transport, Use, or Disposal of Hazardous Materials	Less than Significant with Mitigation	HWQ-4: Prepare and Implement a Hazardous Materials Spill Prevention and Control Program during Construction
HAZ-2: Accidental Mobilization and Exposure of Workers and Public to Hazardous Materials during Construction	Less than Significant with Mitigation	HAZ-1: Train Construction Workers to Identify Potentially Contaminated Materials and, if Found, Stop Work and Implement Hazardous Materials Investigations and Remediation HAZ-2: Implement Recommendations in the Phase I Environmental Site Assessment to Prepare a Phase II Environmental Site Assessment, a Health and Safety Plan, and a Soil and Groundwater Management Plan, and to Properly Abandon any Agricultural Wells
HAZ-3: Impairment of the Implementation of or Physical Interference with an Adopted Emergency Response Plan or Emergency Evacuation Plan during Construction	Less than Significant with Mitigation	TRA-1: Develop and Implement a Traffic Control Plan for Project Construction
HAZ-4: Exposure of People or Structures to Increased Risk of Loss, Injury, or Death involving Urban or Wildland Fires during Construction	Less than Significant with Mitigation	HAZ-3: Implement Procedures to Reduce Fire Risk during Construction

Impact	Significance Determination	Mitigation Measure
HAZ-5: Emission or Use of Hazardous Materials, Substances, or Wastes within 0.25 mile of an Existing or Proposed School	Less than Significant	None required
HYDROLOGY AND WATER QUALITY		
HWQ-1: Degradation of Surface Water Quality from Construction-Related Earth-Disturbing Activities	Less than Significant with Mitigation	HWQ-1: Comply with National Pollutant Discharge Elimination System Requirements and Develop and Implement a Stormwater Pollution Prevention Plan HWQ-2: Clean Paved Areas with Street- Sweeping Equipment HWQ-3: Implement Additional Water Quality Protection Measures to Reduce Sediment in Surface Waters during Construction
HWQ-2: Contamination of Surface Water Quality from Leak or Accidental Spill of Hazardous Materials during Construction	Less than Significant with Mitigation	HWQ-4: Prepare and Implement a Hazardous Materials Spill Prevention and Control Program during Construction
HWQ-3: Increased Runoff from New Impervious Surfaces and Adverse Impacts on Surface Waters	Less than Significant with Mitigation	HWQ-5: Construct the Tree Wells and Infiltration Basins to Implement the Hydrograph Modification Management Plan for Stormwater Runoff HWQ-6: Incorporate Site-Specific Water Quality Treatment Devices into Site Drainage Plans to Meet Water Quality Standards and Maintain Beneficial Uses
HWQ-4: Water Quality Impacts from Discharges to CWA 303(d)-Listed Surface Water Bodies-Diazinon	Less than Significant	None required
HWQ-5: Potential Flood Hazards Associated with Levee or Dam Failure	Less than Significant	None required
LAND USE AND PLANNING		
LUP-1: Division of an Established Community	Less than Significant	None required
LUP-2: Potential Conflict with the Fremont General Plan	Less than Significant	None required
LUP-3: Potential Conflict with the Fremont Pedestrian Master Plan	Beneficial	None required

Impact	Significance Determination	Mitigation Measure
LUP-4: Potential Conflict with the Fremont Bicycle Master Plan	Less than Significant with Mitigation	LUP-1: Ensure Compatibility of Gutter Pans and Sewer Grates with Bicycle Traffic along Paseo Padre Parkway
LUP-5: Potential Conflict with the Alameda Countywide Bicycle Plan	Beneficial	None required
LUP-6: Potential Conflict with the Union City General Plan	Less than Significant	None required
LUP-7: Consistency with the Union City Pedestrian and Bicycle Master Plan	Beneficial	None required
LUP-8: Consistency with the East Bay Regional Park District Master Plan	Less than Significant	None required
NOISE AND VIBRATION		
NOI-1: Exposure of Off-Site Noise-Sensitive Land Uses to Short-Term Construction Noise from Roadway Widening	Significant and Unavoidable	NOI-1: Employ Measures to Reduce Construction Noise to Comply with Applicable Construction Noise Standards NOI-2: Prepare a Community Awareness Program for Project Construction
NOI-2: Exposure of Off-Site Vibration-Sensitive Land Uses to Short-Term Construction Vibration from Roadway Widening	Less than Significant with Mitigation	NOI-3: Conduct Structural Conditions Survey for Areas Where Vibratory Compaction is Proposed NOI-4: Limit Extent of Vibratory Compaction Activity and Vibratory Pile Driving NOI-5: Limit Vibration Levels Received at Structures
NOI-3: Exposure of Noise-Sensitive Land Uses to Increased Traffic Noise from Roadway Widening	Less than Significant	None required
NOI-4: Exposure of Vibration-Sensitive Land Uses to Increased Traffic Vibration from Roadway Widening	Less than Significant	None required
NOI-5: Exposure of Off-Site Noise-Sensitive Land Uses to Short-Term Construction Noise from New Roadway and Wetlands Mitigation Site Construction	Significant and Unavoidable	NOI-1: Employ Measures to Reduce Construction Noise to Comply with Applicable Construction Noise Standards NOI-2: Prepare a Community Awareness Program for Project Construction

Impact	Significance Determination	Mitigation Measure
NOI-6: Exposure of Off-Site Vibration-Sensitive Land Uses to Short-Term Vibration from New Roadway Construction	Less than Significant with Mitigation	NOI-2: Prepare a Community Awareness Program for Project Construction NOI-3: Conduct Structural Conditions Survey for Areas Where Pile Driving is Proposed NOI-4: Limit Extent of Vibratory Compaction Activity and Vibratory Pile Driving NOI-5: Limit Vibration Levels Received at Structures
NOI-7: Exposure of Off-Site Noise-Sensitive Land Uses to Short-Term Increases in Railroad Noise during Construction of the New Roadway Grade Separation	Significant and Unavoidable	NOI-2: Prepare a Community Awareness Program for Project Construction
NOI-8: Exposure of Off-Site Noise-Sensitive Land Uses to Short-Term Increases in Railroad Vibration during Construction of the New Roadway Grade Separation	Significant and Unavoidable	NOI-2: Prepare a Community Awareness Program for Project Construction NOI-6: Maximize Distance between Shoofly and Residences to Extent Allowed by UPRR
NOI-9: Exposure of Noise-Sensitive Land Uses to Operational Noise from Vehicles on New Roadway	Less than Significant with Mitigation	NOI-7: Implement Traffic Noise Reduction Treatments (Soundwalls and Quiet Pavement) along the New Roadway between Paseo Padre Parkway and Alvarado-Niles Road NOI-8: Implement Traffic Noise Reduction Treatments (Soundwalls and Quiet Pavement) at the Affected Residences along the New Roadway between Alvarado-Niles Road and Mission Boulevard NOI-9: Conduct Survey for Presence of Air Conditioning at Residences Adjacent to the New Roadway
NOI-10: Exposure of Vibration-Sensitive Land Uses to Increased Traffic from the New Roadway	Less than Significant	None required
NOI-C1: Contribution to Cumulative Impact on Noise-Sensitive Receptors along Existing Roadways	Significant and Unavoidable	NOI-C1: Contribute to City Funds to Implement Traffic Noise Reduction Treatments NOI-C2: Use Low Noise Pavement Types on Project Roadways
POPULATION AND HOUSING		
POP-1: Indirect Inducement of Substantial Population Growth	Less than Significant	None required

Impact	Significance Determination	Mitigation Measure
POP-2: Displacement of a Substantial Number of Existing Housing Units or People	Less than Significant	None required
PUBLIC SERVICES, UTILITIES, AND RECREATION		
PSR-1: Interruptions to Stormwater Drainage System during Construction	Less than Significant with Mitigation	PSR-1: Conduct an Investigation of Utility Line Locations and Maintain Utility Services
PSR-2: Adverse Effects on the Capacity of Solid Waste Landfills	Less than Significant	None required
PSR-3: Change in Demand for Neighborhood Parks, Regional Parks, or Recreational Facilities	Beneficial	None required
PSR-4: Adverse Physical Effects on Existing Recreational Facilities	Less than Significant with Mitigation	AES-4: Provide Landscape Plan for Arroyo Park NOI-2: Prepare a Community Awareness Program for Project Construction TRA-1: Develop and Implement a Traffic Control Plan for Project Construction
TRANSPORTATION AND TRAFFIC		
TRA-1: Temporary Increase in Construction-Related Truck and Auto Traffic, Decrease in Roadway Capacity, and Disruption of Vehicular and Non-Motorized Travel during Construction	Less than Significant with Mitigation	TRA-1: Develop and Implement a Traffic Control Plan for Project Construction
TRA-2: Intermittent Interruption of Rail Service during Construction	Significant and Unavoidable	TRA-2: Provide Temporary Bus Service during All Interruptions in BART Service TRA-3: Limit Interruption of BART Service to Weekends TRA-4: Prepare a Rider Awareness Program Addressing BART Service Interruptions
TRA-3: Temporary Closure of Pedestrian and Bicycle Trails during Construction	Less than Significant with Mitigation	NOI-2: Prepare a Community Awareness Program for Project Construction TRA-1: Develop and Implement a Traffic Control Plan for Project Construction

Impact	Significance Determination	Mitigation Measure
TRA-4: Improvement in Operations at 12 Intersections and Minor Reduction in Operations at 2 Intersections under Proposed Project Conditions Compared to No Project Conditions in 2015	Less than Significant/Beneficial	None required
TRA-5: Reduction in Operations at 18 Intersections under Proposed Project Conditions Compared to No Project Conditions in 2015	Significant and Unavoidable	TRA-5: Adjust Signal Timing and Signal Coordination at Intersections TRA-6: Relocate the Crosswalk at Mission Boulevard and Nursery Avenue
TRA-6: Improvement in Operations at 21 Intersections under Proposed Project Conditions and Minor Reductions in Operations at 2 Intersections Compared to No Project Conditions in 2035	Less than Significant/Beneficial	None required
TRA-7: Reduction in Operations at 16 Intersections under Proposed Project Conditions Compared to No Project Conditions in 2035	Significant and Unavoidable	TRA-5: Adjust Signal Timing and Signal Coordination at Intersections TRA-6: Relocate the Crosswalk at Mission Boulevard and Nursery Avenue

Note: Cumulative impacts were identified for air quality, cultural resources, noise, and transportation in Chapter 4, Other Analyses Required by CEQA. The cumulative impact discussions for air quality, cultural resources, and transportation refer back to impacts and mitigation identified in Chapter 3 and therefore are inherently included in this table. The cumulative impact discussion for noise identifies an additional impact and mitigation that was not included in Chapter 3; therefore, it has been added to this table.

Table ES-4. Summary of Impacts and Mitigation Measures for Alternative 1: Historic Alignment in Union City

Impact	Significance Determination	Mitigation Measure
AESTHETICS		
AES-1: Temporary Degradation of Visual Character or Visual Quality for Views along Wetlands Mitigation Site and Line M Channel Trenching between Old Alameda Creek and Alvarado-Niles Road during Construction	Less than Significant with Mitigation	AES-1: Provide Screened Fencing around Project Staging Areas during Construction
AES-2: Degradation of Visual Character or Visual Quality along the Proposed Alternative 1 Alignment	Less than Significant	None required
AES-3: New Source of Light and Glare along BART Corridor during Construction	Significant and Unavoidable	NOI-2: Prepare a Community Awareness Program for Project Construction AES-2 Minimize Fugitive Light from Portable Sources
AES-4: New Source of Light and Glare from New Roadway	Less than Significant with Mitigation	AES-3: Install Low-Standing Light Standards with Directional Shields Downward along the New Roadway
AIR QUALITY		
AIR-1: Temporary Increase in Ozone Precursors (ROG and NO_X), CO, and PM10 Emissions during Grading and Construction Activities	Less than Significant with Mitigation	AIR-1: Mitigation Measure AIR-1: Employ Measures to Reduce Criteria Pollutant Emissions during Construction
AIR-2: Violation of Carbon Monoxide NAAQS or CAAQS	Less than Significant	None required
AIR-3: Increase in Greenhouse Gas Contaminant Emissions	Less than Significant with Mitigation	AIR-2: Employ Measures to Reduce Project-Related Greenhouse Gas Emissions
AIR-4: Increase in Localized MSAT Emissions	Less than Significant	None required
BIOLOGICAL RESOURCES		
BIO-1: Loss of or Disturbance to Special-Status Plants	Less than Significant	None required
BIO-2: Loss of or Disturbance to Western Burrowing Owls or their Nesting and Foraging Habitat	Less than Significant	None required

Impact	Significance Determination	Mitigation Measure
BIO-3: Loss of or Disturbance to California Red- Legged Frogs, California Tiger Salamanders, Western Pond Turtles, and their Habitat	Less than Significant with Mitigation	BIO-1: Provide Construction Worker with Awareness Training for Special-Status Species and Sensitive Habitats in the Construction Area BIO-2: Conduct Preconstruction Surveys and, if Necessary, Implement Measures to Protect California Red-Legged Frog and California Tiger Salamander BIO-3: Conduct Preconstruction Surveys and, of Necessary, Implement Measures to Protect Western Pond Turtle HWQ-1: Comply with National Pollutant Discharge Elimination System Requirements and Develop and Implement a Stormwater Pollution Prevention Plan
BIO-4: Potential Loss of Nesting Migratory Birds, including Raptors, or Loss of Their Nests or Eggs	Less than Significant with Mitigation	BIO-4: Conduct Site Preparation and Construction Activities between September 1 and ~~March 14~~January 31 to Avoid the Typical Nesting Period of Migratory Birds, and Implement Preconstruction Surveys and Protective Measures if Necessary
BIO-5: Degradation of Water Quality in Aquatic Resources from Construction Activities	Less than Significant with Mitigation	HWQ-3: Implement Additional Water Quality Protection Measures to Reduce Sediment in Surface Waters during Construction
BIO-6: Loss of Wetlands and Other Waters of the United States and of the State	Less than Significant with Mitigation	BIO-5: Prepare and Implement a Wetlands Mitigation Plan that Includes the Creation of New Wetlands, ~~and~~ Waters of the United States and State, and Replacement and Enhancement of Willow Riparian Woodland and Scrub ~~to Replace Permanent Loss~~ BIO-6: Identify Wetland and Other Waters Temporarily Affected and Install Protective Fencing during Construction
BIO-7: Permanent Loss and Temporary Disturbance of a Sensitive Community—Willow Riparian Woodland and Scrub	Less than Significant with Mitigation	BIO-5: Prepare and Implement a Wetlands Mitigation Plan that Includes the Creation of New Wetlands ~~and~~ , Waters of the United States and State, and Replacement and Enhancement of Willow Riparian Woodland and Scrub ~~to Replace Permanent Loss~~ BIO-7: ~~Identify~~ Protect Willow Riparian Woodland and Scrub Habitat ~~Temporarily Affected and Install Protective Fencing~~ during Project Construction
BIO-8: Loss of Disturbed or Non-Sensitive Habitats	Less than Significant	None required

Impact	Significance Determination	Mitigation Measure
BIO-9: Loss of or Disturbance to Protected Trees	Less than Significant with Mitigation	BIO-8: Prepare an Arborist Report and Develop and Implement a Landscaping Plan that Includes Compensation for Loss of Protected Trees BIO-9: Install Temporary Fencing around Remaining Protected Trees
BIO-10: Potential Introduction or Spread of Noxious Weeds into a Sensitive Plant Community	Less than Significant with Mitigation	BIO-10: Implement Measures to Avoid or Minimize the Dispersal of Noxious Weeds into Sensitive Riparian Areas during Construction
CULTURAL RESOURCES		
CUL-1: Construction Impacts on Archaeological Resources from New Roadway and Wetlands Mitigation Site	Less than Significant with Mitigation	CUL-1: Conduct Earthwork Monitoring by Qualified Archaeologist during Construction and Implement Management Measures if Resources are Discovered
CUL-5: Change to Historic Resources from New Roadway	No Impact	None required
GEOLOGICAL RESOURCES		
GEO-1: Potential Structural Damage and Injury Caused by Fault Rupture	Less than Significant	None required
GEO-2: Potential Structural Damage and Injury from Ground Shaking	Less than Significant	None required
GEO-3: Potential Structural Damage and Injury from Development on Unsuitable Materials or Materials Subject to Liquefaction	Less than Significant	None required
GEO-4: Potential Accelerated Runoff, Erosion, and Sedimentation from Grading Activities	Less than Significant	None required
GEO-5: Potential Structural Damage as a Result of Development on Expansive Soils	Less than Significant	None required
HAZARDS AND HAZARDOUS MATERIALS		
HAZ-1: Creation of a Hazard to the Public or the Environment through the Routine Transport, Use, or Disposal of Hazardous Materials	Less than Significant with Mitigation	HWQ-4: Prepare and Implement a Hazardous Materials Spill Prevention and Control Program during Construction

Impact	Significance Determination	Mitigation Measure
HAZ-2: Accidental Mobilization of and Exposure of Workers and Public to Hazardous Materials	Less than Significant with Mitigation	HAZ-1: Train Construction Workers to Identify Potentially Contaminated Materials and, if Found, Stop Work and Implement Hazardous Materials Investigations and Remediation HAZ-2: Implement Recommendations in the Phase I Environmental Site Assessment to Prepare a Phase II Environmental Site Assessment, a Health and Safety Plan and a Soil and Groundwater Management Plan, and to Properly Abandon any Agricultural Wells PSR-1: Conduct an Investigation of Utility Line Locations and Maintain Utility Services
HAZ-3: Impairment of the Implementation of or Physical Interference with an Adopted Emergency Response Plan or Emergency Evacuation Plan during Construction	Less than Significant with Mitigation	TRA-1: Develop and Implement a Traffic Control Plan for Project Construction
HAZ-4: Exposure of People or Structures to Increased Risk of Loss, Injury, or Death Involving Urban or Wildland Fires	Less than Significant with Mitigation	HAZ-3: Implement Procedures to Reduce Fire Risk during Construction
HYDROLOGY AND WATER QUALITY		
HWQ-1: Degradation of Surface Water Quality from Construction-Related Earth-Disturbing Activities	Less than Significant with Mitigation	HWQ-1: Comply with National Pollutant Discharge Elimination System Requirements and Develop and Implement a Stormwater Pollution Prevention Plan HWQ-2: Clean Paved Areas with Street- Sweeping Equipment HWQ-3: Implement Additional Water Quality Protection Measures to Reduce Sediment in Surface Waters during Construction
HWQ-2: Contamination of Surface Water Quality from Leak or Accidental Spill of Hazardous Materials during Construction	Less than Significant with Mitigation	HWQ-4: Prepare and Implement a Hazardous Materials Spill Prevention and Control Program during Construction
HWQ-3: Increased Runoff from New Impervious Surfaces and Adverse Impacts on Surface Waters	Less than Significant with Mitigation	HWQ-5: Construct the Tree Wells and Infiltration Basins to Implement the Hydrograph Modification Management Plan for Stormwater Runoff HWQ-6: Incorporate Site-Specific Water Quality Treatment Devices into Site Drainage Plans to Meet Water Quality Standards and Maintain Beneficial Uses

Impact	Significance Determination	Mitigation Measure
HWQ-4: Water Quality Impacts from Discharges to CWA 303(d)-Listed Surface Water Bodies-Diazinon	Less than Significant	None required
HWQ-5: Potential Flood Hazards Associated with Levee or Dam Failure	Less than Significant	None required
LAND USE AND PLANNING		
LUP-1: Divide an Established Community	Less than Significant	None required
LUP-2: Potential Conflict with the Union City General Plan	Less than Significant	None required
LUP-3: Consistency with the Union City Pedestrian and Bicycle Master Plan	Beneficial	None required
LUP-4: Consistency with the Fremont General Plan	Less than Significant	None required
NOISE AND VIBRATION		
NOI-1: Exposure of Off-Site Noise-Sensitive Land Uses to Short-Term Construction Noise	Significant and Unavoidable	NOI-1: Employ Measures to Reduce Construction Noise to Comply with Applicable Construction Noise Standards NOI-2: Prepare a Community Awareness Program for Project Construction
NOI-2: Exposure of Off-Site Vibration-Sensitive Land Uses to Short-Term Vibration	Less than Significant with Mitigation	NOI-2: Prepare a Community Awareness Program for Project Construction NOI-3: Conduct Structural Conditions Survey for Areas Where Pile Driving is Proposed NOI-4: Limit Extent of Vibratory Compaction Activity and Vibratory Pile Driving NOI-5: Limit Vibration Levels Received at Structures
NOI-3: Exposure of Off-Site Noise-Sensitive Land Uses to Short-Term Increases in Railroad Noise during Construction of the Grade Separation	Significant and Unavoidable	NOI-2: Prepare a Community Awareness Program for Project Construction

Impact	Significance Determination	Mitigation Measure
NOI-4: Exposure of Off-Site Noise-Sensitive Land Uses to Short-Term Increases in Railroad Vibration during Construction of the Grade Separation	Significant and Unavoidable	NOI-2: Prepare a Community Awareness Program for Project Construction NOI-6: Maximize Distance between Shoofly and Residences to Extent Allowed by UPRR
NOI-5: Exposure of Noise-Sensitive Land Uses to Operational Noise from Vehicles on New Roadway	Less than Significant with Mitigation	NOI-7: Conduct Survey for Presence of Air Conditioning at Residences Adjacent to the New Roadway
NOI-6: Exposure of Vibration-Sensitive Land Uses to Increased Traffic	Less than Significant	None required
NOI-C1: Contribution to Cumulative Impact on Noise-Sensitive Receptors along Existing Roadways	Significant and Unavoidable	NOI-C1: Contribute to City Funds to Implement Traffic Noise Reduction Treatments NOI-C2: Use Low Noise Pavement Types on Project Roadways
POPULATION AND HOUSING		
POP-1: Indirect Inducement of Substantial Population Growth	Less than Significant	None required
POP-2: Displacement of a Substantial Number of Existing Housing Units or People	Less than Significant	None required
PUBLIC SERVICES, UTILITIES, AND RECREATION		
PSR-1: Interruptions to Stormwater Drainage System during Construction	Less than Significant with Mitigation	PSR-1: Conduct an Investigation of Utility Line Locations and Maintain Utility Services
PSR-2: Adverse Effects on the Capacity of Solid Waste Landfills	Less than Significant	None required
PSR-3: Change in Demand for Neighborhood Parks, Regional Parks, or Recreational Facilities	Beneficial	None required
PSR-4: Adverse Physical Effects on Existing Recreational Facilities	Less than Significant	

Impact	Significance Determination	Mitigation Measure
TRANSPORTATION AND TRAFFIC		
TRA-1: Temporary Increase in Construction-Related Truck and Auto Traffic, Decrease in Roadway Capacity, and Disruption of Vehicular and Non-Motorized Travel during Construction	Less than Significant with Mitigation	TRA-1: Develop and Implement a Traffic Control Plan for Project Construction
TRA-2: Intermittent Interruption of Rail Service during Construction	Significant and Unavoidable	TRA-2: Provide Temporary Bus Service during All Interruptions in BART Service TRA-3: Limit Interruption of BART Service to Weekends TRA-4: Prepare a Rider Awareness Program Addressing BART Service Interruptions
TRA-3: Improvement in Operations at 13 Intersections and Minor Reduction in Operations at 2 Intersections under Alternative 1 Conditions Compared to No Project Conditions in 2015	Less than Significant/Beneficial	None required
TRA-4: Reduction in Operations at 16 Intersections under Alternative 1 Conditions Compared to No Project Conditions in 2015	Significant and Unavoidable	TRA-5: Relocate the Crosswalk at Mission Boulevard and Nursery Avenue
TRA-5: Improvement in Operations at 25 Intersections under Alternative 1 Conditions Compared to No Project Conditions in 2035	Less than Significant/Beneficial	None required
TRA-6: Reduction in Operations at 14 Intersections under Alternative 1 Conditions Compared to No Project Conditions in 2035	Significant and Unavoidable	TRA-5: Relocate the Crosswalk at Mission Boulevard and Nursery Avenue

Note: Cumulative impacts were identified for air quality, cultural resources, noise, and transportation in Chapter 4, Other Analyses Required by CEQA. The cumulative impact discussions for air quality, cultural resources, and transportation refer back to impacts and mitigation identified in Chapter 3 (Appendix E) and therefore are inherently included in this table. The cumulative impact discussion for noise identifies an additional impact and mitigation that was not included in Chapter 3 (Appendix E); therefore, it has been added to this table.

Table ES-5. General Comparison of Alternatives Impacts to Proposed Project Impacts

Impact Area	Alternative 1 (Historic Alignment in Union City)	Alternative 2 (Previously Studied Transportation System Management)	Alternative 3 (No Project)
Aesthetics	SU (Less)	SU (Less)	NI (Less)
Air Quality-Construction	SU (Less)	SU (Similar)	NI (Less)
Air Quality-Operation	SU (Greater)	LS (Greater)	LS (Greater)
Biological Resources	LS (Less)	LS (Greater)	NI (Less)
Cultural Resources	LSM (Less)	LSM (Less)	NI (Less)
Geology, Soils, and Seismicity	LS (Similar)	LS (Similar)	NI (Similar)
Hazards and Hazardous Materials	LS (Less)	LSM (Similar)	NI (Less)
Hydrology and Water Quality	LSM (Less)	LSM (Similar)	NI (Similar)
Land Use and Planning	LS (Greater)	LS (Greater)	LS (Greater)
Noise and Vibration-Construction	SU (Less)	SU (Similar)	NI (Less)
Noise and Vibration-Operation	LSM (Less)	LSM (Similar)	NI (Less)
Population and Housing	LS (Similar)	LS (Greater)	NI (Similar)
Public Services, Utilities, and Recreation	LSM (Similar)	LSM (Similar)	NI (Less)
Transportation and Traffic-Construction	LSM (Less)	LSM (Less)	NI (Less)
Transportation and Traffic-Operation	SU (Similar)	SU (Similar)	SU (Greater)
Relationship to Project Objectives	Meets the project objectives, but to a lesser extent than the proposed project	Meets the project objectives, but to a lesser extent than the proposed project	Meets none of the project objectives

SU: significant and unavoidable
LS: less than significant
NI: no impact
LSM: less than significant with mitigation

Note: Comparison to proposed project is shown in parenthesis.

Table ES-6. Specific Comparison of Alternatives Impacts to Proposed Project Impacts

Impact	Proposed Project	Alternative 1 Historic Alignment in Union City	Alternative 2 Previously Studied Transportation System Management	Alternative 3 No Project
AES-1: Degradation of Visual Character or Visual Quality for Views Along Decoto Road and Paseo Padre Parkway	Less than Significant	No Impact	No Impact	No Impact
AES-2: Change to Scenic Vistas and Scenic Resources along Paseo Padre Parkway	Less than Significant	No Impact	No Impact	No Impact
AES-3: New Source of Substantial Light or Glare along Decoto Road and Paseo Padre Parkway	Less than Significant	No Impact	No Impact	No Impact
AES-4: Temporary Degradation of Visual Character or Visual Quality along New Roadway Segment between Paseo Padre Parkway and Alvarado-Niles Road	Less than Significant with Mitigation	Less than Significant with Mitigation	No Impact	No Impact
AES-5: Change of Visual Character or Visual Quality along New Roadway Segment between Paseo Padre Parkway and Alvarado-Niles Road	Less than Significant with Mitigation	Less than Significant	No Impact	No Impact
AES-6: Potential Placement of Soundwalls Adjacent to Residential Property between Paseo Padre Parkway and Alvarado-Niles Road	Less than Significant with Mitigation	No Impact	No Impact	No Impact
AES-7: Encroachment of Quarry Lakes Drive Realignment Option 2 (Four-Way Intersection) into Arroyo Park	Less than Significant with Mitigation	No Impact	No Impact	No Impact
AES-8: Obstruction of Scenic Vistas from Public Trails Adjacent to Old Alameda Creek	Less than Significant with Mitigation	No Impact	No Impact	No Impact
AES-9: New Source of Light and Glare from New Roadway between Paseo Padre Parkway and Alvarado-Niles Road	Less than Significant with Mitigation	No Impact	No Impact	No Impact
AES-10: Degradation of Visual Character or Visual Quality along the Redevelopment Corridor between Alvarado-Niles Road and Mission Boulevard	Less than Significant	Less than Significant	No Impact	No Impact
AES-11: New Source of Light and Glare along BART Corridor during Construction	Significant and Unavoidable	Significant and Unavoidable	No Impact	No Impact
AES-12: New Source of Light and Glare from New Roadway between Alvarado-Niles Road and Mission Boulevard	Less than Significant with Mitigation	Less than Significant with Mitigation	No Impact	No Impact

Impact	Proposed Project	Alternative 1 Historic Alignment in Union City	Alternative 2 Previously Studied Transportation System Management	Alternative 3 No Project
AIR-1: Temporary Increase in Ozone Precursors (ROG and NOX), CO, and PM10 Emissions during Grading and Construction Activities	Significant and Unavoidable	Less than Significant with Mitigation	Significant and Unavoidable	No Impact
AIR-2: Violation of Carbon Monoxide NAAQS or CAAQS	Less than Significant/ Beneficial	Less than Significant	Less than Significant	Less than Significant
AIR-3: Increase in Greenhouse Gas Contaminant Emissions	Less than Significant with Mitigation	Less than Significant with Mitigation	Less than Significant with Mitigation	No Impact
AIR-4: Increase in Localized MSAT Emissions	Less than Significant	Less than Significant	Less than Significant	Less than Significant
BIO-1: Degradation of Water Quality in Crandall Creek from Construction Activities Associated with the Roadway Widening	Less than Significant with Mitigation	No Impact	Less than Significant with Mitigation	No Impact
BIO-2: Loss of or Disturbance to Special-Status Plants	Less than Significant	Less than Significant	No Impact	No Impact
BIO-3: Loss of or Disturbance to Western Burrowing Owls or their Nesting and Foraging Habitat	Less than Significant	Less than Significant	No Impact	No Impact
BIO-4: Loss of or Disturbance to California Red- Legged Frogs, California Tiger Salamanders, Western Pond Turtles, and their Habitat	Less than Significant with Mitigation	Less than Significant with Mitigation	Less than Significant with Mitigation	No Impact
BIO-5: Potential Loss of Nesting Migratory Birds, including Raptors, or Loss of their Nests or Eggs	Less than Significant with Mitigation	Less than Significant with Mitigation	Less than Significant with Mitigation	No Impact
BIO-6: Disturbance to Anadromous Steelhead and their Habitat from Construction Activities at Alameda Creek Flood Control Channel	Less than Significant with Mitigation	No Impact	No Impact	No Impact
BIO-7: Loss of Disturbed or Non-Sensitive Habitats	Less than Significant	Less than Significant	Less than Significant	No Impact
BIO-8: Degradation of Water Quality in Aquatic Resources from Construction Activities	Less than Significant with Mitigation	Less than Significant with Mitigation	Less than Significant with Mitigation	No Impact
BIO-9: Permanent Loss and Temporary Disturbance of a Sensitive Community—Willow Riparian Woodland and Scrub	Less than Significant with Mitigation	No Impact	No Impact	No Impact

Impact	Proposed Project	Alternative 1 Historic Alignment in Union City	Alternative 2 Previously Studied Transportation System Management	Alternative 3 No Project
BIO-10: Potential Introduction or Spread of Noxious Weeds into a Sensitive Plant Community	Less than Significant with Mitigation	No Impact	Less than Significant	No Impact
BIO-11: Loss of Wetlands and Other Waters of the United States and of the State	Less than Significant with Mitigation	Less than Significant with Mitigation	Less than Significant with Mitigation	No Impact
BIO-12: Change in Steelhead Migratory Habitat Resulting from Installation of New Bridge at Alameda Creek Flood Control Channel	Less than Significant	Less than Significant	No Impact	No Impact
BIO-13: Loss of or Disturbance to Protected Trees	Less than Significant with Mitigation	Less than Significant with Mitigation	Less than Significant with Mitigation	No Impact
CUL-1: Construction Impacts on Archaeological Resources from Roadway Widening	Less than Significant with Mitigation	Less than Significant with Mitigation	No Impact	No Impact
CUL-2: Construction Impacts on Historic Resources from Roadway Widening	Less than Significant	Less than Significant	No Impact	No Impact
CUL-3: Operational Impacts on Historic Resources from Roadway Widening	Less than Significant	Less than Significant	No Impact	No Impact
CUL-4: Construction Impacts on Archaeological Resources from New Roadway	Less than Significant with Mitigation	Less than Significant with Mitigation	No Impact	No Impact
CUL-5: Change to Historic Resources from New Roadway	Less than Significant	Less than Significant	No Impact	No Impact
GEO-1: Potential Structural Damage and Injury Caused by Fault Rupture	Less than Significant	Less than Significant	Less than Significant	No Impact
GEO-2: Potential Structural Damage and Injury from Ground Shaking	Less than Significant	Less than Significant	Less than Significant	No Impact
GEO-3: Potential Structural Damage and Injury from Development on Unsuitable Materials or Materials Subject to Liquefaction	Less than Significant	Less than Significant	Less than Significant	No Impact
GEO-4: Potential Accelerated Runoff, Erosion, and Sedimentation from Grading Activities	Less than Significant	Less than Significant	Less than Significant	No Impact
GEO-5: Potential Structural Damage as a Result of Development on Expansive Soils	Less than Significant	Less than Significant	Less than Significant	No Impact

Impact	Proposed Project	Alternative 1 Historic Alignment in Union City	Alternative 2 Previously Studied Transportation System Management	Alternative 3 No Project
HAZ-1: Creation of a Hazard to the Public or the Environment through the Routine Transport, Use, or Disposal of Hazardous Materials	Less than Significant with Mitigation	Less than Significant with Mitigation	Less than Significant with Mitigation	No Impact
HAZ-2: Accidental Mobilization and Exposure of Workers and Public to Hazardous Materials during Construction	Less than Significant with Mitigation	Less than Significant with Mitigation	Less than Significant with Mitigation	No Impact
HAZ-3: Impairment of the Implementation of or Physical Interference with an Adopted Emergency Response Plan or Emergency Evacuation Plan during Construction	Less than Significant with Mitigation	Less than Significant with Mitigation	Less than Significant with Mitigation	No Impact
HAZ-4: Exposure of People or Structures to Increased Risk of Loss, Injury, or Death Involving Urban or Wildland Fires during Construction	Less than Significant with Mitigation	Less than Significant with Mitigation	No Impact	No Impact
HAZ-5: Emission or Use of Hazardous Materials, Substances, or Wastes within 0.25 mile of an Existing or Proposed School	Less than Significant	Less than Significant	Less than Significant	No Impact
HWQ-1: Degradation of Surface Water Quality from Construction-Related Earth-Disturbing Activities	Less than Significant with Mitigation	Less than Significant with Mitigation	Less than Significant with Mitigation	No Impact
HWQ-2: Contamination of Surface Water Quality from Leak or Accidental Spill of Hazardous Materials during Construction	Less than Significant with Mitigation	Less than Significant with Mitigation	Less than Significant with Mitigation	No Impact
HWQ-3: Increased Runoff from New Impervious Surfaces and Adverse Impacts on Surface Waters	Less than Significant with Mitigation	Less than Significant with Mitigation	Less than Significant with Mitigation	No Impact
HWQ-4: Water Quality Impacts from Discharges to CWA 303(d)-Listed Surface Water Bodies-Diazinon	Less than Significant	Less than Significant	Less than Significant	No Impact
HWQ-5: Potential Flood Hazards Associated with Levee or Dam Failure	Less than Significant	Less than Significant	Less than Significant	No Impact
LUP-1: Division of an Established Community	Less than Significant	Less than Significant	No Impact	No Impact
LUP-2: Potential Conflict with the Fremont General Plan	Less than Significant	Less than Significant	Less than Significant	No Impact
LUP-3: Potential Conflict with the Fremont Pedestrian Master Plan	Less than Significant/Beneficial	No Impact (Beneficial Impact does not occur)	No Impact (Beneficial Impact does not occur)	No Impact (Beneficial Impact does not occur)

Impact	Proposed Project	Alternative 1 Historic Alignment in Union City	Alternative 2 Previously Studied Transportation System Management	Alternative 3 No Project
LUP-4: Potential Conflict with the Fremont Bicycle Master Plan	Less than Significant with Mitigation/ Beneficial	No Impact (Beneficial Impact does not occur)	Less than Significant (Beneficial Impact does not occur)	No Impact (Beneficial Impact does not occur)
LUP-5: Potential Conflict with the Alameda Countywide Bicycle Plan	Less than Significant/Beneficia l	No Impact (Beneficial Impact does not occur)	Less than Significant (Beneficial Impact does not occur)	No Impact (Beneficial Impact does not occur)
LUP-6: Potential Conflict with the Union City General Plan	Less than Significant	Less than Significant	Less than Significant	No Impact
LUP-7: Consistency with the Union City Pedestrian and Bicycle Master Plan	Less than Significant/ Beneficial	No Impact/Beneficial	Less than Significant (Beneficial Impact does not occur)	No Impact (Beneficial Impact does not occur)
LUP-8: Consistency with the East Bay Regional Park District Master Plan	Less than Significant	Less than Significant	Less than Significant	No Impact
NOI-1: Exposure of Off-Site Noise-Sensitive Land Uses to Short-Term Construction Noise from Roadway Widening	Significant and Unavoidable	No Impact	Significant and Unavoidable	No Impact
NOI-2: Exposure of Off-Site Vibration-Sensitive Land Uses to Short-Term Construction Vibration from Roadway Widening	Less than Significant with Mitigation	No Impact	Less than Significant with Mitigation	No Impact
NOI-3: Exposure of Noise-Sensitive Land Uses to Increased Traffic Noise from Roadway Widening	Less than Significant	No Impact	Less than Significant	No Impact
NOI-4: Exposure of Vibration-Sensitive Land Uses to Increased Traffic Vibration from Roadway Widening	Less than Significant	No Impact	Less than Significant	No Impact
NOI-5: Exposure of Off-Site Noise-Sensitive Land Uses to Short-Term Construction Noise from New Roadway and Wetlands Mitigation Site Construction	Significant and Unavoidable	Significant and Unavoidable	Less than Significant	No Impact
NOI-6: Exposure of Off-Site Vibration-Sensitive Land Uses to Short-Term Vibration from New Roadway Construction	Less than Significant with Mitigation	Less than Significant with Mitigation	Less than Significant with Mitigation	No Impact

Impact	Proposed Project	Alternative 1 Historic Alignment in Union City	Alternative 2 Previously Studied Transportation System Management	Alternative 3 No Project
NOI-7: Exposure of Off-Site Noise-Sensitive Land Uses to Short-Term Increases in Railroad Noise during Construction of the New Roadway Grade Separation	Significant and Unavoidable	Significant and Unavoidable	Significant and Unavoidable	No Impact
NOI-8: Exposure of Off-Site Noise-Sensitive Land Uses to Short-Term Increases in Railroad Vibration during Construction of the New Roadway Grade Separation	Significant and Unavoidable	Significant and Unavoidable	Significant and Unavoidable	No Impact
NOI-9: Exposure of Noise-Sensitive Land Uses to Operational Noise from Vehicles on New Roadway	Less than Significant with Mitigation	Less than Significant with Mitigation	Less than Significant	No Impact
NOI-10: Exposure of Vibration-Sensitive Land Uses to Increased Traffic from the New Roadway	Less than Significant	Less than Significant	Less than Significant with Mitigation	No Impact
NOI-C1: Contribution to Cumulative Impact on Noise-Sensitive Receptors along Existing Roadways	Significant and Unavoidable	Significant and Unavoidable	Significant and Unavoidable	~~Significant and Unavoidable~~ No Impact
POP-1: Indirect Inducement of Substantial Population Growth	Less than Significant	Less than Significant	Less than Significant	No Impact
POP-2: Displacement of a Substantial Number of Existing Housing Units or People	Less than Significant	Less than Significant	Less than Significant with Mitigation	No Impact
PSR-1: Interruptions to Stormwater Drainage System during Construction	Less than Significant with Mitigation	Less than Significant with Mitigation	Less than Significant with Mitigation	No Impact
PSR-2: Adverse Effects on the Capacity of Solid Waste Landfills	Less than Significant	Less than Significant	Less than Significant	No Impact
PSR-3: Change in Demand for Neighborhood Parks, Regional Parks, or Recreational Facilities	Beneficial	Beneficial	Beneficial	No Impact (Beneficial Impact does not occur)
PSR-4: Adverse Physical Effects on Existing Recreational Facilities	Less than Significant with Mitigation	Less than Significant	No Impact	No Impact
TRA-1: Temporary Increase in Construction-Related Truck and Auto Traffic, Decrease in Roadway Capacity, and Disruption of Vehicular and Non-motorized Travel during Construction	Less than Significant with Mitigation	Less than Significant with Mitigation	Less than Significant with Mitigation	No Impact

Impact	Proposed Project	Alternative 1 Historic Alignment in Union City	Alternative 2 Previously Studied Transportation System Management	Alternative 3 No Project
TRA-2: Intermittent Interruption of Rail Service during Construction	Significant and Unavoidable	Significant and Unavoidable	Significant and Unavoidable	No Impact
TRA-3: Temporary Closure of Pedestrian and Bicycle Trails during Construction	Less than Significant with Mitigation	Less than Significant	Less than Significant	No Impact
TRA-4: Improvement in Operations at 12 Intersections and Minor Reduction in Operations at 2 Intersections under Proposed Project Conditions Compared to No Project Conditions in 2015	Less than Significant/ Beneficial	Less than Significant/ Beneficial	Less than Significant (Beneficial Impact does not occur)	Less than Significant (Beneficial Impact does not occur)
TRA-5: Reduction in Operations at 19 Intersections under Proposed Project Conditions Compared to No Project Conditions in 2015	Significant and Unavoidable	Significant and Unavoidable	Significant and Unavoidable	Significant and Unavoidable
TRA-6: Improvement in Operations at 21 Intersections under Proposed Project Conditions and Minor Reductions in Operations at 2 Intersections Compared to No Project Conditions in 2035	Less than Significant/ Beneficial	Less than Significant/ Beneficial	Less than Significant (Beneficial Impact does not occur)	Less than Significant (Beneficial Impact does not occur)
TRA-7: Reduction in Operations at 18 Intersections under Proposed Project Conditions Compared to No Project Conditions in 2035	Significant and Unavoidable	Significant and Unavoidable	Significant and Unavoidable	Significant and Unavoidable
SUMMARY				
Total Less than Significant Impacts (with or without mitigation)	~~69~~70	~~52~~53	~~45~~46	4
Total Significant and Unavoidable Impacts	10	8	8	~~3~~2
Total No Impacts (impacts avoided compared to no project)		19	26	~~73~~75
Total Beneficial Impacts realized (+) or precluded (-) compared to proposed project		+4 -3	+1 -5	0 -7

Table ES-7. Comparison of Reduction in Travel Time – Year 2035, Proposed Project and Alternative 1

From	To	Peak Direction	Proposed Project compared to No Project: Minutes	Proposed Project compared to No Project: Percent	Alternative 1 compared to No Project: Minutes	Alternative 1 compared to No Project: Percent
AM Peak Hour						
Mission/Mowry	SR 84 west of I-880	WB	-25	-48%	-7	-13%
Mission/Mowry	Fremont/Decoto	WB	-22	-56%	-6	-15%
Mission/Niles Canyon	SR 84 west of I-880	WB	-34	-52%	-6	-9%
Mission/Nursery	SR 84 west of I-880	WB	-30	-46%	-1	-2%
Mission/Whipple	SR 84 west of I-880	SB	-28	-42%	-7	-10%
Mission/ Whipple	Fremont/Thorton	SB	-18	-34%	+2	+4%
Mission/ Whipple	Fremont/Mowry	SB	-28	-45%	0	0%
PM Peak Hour						
SR 84 west of I-880	Mission/Mowry	EB	-18	-33%	-6	-11%
Fremont/Decoto	Mission/Mowry	EB	-13	-43%	-6	-20%
SR 84 west of I-880	Mission/Niles Canyon	EB	-21	-36%	-3	-5%
SR 84 west of I-880	Mission/Nursery	EB	-23	-39%	-1	-2%
SR 84 west of I-880	Mission/Whipple	NB	-17	-33%	+2	+4%
Fremont/Thorton	Mission/ Whipple	NB	-21	-49%	-3	-7%
Fremont/Mowry	Mission/ Whipple	NB	-21	-46%	-3	-7%

Note: Although not required by CEQA, a quantitative analysis was conducted for Alternative 1, enabling a direct comparison with the proposed project. A quantitative analysis was not conducted for Alternatives 2 and 3.

Source: Dowling 2008c

Table ES-8. Daily System-Wide Delay Comparison – Year 2035

Peak Period	Proposed Project compared to No Project: Hours	Proposed Project compared to No Project: Percent	Alternative 1 compared to No Project: Hours	Alternative 1 compared to No Project: Percent
AM Peak Hour	-7,815	-12%	+5,006	+7%
PM Peak Hour	-9,072	-19%	-8,543	-18%

Note: Although not required by CEQA, a quantitative analysis was conducted for Alternative 1, enabling a direct comparison with the proposed project. A quantitative analysis was not conducted for Alternatives 2 and 3.

Source: Dowling 2008c

Chapter 1

Introduction

Chapter 1
Introduction

This Draft Environmental Impact Report (EIR) for the East-West Connector Project (proposed project) has been prepared in compliance with the California Environmental Quality Act (CEQA) and the CEQA Guidelines (14 California Code of Regulations [CCR] 15000 *et seq.)*. This chapter provides introductory information for the Draft EIR and has been divided into the following sections.

- Project Overview
- Project Objectives and Need
- Project Background
- Known Areas of Controversy
- CEQA Requirements
- Draft EIR Organization

1.1 Project Overview

The proposed project, sponsored by the Alameda County Transportation Authority (ACTA) in cooperation with the Cities of Fremont and Union City, is a 3.0-mile roadway alignment located in south Alameda County, California (Figure 1-1). The purpose of the proposed project is to improve local traffic circulation and east-west access between Interstate 880 (I-880) on the west and Mission Boulevard (State Route [SR] 238) (hereafter referred to as Mission Boulevard) on the east. The proposed project includes widening a 0.9-mile segment of the existing Decoto Road (from Cabrillo Court on the west to Paseo Padre Parkway on the east) to six lanes, widening a 0.8-mile segment of the existing Paseo Padre Parkway (from Isherwood Way on the south to Decoto Road on the north) to six lanes, and constructing a new 1.3-mile four-lane roadway segment (from Paseo Padre Parkway to Mission Boulevard). The proposed project would also provide bike lanes and sidewalks or trails along its entire length, so upon completion there would be a continuous bike and pedestrian corridor from just east of I-880 to Mission Boulevard.

Three project alternatives under consideration are: 1) Historic Alignment in Union City, 2) Previously Studied Transportation System Management, and 3) No Project. Alternative 1 represents a truncated version of the proposed project and is analyzed at the same level of detail as the proposed project.

1.2 Project Objectives and Need

The primary project objectives of the proposed project are to reduce local traffic congestion and travel time, and to provide a more direct east-west link in the transportation network in Fremont and Union City.

Supporting objectives that would result from implementation of the proposed project and provide benefits to the community would:

- improve air quality by decreasing local traffic congestion,
- implement planned transportation improvements upon which completed and planned developments in Fremont and Union City depend,
- improve access to transit facilities and businesses in the vicinity,
- improve transit operations in the vicinity by reducing congestion along existing and future transit routes,
- promote the use of non-motorized transport, and
- maximize the use of publicly-owned rights-of-way in the Historic Corridor for transportation purposes.

Additionally, this proposed project would improve flood control because it would incorporate a diversion pipeline along the new roadway to supplement the existing Line M channel, which does not have adequate capacity to handle major storm events.

The proposed project is needed because many of the roadways and intersections are failing to meet general plan level of service requirements and are expected to decrease over time. Fremont, Union City, and the general area have experienced substantial population growth and traffic increases in recent years. Within the last decade, completed and planned developments in Fremont and Union City assumed the availability of the planned Route 84 project to carry future traffic demands, because it is in the Alameda County Congestion Management Agency Countywide Traffic Model, as well as the city general plans. Major corridors such as I-880, Decoto Road, Alvarado-Niles Road, and Mission Boulevard have increasing levels of congestion and decreasing levels of service. With continuing development in both cities and the surrounding areas, it is anticipated that the traffic circulation in the area will continue to deteriorate. The general plans for both cities include construction of a realigned SR 84 (also called the Historic Parkway) as a means of obtaining an acceptable level of service, addressing the lack of an adequate east-west linkage in the area, and providing access to the future major transit hub in Union City.

1.3 Project Background

In 1958, the California Department of Transportation (Caltrans) first proposed the SR 84 Realignment Project, which would provide a six-lane freeway from

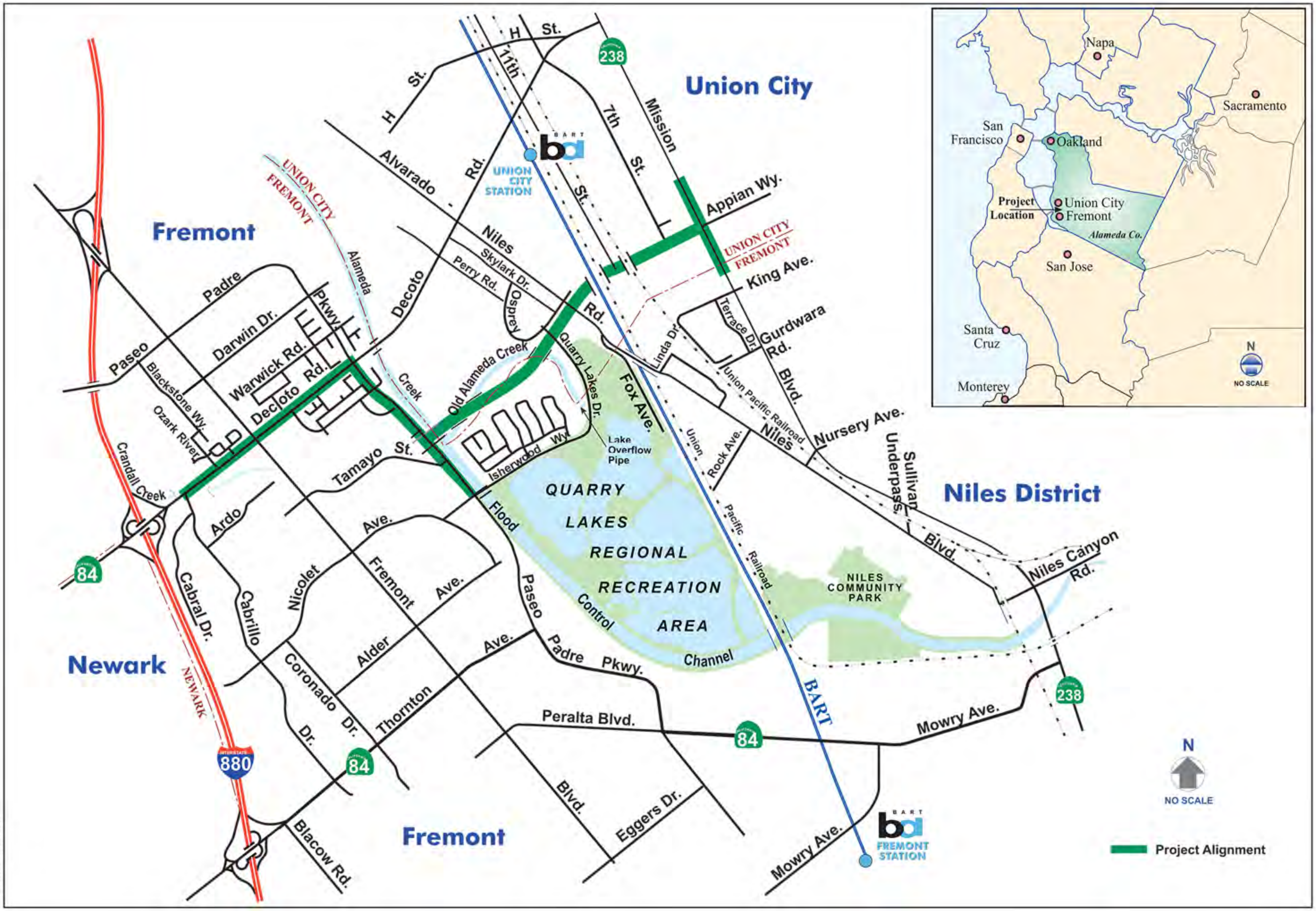

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Figure 1-1
Project Location
ACTA East-West Connector Project

I-880 on the west to Mission Boulevard on the east. In the 1960s and 1970s, Caltrans established a plan line and began purchasing right-of-way along part of the proposed realignment corridor, and the project was included in the Bay Area's Regional Transportation Plan (RTP). In 1980, the California Transportation Commission (CTC) rescinded the route designation in this portion of the SR 84 Corridor when no future funding was available.

By 1984, with the completion of the east approach to the Dumbarton Bridge, the need to upgrade SR 84 in south Alameda County became critical. Caltrans prepared a Route Concept Report for SR 84 from Santa Cruz to Brentwood. After the SR 84 Realignment Project in Fremont and Union City was included in the Alameda County Measure B and approved by voters in 1986, environmental studies for the SR 84 Realignment Project were conducted. Significant local opposition prolonged the environmental review processes. In 2002, Caltrans and the Federal Highway Administration (FHWA) completed a final combined environmental impact report/environmental impact statement (EIR/EIS) for the SR 84 Realignment Project. Local opposition to the project continued, and FHWA was reluctant to certify the document without local consensus.

In 2002, in order to address the continuing projected and on-going traffic congestion problems in the SR 84 area, ACTA assumed the lead agency role for the SR 84 Realignment Project. ACTA worked with the Cities of Fremont and Union City, Caltrans, and local community members and organizations to redefine the purpose of the project and to develop alternative alignment locations that would be acceptable to the communities. Between 2002 and 2006, ACTA studied several alternative alignment options, and Option 2 and Option 4/6 were identified for further study. These studies are described further in Chapter 5, Project Alternatives. After further preliminary design, preparing environmental constraints studies, and obtaining community input, Option 2 was identified for the new East-West Connector Project (proposed project).

In general, the proposed project includes widening both Decoto Road and Paseo Padre Parkway to six lanes from I-880 to Isherwood Way and constructing a new four-lane roadway from Paseo Padre Parkway to the Mission Boulevard/Appian Way intersection. A detailed description of roadway improvements under the proposed project is provided in Chapter 2, Project Description.

In March 2006, ACTA, Caltrans, and the Cities of Fremont and Union City entered into a Memorandum of Understanding (MOU) to formalize the commitment of funding and define the roles and responsibilities in their coordination on defining the new location and components of Option 2 (proposed project). Effective May 25, 2006, the MOU provided for ACTA to perform additional preliminary engineering on Option 2 (proposed project), and to evaluate its benefits and potential impacts before a final decision to implement the proposed project is made. In addition to identifying Option 2 as the proposed project, MOU item 30 states that if Option 2 is not selected as the preferred alternative, then the Historic Alignment in Union City (evaluated as Alternative 1 in this Draft EIR) should be implemented The MOU also provides a framework for funding other transportation projects in southern Alameda County. The MOU is provided in this document as Appendix A.

In October 2006, ACTA, as lead agency, issued a notice of preparation to prepare an EIR for the proposed project in compliance with CEQA. Caltrans and the Cities of Fremont and Union City are serving as responsible agencies throughout the CEQA process. This Draft EIR addresses the MOU requirements pertaining to the environmental process for the proposed project and the alternatives.

If the proposed project is approved, ACTA will establish a policy committee to oversee the project development, particularly with regard to ensuring all mitigation measures are implemented and that appropriate landscaping is included.

1.4 Known Areas of Controversy

There has been local opposition to the proposed project, primarily from existing residents adjacent to the project alignment along Decoto Road, Paseo Padre Parkway, and the new roadway segment from the Alameda Creek Flood Control Channel to Mission Boulevard. Project opponents have attended the project scoping meetings and provided both verbal and written comments.

The objections raised were focused on the following concerns.

- Potential noise impacts on neighboring residents and businesses.
- Potential air quality impacts on neighboring residents and businesses.
- Potential cut-through traffic through residential neighborhoods.
- Potential biological impacts on habitat around Old Alameda Creek.
- Loss of open space adjacent to Old Alameda Creek.
- High cost of the proposed project.
- Need for the proposed project.

1.5 CEQA Requirements

CEQA is regarded as the foundation of environmental law and policy in California. CEQA requires that public agencies consider the environmental consequences of projects over which they have discretionary authority before taking action on those projects (Public Resources Code [PRC] 21000 *et seq*.). For this proposed project, ACTA is the lead agency under CEQA (as identified in the 2006 MOU described above) and therefore has the principal responsibility for ensuring CEQA compliance.

1.5.1 Purpose of This Draft EIR

The purpose of this Draft EIR is to assess the potential environmental impacts of the proposed project to identify measures to avoid or minimize environmental impacts. The EIR process provides opportunities for relevant agencies and the general public to review and provide input on the Draft EIR. Comments are reviewed and responses prepared and included in a Final EIR. Decision makers must consider the information included in the Draft EIR and Final EIR prior to making a decision about the proposed project. This Draft EIR also provides the information necessary to obtain additional permits and approvals required by other agencies for implementation of the proposed project, as described in Chapter 2, Project Description, under Section 2.4, Required Permits and Other Approvals.

1.5.2 Scoping Process

The process of determining the scope, focus, and content of an EIR is known as “scoping.” The scope of this Draft EIR was determined by ACTA through a scoping process initiated with the publication of the notice of preparation (NOP). CEQA requires the lead agency to send an NOP to responsible and trustee agencies whose approval is required for the project and to parties previously requesting notice in writing soliciting input on the scope of the Draft EIR. ACTA determined that the proposed project could have a significant effect and circulated the NOP for this Draft EIR for 30 days, from October 12 to November 12, 2007. The NOP and responses to the NOP are included in Appendix B.

The focus and content of this Draft EIR was determined based on the CEQA environmental checklist form (Appendix G of the CEQA Guidelines) and comments received on the NOP. An initial study was not prepared because ACTA determined early in the process, as identified in the MOU discussed in Section 1.3, that an EIR would be the appropriate CEQA documentation. Potential environmental effects were evaluated for the following resources or issue areas.

- Aesthetics
- Air Quality
- Biological Resources
- Cultural Resources
- Geology, Soils, and Seismicity
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Noise and Vibration

- Population and Housing
- Public Services, Utilities, and Recreation
- Transportation and Traffic

Other environmental issues listed in CEQA Appendix G include Agricultural Resources and Mineral Resources. Through the scoping process and previous analyses, it was determined that there would be no impact to these resources; therefore, they are not addressed further in this Draft EIR.

1.5.3 Public Involvement

Public involvement is an essential feature of CEQA (CEQA Guidelines Section 15201). The CEQA process provides for public participation through project scoping meetings, publication of the NOP and public comment on the NOP, and public review of EIRs. ACTA distributed the NOP for 30-day review and comment period from October 12 to November 12, 2007. Two public scoping meetings were held October 24 and 25, 2007, in Fremont and Union City, respectively. The NOP and a summary of the comments received on the NOP and at the scoping meetings are included in Appendix B.

As required by CEQA, relevant agencies, organizations, and members of the public have an opportunity to comment on the Draft EIR during the required 45-day public review period. In response to a request to extend the review period, this Draft EIR has a 60-day public review period. The public review period extends from December 11, 2008 to February 9, 2009.

A notice of availability (a notice that the Draft EIR is available for review) has been provided to the County Clerk and over 7,000 residents, property owners, and agencies. The notice was also advertised in the *Fremont Argus* and the *Tri-City Voice* newspapers and is posted on the ACTA website (www.acta2002.com). Copies of the Draft EIR were provided to the State Clearinghouse, local libraries, and other agencies and organizations listed in Appendix C. It has also been posted on the ACTA website (www.acta2002.com).

Public hearings, where the public will have the opportunity to comment verbally on the Draft EIR, are scheduled to occur on January 14 and 15, 2009, at the Kennedy Community Center in Union City and Warwick Elementary School in Fremont, respectively. Information for these meetings is included on the notice of availability of the Draft EIR.

CEQA requires that a Final EIR be prepared to respond to comments received on the Draft EIR and to address significant environmental issues raised by the public regarding the Draft EIR.

Although not required by CEQA, ACTA held the following open houses and public information meetings to provide information about the proposed project and to obtain input.

- October 24, 2007 – open house scoping meeting, Kitayama Elementary School, Union City, CA (already mentioned above)
- October 25, 2007 – open house scoping meeting, Ardenwood Elementary School, Fremont, CA (already mentioned above)
- September 9, 2008 – meeting with Centerville Business and Community Association, Fremont
- September 23, 2008 – meeting with Irvington Business Association, Fremont
- October 29, 2008 – meeting with Citizens for Neighborhood Integrity, Fremont
- November 10, 2008 – public open house meeting, New Haven Educational Services Center, Union City
- November 19, 2008 – public open house meeting, Brookvale Elementary School, Fremont

Advertisements for the October 2007 scoping meetings and the November 2008 informational open houses were placed in both the *Fremont Argus* and the *Tri-City Voice* newspapers. Advertisements for the January 2009 public hearings on the Draft EIR will be placed in both newspapers in December 2008 and early January 2009.

1.6 Draft EIR Organization

This Draft EIR contains an executive summary and seven chapters, including this introductory chapter. The List of Preparers, including the Lead Agency, Responsible Agencies, and all consultants is included in Appendix D.

The **Executive Summary** includes a summary of the information contained in this Draft EIR, including an overview of the proposed project and project alternatives, a summary of the environmental impacts of the proposed project and Alternative 1 and required mitigation measures, and comparison of the proposed project and project alternatives.

Chapter 2, Project Description, contains a detailed description of the proposed project.

Chapter 3, Environmental Setting and Impact Analysis, contains the primary environmental analysis of the proposed project. The chapter is subdivided by environmental issue or resource topic as listed under Section 1.5.2, Scoping Process. For each resource topic, the Environmental Setting section describes existing environmental conditions in the study area as they relate to the individual resource topic evaluated. These descriptions constitute the baseline for evaluating the potential effects of the proposed project and project alternatives. The Impact Analysis section identifies potential direct and indirect environmental impacts that could result from implementation of the proposed project. Potential environmental impacts of project alternatives, as they compare to the proposed project, are addressed in Chapter 5, Project Alternatives.

Chapter 4, Other Analyses Required by CEQA, describes potential growth-inducing impacts of the proposed project and potential cumulative impacts resulting from the incremental implementation of the proposed project in combination with implementation of other closely related past, present, and future projects in the project vicinity. This chapter also addresses significant irreversible changes that could result from the proposed project, and summarizes significant and unavoidable impacts.

Chapter 5, Project Alternatives, includes a discussion of alternatives considered and eliminated and a qualitative analysis of three alternatives under consideration. This chapter describes the extensive effort employed by ACTA and the other responsible agencies to determine the proposed project alignment, during which several project alternatives were eliminated from further consideration. The three alternatives under consideration include the Historic Alignment in Union City (Alternative 1), the Previously Studied Transportation System Management (Alternative 2), and the No Project (Alternative 3) as identified in the MOU. Alternative 1 is a truncated version of the proposed project and has been analyzed at the same level of detail as the proposed project (Appendix E).

Chapter 6, Agency Consultation, lists the agencies consulted during the Draft EIR process.

Chapter 7, References, lists the literature, personal communication, web sites, or other data sources cited in this Draft EIR analysis.

Appendices to this document are also provided.

- Appendix A, Memorandum of Understanding
- Appendix B, Notice of Preparation and Responses
- Appendix C, Draft EIR Distribution List
- Appendix D, Draft EIR List of Preparers
- Appendix E, Detailed Analysis of Alternative 1: Historic Alignment in Union City
- Appendix F, Visual Impact Analysis for the East-West Connector Project
- Appendix G, Air Quality CALINE4 and EMFACT 2007 Modeling Results
- Appendix H, Wetland Delineation for the East-West Connector Project
- Appendix I, Draft Hydrology and Hydraulics Study Report for the East-West Connector Project

- Appendix J, Cultural Resources Inventory and Evaluation of the East-West Connector Project, Alameda County, California
- Appendix K, Geologic and Seismic Report, East-West Connector Between I-808 and Mission Boulevard (SR 238)
- Appendix L, Phase I Environmental Site Assessment, Proposed I-880 to 238 East-West Connector
- Appendix M, Draft Water Quality Study Report for the East-West Connector Project
- Appendix N, Noise Technical Report for the East-West Connector Project
- Appendix O, Vibration technical Report for the East-West Connector Project
- Appendix P, Technical Memorandum, Existing Conditions Intersection Level of Service Analysis Results
- Appendix Q, Technical Memorandum, I-880-SR 238 East-West Connector Traffic Forecasts

A foldout list of acronyms and abbreviations has been included at the end of this document.

Chapter 2
Project Description

Chapter 2
Project Description

The East-West Connector Project (proposed project) is a 3.0-mile roadway project that would provide improved east-west access between I-880 on the west and Mission Boulevard on the east in south Alameda County. The proposed project would achieve this objective by widening existing roadways and constructing a new roadway segment. The proposed project would also provide bike lanes and sidewalks or trails along its entire length, so upon completion there would be a continuous bike and pedestrian corridor from just east of I-880 to Mission Boulevard.

This chapter describes the proposed project in detail and has been divided into the following sections. The project objectives and background information are included in Chapter 1, Introduction.

- Project Location and Setting
- Project Components
- Project Construction Activities
- Required Permits and Approvals

Chapter 5 includes a description and evaluation of the three project alternatives under consideration: 1) Historic Alignment in Union City, 2) Previously Studied Transportation System Management, and 3) No Project. Alternative 1 represents a truncated version of the proposed project and is analyzed at the same level of detail as the proposed project (Appendix E).

2.1 Project Location and Setting

The project alignment is located in the Cities of Fremont and Union City in Alameda County, California (Figure 1-1). Upon completion, the proposed project would become part of the local city street network within the two cities, except at the east end, where Caltrans would retain jurisdiction for the improvements constructed within the Mission Boulevard right-of-way.

The 3.0-mile project alignment extends from the Decoto Road/Cabrillo Court intersection (located just northeast of the I-880/Decoto Road ramps) in the west to the Mission Boulevard/Appian Way intersection in the east.[1] The project alignment is shown in Figures 2-1a to 2-1d.

For discussion purposes, the proposed project has been divided into existing roadway segments (the western portion) and the new roadway segment (the eastern portion). The new roadway segment is further divided into the undeveloped corridor encompassing Paseo Padre Parkway to Alvarado-Niles Road, and the redevelopment corridor encompassing Alvarado-Niles Road to Mission Boulevard. Collectively, these segments are referred to as the project alignment. The project area describes the full extent of the project alignment and the area immediately surrounding it.

A brief description of the setting for the project alignment is presented below. Specific project features are described in Section 2.2, Project Components, below.

2.1.1 Existing Roadway

The existing segment of the project alignment extends along 1.7 miles of existing roadways, Decoto Road and Paseo Padre Parkway, within the City of Fremont. Both roadways would be widened to six lanes.

The project alignment includes a 0.9-mile segment of Decoto Road, from its intersection with Cabrillo Court in the west to Paseo Padre Parkway in the east (Figure 2-1a). Currently, the project-related expanse of Decoto Road is a divided, dual two-lane roadway with auxiliary lanes along part of its length and turn lanes at intersections. Curbs, sidewalks, and bike lanes are provided within part but not the entire roadway segment, as the right-of-way width for this road varies. This entire stretch of Decoto Road has been developed, primarily with residential and commercial land uses. Older residential properties front directly on Decoto Road, but newer developments face away from the road and are buffered by landscaping and walls with planted vines. Portions of the intermittent sidewalks in this area are also buffered by landscaping. Commercial property in this area is centered on the corner of Decoto Road and Fremont Boulevard, and includes a gas station and nursery on the southeast corner, a strip mall on the northeast corner, and a vacant building and parking lot on the northwest corner. A church is located on the western side of the street, north of the vacant commercial building, approximately halfway between Fremont Boulevard and Paseo Padre Parkway.

The proposed project includes widening an 0.8-mile segment of Paseo Padre Parkway, from Decoto Road in the north to Isherwood Way in the south (Figure 2-1b). Approximately half way along that span of Paseo Padre Parkway, the proposed project's new road, would begin at a bridge constructed across the Alameda Creek Flood Control Channel. Currently, the project-related expanse of

[1] West of Mission Boulevard, Appian Way becomes 7th Street. For purposes of consistency, this intersection will be called Mission Boulevard/Appian Way throughout this Draft EIR. This intersection is located at milepost 5.78 of Mission Boulevard.

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Figure 2-1a
Project Alignment: Decoto Road
ACTA East-West Connector Project

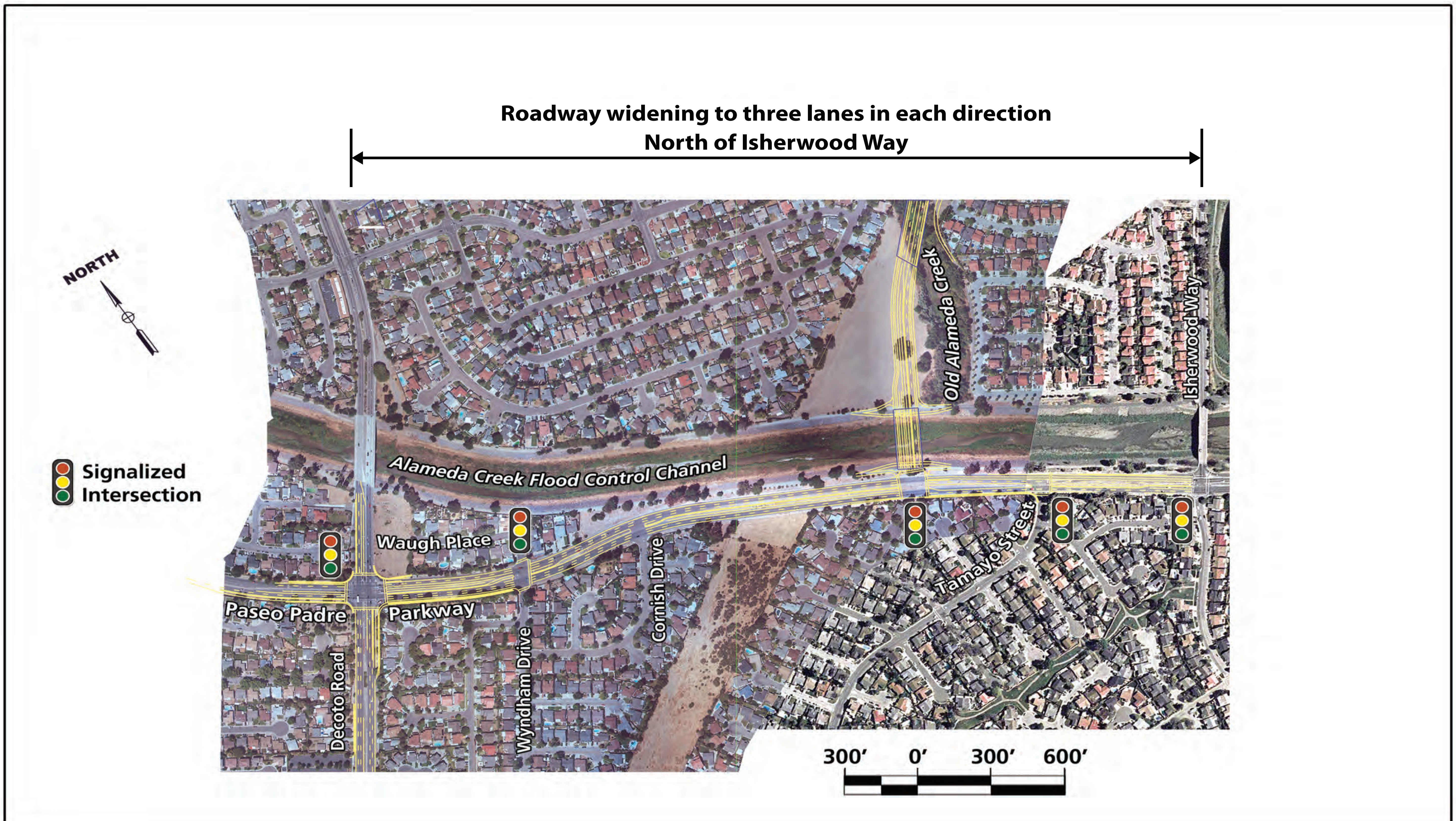

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Figure 2-1b
Project Alignment: Paseo Padre Parkway
ACTA East-West Connector Project

Note: The proposed bridge crossings are shown in Figure 2-8.

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Figure 2-1c
Project Alignment: New Roadway, Paseo Padre Parkway to Alvarado-Niles Road
ACTA East-West Connector Project

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✳ Stormwater detention basins, shown in detail in Figure 2-9

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Figure 2-1d
Project Alignment: New Roadway, Alvarado-Niles Road to Mission Boulevard
ACTA East-West Connector Project

Paseo Padre Parkway is a divided, dual two-lane roadway with an auxiliary lane along part of its alignment. Curbs, gutters, and bike lanes are available on both sides of the roadway in this segment, and there is an unlandscaped median with pole-mounted street lights. This stretch of Paseo Padre Parkway has been developed with single family residences on the southwest side of the street. Homes do not directly front the street and are buffered by a swath of City-owned right-of-way that features a meandering sidewalk and is landscaped with trees and shrubs. The residences are lined with masonry walls that shield views of the roadway from the homes. The Alameda Creek Flood Control Channel fronts the roadway on the east for a majority of the segment length. There is some residential development near Decoto Road. Between the channel and the roadway is an approximately 20-foot right-of-way planted with trees and other landscaping and an asphalt-paved trail maintained by the East Bay Regional Parks District. The existing trail system in the vicinity of the proposed project is shown in Figure 2-2.

2.1.2 New Roadway

This portion of the project alignment would be 1.3 miles of new roadway, extending from Paseo Padre Parkway on the west to Mission Boulevard on the east, through a corridor that is primarily undeveloped because it has been reserved for a roadway (Figures 2-1c and 2-1d). This undeveloped corridor of land is variously owned by Alameda County Flood Control and Water Conservation District (ACFCWCD), Alameda County Water District (ACWD), Caltrans, the City of Fremont, Union City, Pacific States Steel, and a number of private land owners. Additionally, the project alignment would traverse right-of-way currently owned by Bay Area Rapid Transit District (BART) and Union Pacific Railroad (UPRR).

From Paseo Padre Parkway to Alvarado-Niles Road, the undeveloped area includes the Alameda Creek Flood Control Channel and Old Alameda Creek[2]. Here, Old Alameda Creek represents the northern boundary of the City of Fremont. An asphalt-paved trail roughly follows the southern bank of Old Alameda Creek, connecting the Alameda Creek Flood Control Channel's northern trail to Isherwood Way. The undeveloped land is surrounded by single-family residential development to the north (in Union City) and single-family residential development to the south (in Fremont).

Just south of Alvarado-Niles Road, Quarry Lakes Drive extends through the undeveloped area and crosses the project alignment. Quarry Lakes Drive currently extends east from Osprey Drive—a residential Union City street located west of the project alignment—curves south and becomes Isherwood Way as it crosses the Union City/Fremont border near Quarry Lakes Regional Recreation Area. Quarry Lakes Drive continues south to connect with Paseo Padre Parkway.

[2] Throughout this Draft EIR, the Alameda Creek Flood Control Channel refers to the engineered, improved flood control channel owned and maintained by the Alameda County Flood Control and Water Conservation District (ACFCWCD). Old Alameda Creek refers to the historic natural channel located in the undeveloped area between Alameda Creek and the Quarry Lakes Regional Recreation Area.

Quarry Lakes Drive/Isherwood Way currently provides access to the residential neighborhood west of Osprey Drive in Union City (including Arroyo Park), the Mission Lakes residential neighborhood in Fremont, and Quarry Lakes Regional Recreation Area. Just south of where it would cross the new roadway alignment, Quarry Lakes Drive extends between two rural single-family residential properties (the Peterson Farm and the Silva Farm, which are located on Caltrans property). In the past, this area has been used to grow flowers and row crops, but it is currently planted in nonnative grasses. The Peterson Farm, to the south, includes a house, barn, water-storage tower, and an outdoor storage area. The current tenants of that farm keep horses on the property but do not grow crops. The Silva Farm, to the north, is located just south of Alvarado-Niles Road, and includes a house, barn, and garage. The Peterson and Silva farmhouses are shown in Figure 2-3.[3]

Between Alvarado-Niles Road and Mission Boulevard, the alignment would extend through undeveloped land that includes two detention basins (New Basin and Basin 2C) and the Line M Channel. The Line M Channel is an engineered flood control facility owned and maintained by ACFCWCD. The Line M Channel is undersized and, as a result, the area experiences overflow conditions during heavy storm events, and some overflow goes to Basin 2C and New Basin. The project alignment would also cross the UPRR tracks, BART tracks, Green Street bridge, and the Chesapeake Drive culvert extending over Basin 2C. Surrounding land uses include a multifamily development on the north side of the project alignment near Alvarado-Niles Road, existing and planned single-family residential development on both sides of the project alignment, industrial uses (Union City Corporation Yard) on the north side, and a dog park on the north side. These residential developments would be buffered from the project alignment by concrete or masonry walls.

2.2 Project Components

The 3.0-mile project alignment includes 1.7 miles of improvements to existing roadway segments and 1.3 miles of new roadway and other infrastructure improvements. Table 2-1 lists the major project components or features (shown in Figures 2-1a to 2-1d).

[3] The titles “Peterson Farm” and “Silva Farm” refer to the original owners of these properties, as indicated in Ward Hill, *Historic Architectural Survey Report for the Route 84 Realignment Project Alternatives* (1994), and are not meant to identify current tenants. Both of these properties are currently owned by Caltrans and leased to the tenants.

LEGEND

Paved Trail

Unpaved Trail

EBRPD East Bay Regional Park District

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Figure 2-2
Existing Trails Along Project Alignment
ACTA East-West Connector Project

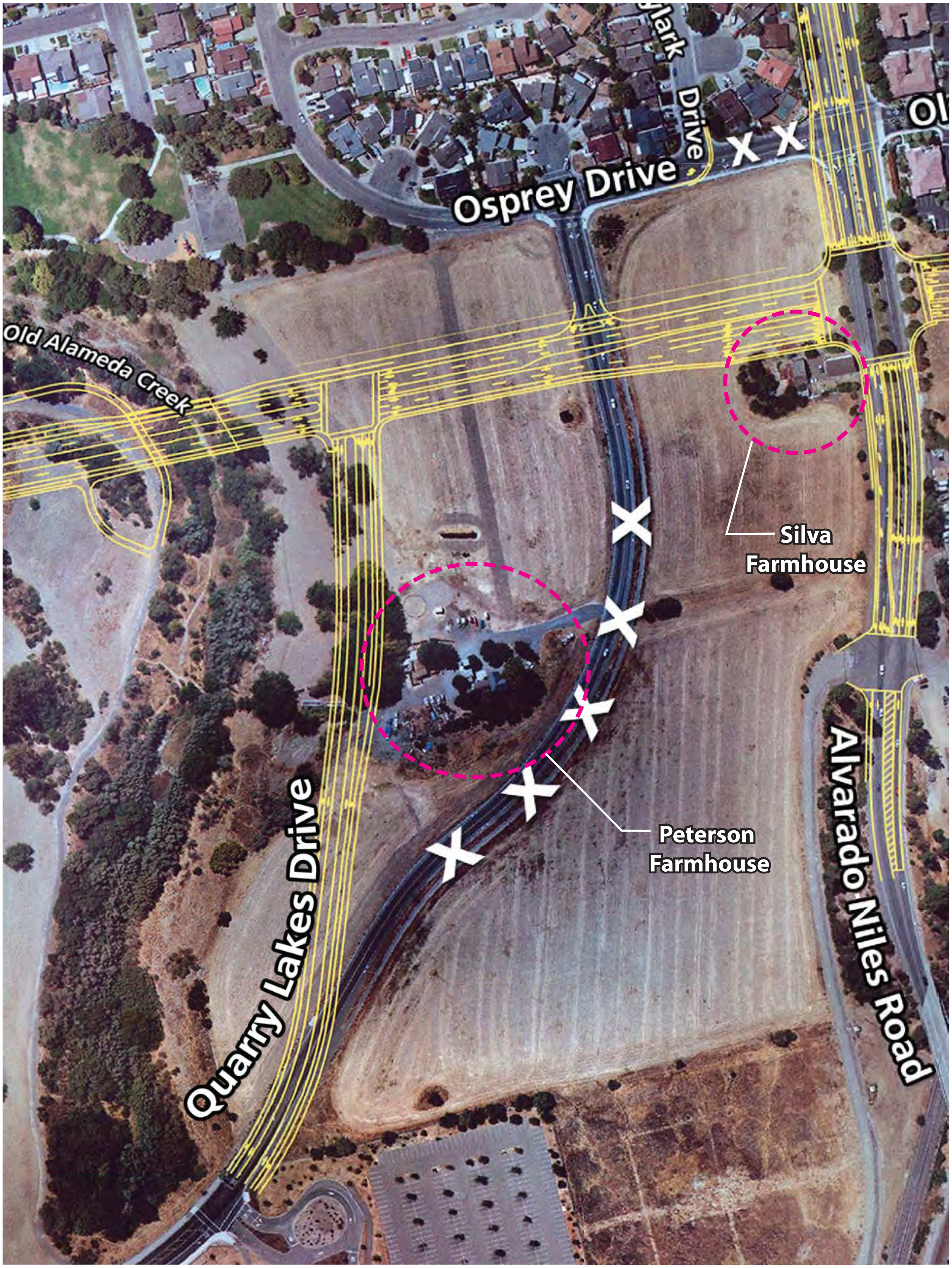

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Figure 2-3
Peterson Farm and Silva Farm

Table 2-1. Summary of Project Components of the Proposed Project: East-West Connector Project

Improvements to Existing Roadway Segments	
Decoto Road	Widen 0.9-mile segment, from intersection at Cabrillo Court to Paseo Padre Parkway, to six lanes.
Paseo Padre Parkway	Widen 0.8-mile segment, from Decoto Road to Isherwood Way, to six lanes.
Decoto Road/Cabrillo Court	Signal modification at existing intersection. Signal adjusted/re-timed.
Decoto Road/Ozark River Way	Signal modification at existing intersection. Signal adjusted/re-timed.
Decoto Road/Fremont Boulevard	Signal and intersection modification at existing intersection. Signal adjusted/re-timed. Additional turn lanes will be provided.
Decoto Road/Brookmill Drive	New signal at existing intersection.
Decoto Road/Paseo Padre Parkway	Signal and intersection modification. Signal adjusted/re-timed. Additional turn lanes will be provided.
Paseo Padre Parkway/Wyndham Drive	New signal at existing intersection.
Paseo Padre Parkway/Tamayo Drive	New signal at existing intersection.
Paseo Padre Parkway/Isherwood Way	Signal modification at existing intersection. Signal adjusted/re-timed.
New Roadway and Other Infrastructure Improvements	
New Roadway	Construct 1.3 miles of new four-lane roadway from Paseo Padre Parkway to Mission Boulevard.
New or Improved Intersections	
Paseo Padre Parkway/ New Roadway	New intersection. Turn pockets and signals provided.
Quarry Lakes Drive/ New Roadway	New intersection. Realigned westward and signalized (3- or 4-way intersection, depending option selected)
Alvarado-Niles Road/ New Roadway	New intersection. Turn pockets and signals to be provided.
Alvarado-Niles Road/Olsen Way	Signal modification at existing intersection. Signal adjusted/re-timed.
11th Street/ New Roadway	New intersection. Turn pockets and signals to be provided.
7th Street/ New Roadway	New intersection with realigned 7th Street/Chesapeake Drive. Turn pockets and signals to be added.
Mission Boulevard/ New Roadway	Intersection modification at Mission Boulevard and Appian Way. New turn pockets added. Signal adjusted/re-timed.
Other Project Features	
Alameda Creek Flood Control Channel Bridge	New bridge crossing.
Old Alameda Creek Bridges	New bridge crossings at two locations.

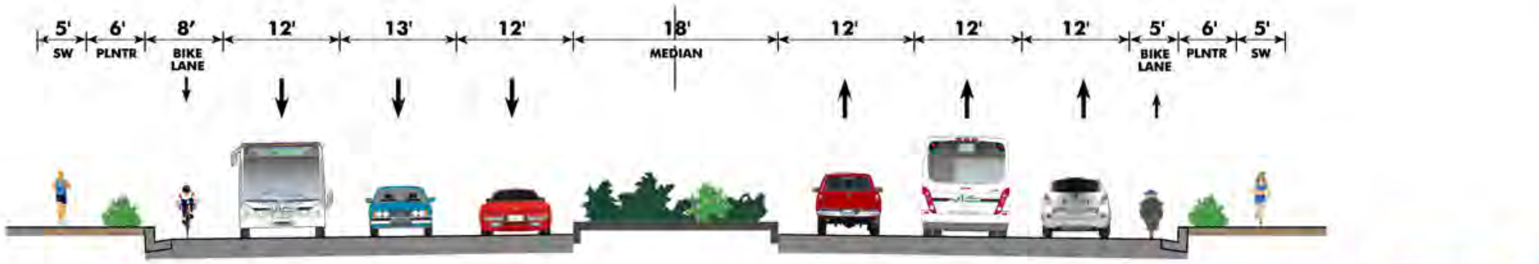
Quarry Lakes Drive Realignment	Realignment of Quarry Lakes Drive approximately 450 feet to the southwest (old roadway to be removed).
Silva Farmhouse Demolition	Demolition of existing single-family residence and barn southwest of proposed alignment and intersection of Alvarado-Niles Road
Rail and Road Grade Separation	Addition of three grade separation structures for new roadway alignment extending beneath BART, UPRR Oakland Subdivision, and UPRR Niles Subdivision
Removal of Detention Basins	Removal of two detention basins (New Basin and Basin 2C) between Alvarado-Niles Road and Mission Boulevard
Line M Channel and Diversion Pipeline	Installation of drainage bifurcation facilities at Chesapeake Drive and of new 84-inch buried pipeline on south side of new road to Old Alameda Creek.
Modifications to 7th St and Corporation Yard	Realignment of 7th Street and reconfiguration of compressed natural gas refueling Island and replacement parking for Union City Corporation Yard and Drigon Park.
Wetlands Mitigation Site	Creation of a wetlands mitigation site along Old Alameda Creek to compensate for loss of wetlands and riparian vegetation.
Replacement of Old Alameda Creek Outlets	Possible replacement of drainage gates that keep water from Alameda Creek Flood Control Channel from backing up into Old Alameda Creek
Trail System Upgrades and Maintenance	Construction of a multi-use path on north side of new roadway; new trail segments at new bridge abutments and in Fremont.
Utility Relocation and Construction	Possible relocation of existing utility poles and lines; existing storm drains and drainage inlets may be relocated or modified

2.2.1 Existing Roadway Improvements

Decoto Road

The 0.9-mile segment of Decoto Road, from its intersection with Cabrillo Court to Paseo Padre Parkway, would be widened to six lanes. The proposed roadway improvements would generally provide for one additional travel lane in each direction. The lane width would range between 11 to 14 feet to minimize right-of-way impacts. A sidewalk and a Class 2 bike lane or shoulder would be provided on both sides along the entire length of the roadway in this segment. A typical cross section is shown in Figure 2-4.

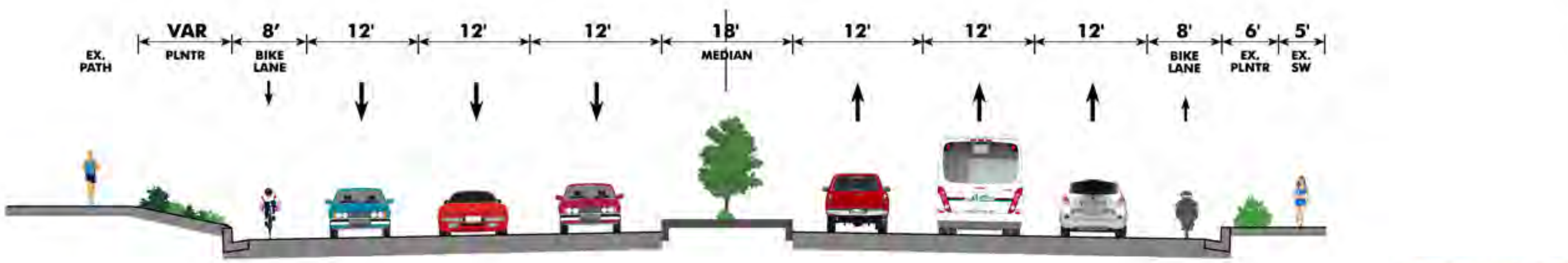
This segment of the project alignment passes over Crandall Creek, a channelized stormwater feature, with a box culvert approximately 500 feet north of Cabrillo Court. The proposed project would widen the existing roadway right-of-way at this location by up to 10 feet, but would not modify Crandall Creek.



DECOTO ROAD WIDENING

No scale

Proposed section shown is typical and will vary at different locations. Dimensions and lane widths shown are nominal and will vary.



PASEO PADRE PARKWAY WIDENING

No scale

Proposed section shown is typical and will vary at different locations. Dimensions and lane widths shown are nominal and will vary.

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Figure 2-4
Typical Cross Sections of Existing Roadway Widening
ACTA East-West Connector Project

In general, intersections affected by the proposed project would be modified to eliminate the "yield right turn" in order to improve pedestrian safety. Other improvements are identified below.

- The existing Decoto Road/Fremont Boulevard intersection would be reconfigured to conform to the widened Decoto Road and to provide additional left turn and through turn lanes as necessary.
- The existing Decoto Road/Palomar Court intersection would be modified to ban westbound traffic from making a left turn onto Mount Palomar Court. Westbound traffic would proceed to the Fremont Boulevard intersection and make a U-turn onto eastbound Decoto Road before making a right turn onto Mount Palomar Court.
- The existing Decoto Road/Brookmill Drive intersection would be signalized.
- The existing Decoto Road/Paseo Padre Parkway intersection would be modified to provide an additional left turn lane from westbound Decoto Road to southbound Paseo Padre Parkway, and an additional right turn lane from eastbound Decoto Road to southbound Paseo Padre Parkway.

The proposed improvements would require minor right-of-way acquisition at various locations to widen the existing right-of-way. The acquisition would include both fee takes and public utility easements and generally extend along the length of the alignment. According to preliminary right-of-way information, fee takes (i.e., where additional right-of-way is required to accommodate the roadway widening), are proposed in certain parcels as follows: along the south side of Decoto Road west of Fremont Boulevard (assessor parcel numbers [APNs] 543-0392-093-05, 543-0256-027, 543-0256-024-04, 543-0256-023-03, and 543-0256-022-04); the north side of Decoto Road east of Fremont Boulevard (APNs 543-0300-010-06, 543-0300-004-02, 543-0300-003-03, 543-0300-002-02, 543-0463-002, 543-0463-001, 543-0328-027-01, 543-0328-082); the east side of Fremont Boulevard north of Decoto Road (APNs 543-0300-011-02, 543-0300-012-02, and 543-0300-010-06); and the west side of Fremont Boulevard south of Decoto Road (APN 543-0256-006-02). The width of the acquisition would range from 6 to 10 feet, except at a commercial establishment on 35041 Fremont Boulevard, where the property line extends toward the center of the street approximately 14 feet more than adjacent parcels. As a result, the width of acquisition at this location would be approximately 24 feet. No sound walls are proposed.

Potential utility relocations would include relocation of joint utility poles and overhead utilities on the south side of Decoto Road between Cabrillo Court and Fremont Boulevard, and on the north side of Decoto Road on Fremont Boulevard. Existing street lights, traffic signal poles, and storm drainage inlets would also be relocated to conform to the widened roadway, as would any water meters, fire hydrants, vaults and boxes, air valves, and other water-related facilities.

Paseo Padre Parkway

The 0.8-mile segment of Paseo Padre Parkway, from Decoto Road on the north to Isherwood Way on the south, would be widened to six lanes. The proposed roadway improvements would be constructed within the existing right-of-way to provide for the addition of one 12-foot lane and a 5- to 8-foot Class 2 bike lane or outside shoulder in each direction for this segment. A typical cross section is shown in Figure 2-4.

In general, intersections affected by the proposed project would be modified to eliminate the “yield right turn” in order to improve pedestrian safety. Other improvements are listed below.

- The existing intersection with Decoto Road would be modified to provide an additional left turn lane from northbound Paseo Padre Parkway to westbound Decoto Road, and a right turn lane from southbound Paseo Padre Parkway to westbound Decoto Road.
- The existing intersection with Wyndham Drive/Waugh Place would be signalized, and the median would be landscaped.
- A new signalized intersection with the new roadway would be constructed approximately 600 feet north of Tamayo Drive.
- The existing intersection with Tamayo Drive would be signalized, and the median would be landscaped.
- Roadway widening north of the existing intersection with Isherwood ~~Drive~~ Way would be modified to provide for two auxiliary lanes between Isherwood ~~Drive~~ Way and the proposed new roadway.

The proposed improvements would be within the existing right-of-way. No utility relocations are anticipated. Existing street lights, traffic signal poles, and storm drainage inlets will be relocated to conform to the widened roadway, as would any water meters, fire hydrants, vaults and boxes, air valves, and other water-related facilities.

No sound walls are proposed.

2.2.2 New Roadway and Other Infrastructure Improvements

New Roadway

The 1.3 miles of new roadway would extend from Paseo Padre Parkway in the west to Mission Boulevard in the east. The new four-lane roadway would meet the local design standards of Fremont and Union City and would not be designed as a freeway or expressway.

The four-lane roadway would be approximately 84 feet wide and consist of a 13-foot and a 12-foot vehicle lane in each direction, 8-foot bike lane or outside shoulders in each direction, and a landscaped median between the eastbound and westbound lanes. Additionally, there would be a Class I bike and pedestrian trail on the north side of the road that would be physically separated from the roadway by a landscaped buffer or other barrier and would connect with existing trails in the area. A typical cross section of the new roadway is shown in Figure 2-5.

The new roadway would include street lights and landscaping in the median and on the outside of the roadway. This would include a combination of trees, shrubs, ~~and~~ hardscape features, and appropriate irrigation. The vegetation selected would be native, drought-resistant species. A landscape plan would be prepared as part of the proposed project in coordination with the local jurisdictions, which would enable the incorporation of specific landscaping or gateway requirements, and with ACWD to determine appropriate irrigation facilities.

Stormwater runoff from the new roadway would be collected and conveyed through the use of underground conduits to outfall structures at several locations adjacent to the roadway and into infiltration basins. These basins would provide primary treatment for runoff before it infiltrates into the ground or, during a large storm event, enters Old Alameda Creek. The outfall structures and infiltration basins would be located on existing nonnative grassland areas adjacent to the new roadway between the Old Alameda Creek Flood Control Channel and Alvarado-Niles Road.

The existing trails that cross the alignment would be reconfigured or relocated in the following manner.

- The unpaved trail extending generally north-south along the west bank of the Alameda Creek Flood Control Channel would be relocated adjacent to the proposed west bridge abutment and under the proposed bridge crossing. During heavy storm events, the lowered trail could be flooded, in which case users could use the surface trail and crosswalk adjacent to Paseo Padre Parkway.
- The unpaved trail extending generally north-south along the east bank of the Alameda Creek Flood Control Channel would be relocated to extend adjacent to the proposed east bridge abutment and under the proposed bridge crossing.
- The paved trail extending along the south side of Old Alameda Creek would be relocated to pass under the proposed bridges of the new road over Old Alameda Creek, and would reconnect to the existing paved trail east of the new roadway and south of Old Alameda Creek.
- The paved trail extending along the west side of Quarry Lakes Drive would be reconstructed on the west side of the realigned Quarry Lakes Drive.

New or Improved Intersections

The new roadway would have six intersections with existing or realigned roadways. Based on the traffic analysis, the intersections would have the following characteristics (listed from west to east along the project alignment). Figure 2-6 depicts the proposed intersection geometries for all project-related intersections. Changes to the major intersections along the project alignment are described below.

Paseo Padre Parkway

Turn pockets would be provided, and the intersection would be signalized).

Quarry Lakes Drive

As described under Quarry Lakes Drive Realignment below, Quarry Lakes Drive would be realigned westward and signalized. Two options are under consideration for this intersection (Figures 2-7a, 2-7b). Under Option 1, Quarry Lakes Drive would terminate at the new roadway to form a three-way intersection (Figure 2-7a); under Option 2, Quarry Lakes Drive would extend north to connect to Osprey Drive to form a four-way intersection (Figure 2-7b). Under both options, Quarry Lakes Drive would be realigned 450 feet to the southwest to intersect with the new roadway.

Alvarado-Niles Road

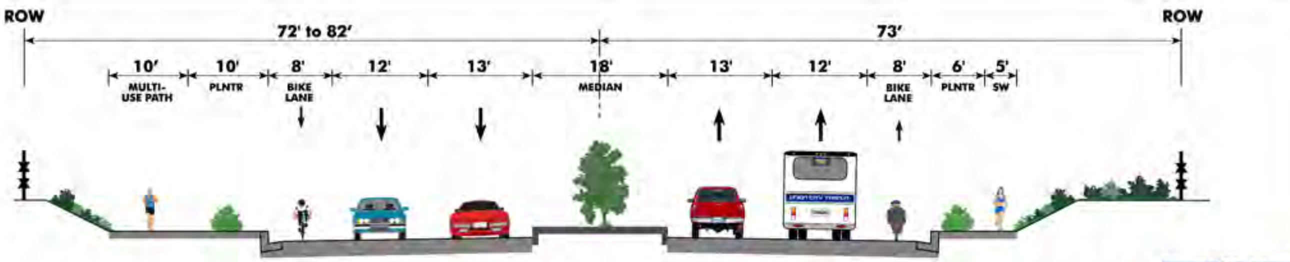
Turn pockets would be provided, and the intersection would be signalized. The intersection itself would be at-grade, but the grade of the new roadway would descend on the east side of the intersection as the roadway extends beneath the existing UPRR and BART tracks via a grade separation structure. No additional right-of-way is anticipated adjacent to the existing Alvarado-Niles Road.

11th Street

A new intersection would be created to accommodate the future extension of 11th Street north of the project alignment, between the UPRR Oakland Subdivision/BART tracks alignment and the UPRR Niles Subdivision/Green Street alignment. As designed, 11th Street would not extend south of the new roadway. A double left turn pocket from eastbound new road to 11th Street would be provided at the new intersection, and the intersection would be signalized.

7th Street

As described below, the proposed project would reconstruct 7th Street in the vicinity of its Chesapeake Drive intersection, creating a straight alignment for 7th Street that would intersect the project alignment and continue south as the existing Chesapeake Drive. The intersection would be widened, turn pockets would be provided, and the intersection would be signalized. Crosswalks would be provided on both sides of the new roadway and the west side of 7th Street/Chesapeake Street.

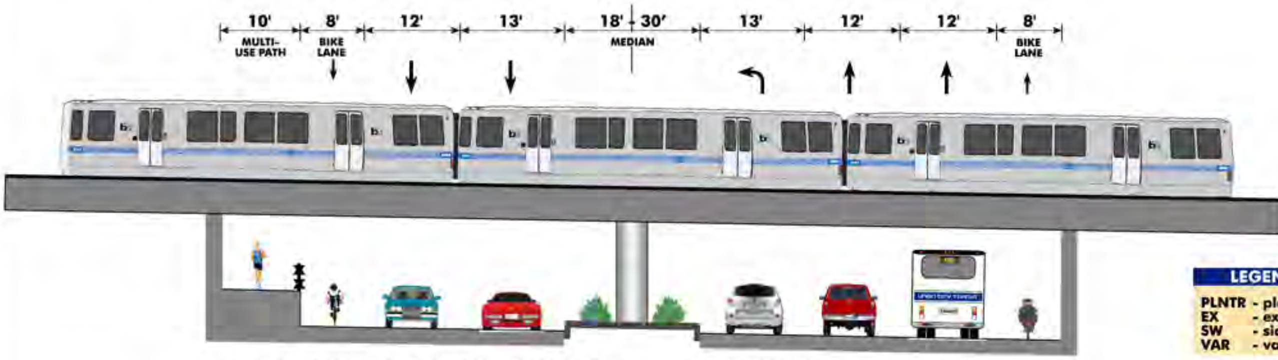


LEGEND
PLNTR - planter
EX - existing
SW - sidewalk
VAR - varies

NEW ROAD (PASEO PADRE PARKWAY to ALVARADO NILES ROAD)

No scale

Proposed section shown is typical and will vary at different locations. Dimensions and lane widths shown are nominal and will vary.

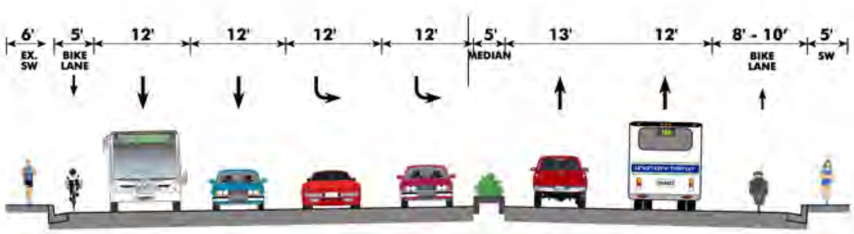


LEGEND
PLNTR - planter
EX - existing
SW - sidewalk
VAR - varies

NEW ROAD (ALVARADO NILES ROAD to 7TH STREET)

No scale

Proposed section shown is typical and will vary at different locations. Dimensions and lane widths shown are nominal and will vary.



LEGEND
PLNTR - planter
EX - existing
SW - sidewalk
VAR - varies

MISSION BOULEVARD

No scale

Proposed section shown is typical and will vary at different locations. Dimensions and lane widths shown are nominal and will vary.

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Figure 2-5
Typical Cross Sections of New Roadway
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Figure 2-6
Proposed Intersection Geometrics
ACTA East-West Connector Project

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Figure 2-7a
Proposed Quarry Lakes Drive Realignment Option 1: Three-Way Intersection
ACTA East-West Connector Project

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Figure 2-7b
Proposed Quarry Lakes Drive Realignment Option 2: Four-Way Intersection
ACTA East-West Connector Project

Mission Boulevard

The existing intersection at this location (Mission Boulevard/Appian Way) would be improved in all directions. New turn left and right turn pockets would be provided on Mission Boulevard, and the signal would be adjusted and retimed to account for the new lanes and project improvements. No additional right-of-way is anticipated to be required along Mission Boulevard.

Alameda Creek Flood Control Channel Bridge

From Paseo Padre Parkway, the new roadway would cross the Alameda Creek Flood Control Channel, as shown in Figure 2-1c. The crossing would be a seven-span bridge supported by six bents and two abutments on pile foundations (Figure 2-8). For the purposes of analysis, it is estimated that each bent would have approximately 24 concrete piles and that each pile would be approximately 40 feet long and 1 to 3 feet in diameter.

The bridge would be designed to maintain the existing pedestrian and bicycle trails that extend along the western and eastern channel banks and are part of the Alameda Creek Regional Trail system under the jurisdiction of the East Bay Regional Park District (EBRPD). The trail on the eastern bank would be lowered to cross beneath the proposed bridge, similar to the trail crossing beneath Isherwood Way to the south. The path on the channel's western bank would split, with one trail remaining at its present grade and connecting to a new crosswalk and another trail lowered to cross beneath the proposed bridge. The street level leg of the bifurcated trail would remain serviceable under all weather conditions. The lowered leg of the trail would be constructed to provide minimum headroom of 10 feet to provide access for maintenance vehicles and equestrian users.

Old Alameda Creek Bridges

The project alignment would cross Old Alameda Creek at two locations, as shown in Figures 2-1c and 2-8. At Location 1 just east of Paseo Padre Parkway, the bridge would be a four-span structure with the span lengths between 110 and 150 feet. The bridge would have end abutments and intermediate pier walls supported on pile foundations. For the purposes of analysis, it is estimated that there would be approximately 42 piles up to 60 feet long and 1 to 3 feet in diameter. At Location 2 east of Location 1, the bridge would be a single span structure supported by abutments on pile foundations at both ends.

Quarry Lakes Drive Realignment

Quarry Lakes Drive crosses the new roadway alignment west of Alvarado-Niles Road. The project proposes to realign Quarry Lakes Drive approximately 450 feet to the southwest to increase the distance between the two intersections (Quarry Lakes Drive/new roadway and Alvarado-Niles Road/new roadway) for better traffic operations). The segment of old Quarry Lakes Drive between the new roadway and Isherwood Way would be removed. The Quarry Lakes Drive realignment has been designed to avoid physical impacts on the Peterson Farm, although it would entail removal of some vegetation on the property. The roadway's edge would be approximately 60 feet southwest of the barn and approximately 200 feet southwest of the house. The Quarry Lakes Drive realignment would provide a new access driveway to the Peterson Farm.

The realigned Quarry Lakes Drive would continue northward across the nonnative grassland field, to a signalized intersection with the new roadway. Two options are being considered for the intersection.

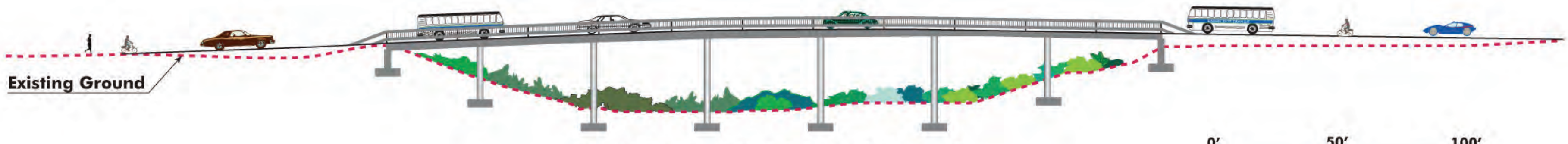
Under Option 1, Quarry Lakes Drive would terminate at the new roadway and not extend through the new roadway, creating a three-way intersection (Figure 2-7a). The segment of the old Quarry Lakes Drive between the new roadway and Osprey Drive would be reconfigured to allow only for right-in/right-out movements where it intersects the new roadway. A segment of Osprey Drive between Alvarado-Niles Road and Skylark Drive would be closed, and the existing segment of Quarry Lakes Drive between Osprey Drive and the new roadway would be modified to provide only for right-in/right-out movements from Quarry Lakes Drive.

Under Option 2, Quarry Lakes Drive would extend through the new roadway and connect to Osprey Drive, creating a four-way intersection (Figure 2-7b). The segment of the old Quarry Lakes Drive between the new roadway and Osprey Drive would be closed, and Quarry Lakes Drive would extend northward to connect to a slightly modified Osprey Drive west of Towhee Court. A segment of Osprey Drive between Alvarado-Niles Road and Skylark Drive would be closed. This alignment would encroach on the eastern limits of Arroyo Park, which is a Union City Leisure Services Department facility. Approximately 21,353 square feet of parkland would be acquired for roadway right-of-way, and up to eight trees on the park's northeastern corner could be removed and replacement trees would be planted to the west of the extended Quarry Lakes Drive.

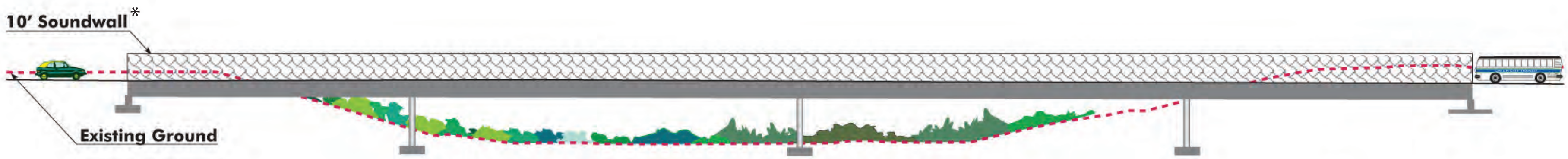
Stormwater on the realigned Quarry Lakes Drive would be collected the same way as described above for the new roadway. Tree wells would be part of the collection system, and the water would be carried to infiltration basins.

Silva Farmhouse Demolition

Just southwest of its intersection with Alvarado-Niles Road, the project alignment partially crosses the Silva Farm, which has an existing single-family residence and associated barn, shown in Figure 2-3. This property is owned by Caltrans and leased to the current tenants. The proposed project entails relocating the tenants and demolishing the house and barn.



Alameda Creek Flood Control Channel



Old Alameda Creek Bridge Location 1 (near Paseo Padre Parkway)

Old Alameda Creek Bridge Location 2 (near Quarry Lakes Drive)

Note: The bridge locations can be seen in Figure 2-1c.
* Alternatively, the soundwall may be located along residential property lines, not along the roadway.

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Figure 2-8
Proposed Bridges at Alameda Creek Flood Control Channel and Old Alameda Creek
ACTA East-West Connector Project

Rail and Road Grade Separation

The new roadway alignment would be depressed below (from west to east) the existing BART tracks, UPRR Oakland Subdivision track, Green Street bridge, and UPRR Niles Subdivision track, resulting in three new grade separation structures at the locations shown on Figure 2-1d. The existing Green Street bridge is located just west of the UPRR Niles Subdivision tracks, and the proposed roadway alignment would extend below this existing grade separation structure.

For the grade separation structures, the roadway grade would be lowered from the east side of Alvarado-Niles Road to the west side of 7th Street and would provide a minimum vertical clearance of 17 feet 16 inches below the UPRR track structures. The grade separation structures would be supported on pile foundations. Figure 2-5 shows a conceptual drawing of the grade separation structure for BART. The UPRR grade separation structures would be similar.

The traffic lane widths would generally remain constant in the grade-separated segment. Bike lanes and shoulders are generally 8 feet wide but may be reduced to 5 feet to minimize right-of-way impacts. At turn pockets, where the median is the narrowest, the minimum width of the median is 6 feet except where it would be reduced to 4 feet near the Union City Corporation Yard to avoid right-of-way impacts. The proposed Class I bicycle and pedestrian path on the north side of the roadway would be constructed at a higher elevation than the roadway in the vicinity of the BART and UPRR Oakland Subdivision grade separation structures.

In order to construct the grade separations, the railroad and BART tracks would be shifted onto a temporary alignment called a shoofly. The shoofly would be constructed adjacent to the existing tracks within the existing BART and UPRR right-of-way and have minimal impact and disruption to train operations. The minimum distance from the centerline of the UPRR shoofly track to an existing residential soundwall would be 15 feet. Additional information about the grade separation construction is included in Section 2.3, Project Construction Activities, Phase 3. Removal of Detention Basins

Between Alvarado-Niles Road and Mission Boulevard, the project alignment extends across two existing detention basins, commonly called and hereinafter referenced as New Basin and Basin 2C (Figure 2-9).

New Basin is approximately 123,897 square feet and is located between the UPRR Niles/Green Street and BART/UPRR Oakland alignments. New Basin was constructed in 2006 to manage increased runoff generated by the new development. During heavy storm events, some of the water from the Line M Channel is diverted into the basin. When the water elevation in the Line M Channel recedes, water is pumped out of the basin back into the Line M Channel.

Basin 2C is approximately 94,362 square feet and is located between the UPRR Niles alignment and Chesapeake Drive. Basin 2C was created in October 1999 to provide stormwater detention for nearby residential development and to serve as a wetland mitigation site for new residential development. Because wetlands would be removed by the proposed project, a wetland mitigation site on Old Alameda Creek is proposed. Refer to Wetlands Mitigation Site below.

Both New Basin and Basin 2C receive overflow stormwater from the adjacent Line M Channel; therefore, the proposed project includes diverting water from the Line M Channel. Refer to Line M Channel and Diversion Pipeline below. The stormwater flow that is detained in these basins under existing conditions would be adequately accommodated by Line M Channel and the proposed diversion pipeline.

Line M Channel and Diversion Pipeline

The Line M Channel is an existing engineered, channelized drainage feature that starts in the hills east of the project alignment, continues through Union City in a mix of open channel and pipelines, and discharges into the Alameda Creek Flood Control Channel about 0.5 mile downstream of the project alignment. The alignment of the Line M Channel relative to the project alignment is shown in Figure 2-9. The new roadway alignment extends over the Line M Channel 250 feet east of Chesapeake Drive and westward between Chesapeake Drive and UPRR Niles Subdivision. The Line M Channel is undersized; as a result, the area near Chesapeake Drive experiences overflow conditions during heavy storm events. Some overflow goes to the two detention basins (Basin 2C and New Basin), which would be displaced by the proposed project. The proposed project includes modifying the Line M Channel in this area to accommodate the new roadway and to provide the additional capacity needed for flood control (Figure 2-10).

East of Chesapeake Drive, a drainage bifurcation[4] structure would be installed to split the Line M Channel flow so that approximately 50% continues to the downstream segment of the Line M Channel and approximately 50% is diverted to a new 84-inch pipeline. Near the bifurcation structure, an in-line mechanical filtration vault would be installed to provide treatment to stormwater from the adjacent residential development prior to it entering the Line M Channel diversion pipeline.

The existing Line M Channel, between Chesapeake Drive and UPRR Niles Subdivision just west of the Union City Corporation Yard, would be filled in and replaced by two ~~8~~10-foot by 5-foot box culverts along the north side of the new roadway, just south of the Corporation Yard. The new diversion pipeline would be an 84-inch buried pipeline extending along the south side of the new roadway to Old Alameda Creek. The pipeline would be buried approximately 10 feet deep (measured from the flow line to the finished grade) at the diversion point and would drop to 28~~30~~ feet deep by the time it reaches Old Alameda Creek. ~~The outfall structure would likely consist of an 84-inch outfall pipe and 110-square-foot rock slope protection area.~~The outfall structure for the 84-inch pipe would

4 Bifurcation is to divide or split into (two) branches.

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Figure 2-9
Existing Detention Basins and Line M Channel
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Figure 2-10
Proposed Line M Channel and Diversion Pipeline
ACTA East-West Connector Project

likely be a concrete trough (3-sided box) and rock slope protection area in a new open channel in the wetlands mitigation site along Old Alameda Creek.

Modifications to 7th Street and Union City Corporation Yard

The most easterly 500 feet of the new roadway alignment would replace a short stretch of the existing 7th Street alignment, which currently curves toward the northwest and provides access to the Union City Corporation Yard and residential development. Chesapeake Drive currently intersects this curved portion of 7th Street, with a culvert (Chesapeake Culvert) crossing detention Basin 2C and Line M Channel. The project proposes to replace this curved alignment of 7th Street with a straight alignment, as shown in Figure 2-11. The curved portion of 7th Street would be removed. The resulting new roadway/7th Street/Chesapeake Drive intersection would be signalized.

The new roadway alignment would encroach on the parking lot and compressed natural gas (CNG) refueling island at the existing Union City Corporation Yard located off 7th Street. The proposed project would involve acquiring approximately 21,014 square feet to accommodate the needed right-of-way. There would be a loss of 18 parking stalls in the parking lot, and a loss of existing on-street parking on 7th Street. The area previously occupied by the now vacated 7th Street/Chesapeake Street intersection would be used to relocate the CNG fueling island and emergency shut-off valve, but the underground storage tank would remain in place. Plans and specifications for relocating the CNG fueling island would be reviewed and approved by the Union City Planning, Building, and Fire Departments and would conform to the Uniform Fire Code requirements. Replacement parking would be provided east of the realigned 7th Street (Figure 2-11).

Between 7th Street and Mission Boulevard, the new roadway alignment would require a minor right-of-way extension into the southern fringe of Drigon Park (Figure 2-1d), a public dog park owned and operated by the Union City Leisure Services Department. The proposed project would take approximately 15,627 square feet from Drigon Park and would remove some vegetation at the edge of the park, but would entail no modification of any physical features inside the park, including the existing fence and surrounding pathway.

Wetlands Mitigation Site

The proposed project would establish a wetlands mitigation site on Old Alameda Creek to compensate for riparian vegetation, ~~and~~ wetlands, and linear aquatic features affected by the proposed project. The mitigation would be achieved by:

- diverting water from the Line M Channel to increase flow to Old Alameda Creek;

- creating an enhanced open channel segment of the Line M Channel drainage alignment to extend to the continuous linear aquatic habitat of Old Alameda Creek;
- grading new channel banks and regrading creek banks to create benches for additional waters, wetlands, and vegetation; and
- planting native wetland and riparian vegetation.

The wetlands mitigation site would also incorporate a recreation trail on the upper banks near the Mission Hills residential area.

ACTA would coordinate with the U.S. Army Corps of Engineers (Corps), Regional Water Quality Control Board (RWQCB), and other agencies as necessary to develop specifications to satisfy permitting requirements.

Other Infrastructure Improvements

Changes to Old Alameda Creek Outlets at Alameda Creek Flood Control Channel

Old Alameda Creek is connected to the Alameda Creek Flood Control Channel through three 48-inch-diameter pipes under the channel embankment and automatic drainage gates. These gates were installed in the 1960s to prevent water from the Alameda Creek Flood Control Channel from backing up into Old Alameda Creek. Pending further investigation on the conditions of these gates and discussion with ACFCWCD, these drainage gates may be replaced. No other changes to the outlet would be included in the proposed project.

Trail System Maintenance and Upgrades

The proposed project would include the construction of a multiuse path between Paseo Padre Parkway and Mission Boulevard on the north side of the new roadway. It would be of asphaltic concrete construction. The path would generally be a minimum of 10 feet wide and be separated from traffic either by landscaping or fences. The path would be connected to other existing trails in the area. When completed, the path would be maintained by either Fremont or Union City, depending on where it is located. The proposed configuration of the trail and bike lanes is shown in Figure 2-12.

The proposed project would affect the existing City of Fremont trail running along the south side of Old Alameda Creek in the vicinity of the Mission Lakes Subdivision. Segments of the trail that would be affected would be realigned. The trail's termini would remain unchanged. (Refer to the discussion under New Roadway above.)

The existing trails running along the east and west bank of the Alameda Creek Flood Control Channel would be affected by the new roadway alignment. Where

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Figure 2-11
Proposed Modifications to Union City Corporation Yard and 7th Street Realignment
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Figure 2-12
Proposed Trails and Bike Lanes
ACTA East-West Connector Project

the trail would be intersected by the new Alameda Creek Flood Control Channel bridge on the west side of the channel, the trail and roadway crossing would include an at-grade crossing, with a signalized crosswalk provided and a crossing beneath the new roadway. The eastern trail crossing would not include an at-grade crossing. (Refer to the description under Alameda Creek Flood Control Channel Bridge above.) On both sides of the creek, the crossings beneath the new roadway would be constructed in front of the proposed bridge abutments, which would require that the trail be lowered from its current elevation, and thus be subject to potential flooding during heavy storm events. The trails would be maintained by ~~the East Bay Regional Park District~~EBRPD, as ~~is~~ are the existing ~~trail~~ trails in this location, and the construction would be coordinated with ~~the District~~EBRPD. Both trails would be constructed to District Class I trail specifications, with a 10-foot-wide trail, 2-foot-wide shoulders on each side, and a 10-foot vertical clearance to allow adequate passage beneath the bridges for equestrian riders and service vehicles.

Utility Relocation and Construction

The new roadway segments may include additional utility modifications or installations such as water, gas, electricity, and telecommunications facilities if needed or if so requested by the franchised utility providers within the two cities. The locations and extent of these facilities are currently unknown and would be determined by the franchised utility providers.

The widening of Decoto Road would affect some of the exiting utilities in the area. On the south side of Decoto Road between Cabrillo Court and Fremont Boulevard and on the west side of Fremont Boulevard, existing overhead utility poles and lines would need to be relocated to the south to accommodate the widening. The relocated utility poles would be placed near or behind the back of the sidewalk in order to provide an accessible path for the physically challenged. It is anticipated that some of the relocated facilities would be placed in public utility easements to be obtained as part of the proposed project.

Existing overhead utility lines on the west side of Mission Boulevard between Holly Leaf Lane and Appian Way would be relocated to the east side of Mission Boulevard to accommodate the southbound to westbound right-turn pockets.

Throughout the project alignment, existing storm drains and drainage inlets may be relocated and modified to accommodate roadway widening and intersection modifications. Covers and lids for existing underground utility facilities would also be adjusted.

2.3 Project Construction Activities

2.3.1 Construction Timing

The proposed project is planned for construction between 2011 and 2015. Construction would likely occur in separate phases, depending on the complexity of the design, nature of the construction work, and the time needed for environmental permitting, right-of-way acquisition, utility relocations, and project funding.

It is anticipated that the construction would be implemented in at least three separate phases with a total duration of approximately 42 months. The phases may be performed concurrently or separately, as they each have independent utility. Each phase may include more than one construction contract, and usable segments would be opened as they are completed to provide congestion relief and traffic improvement to the traveling public.

The phases have been numbered Phase 1, 2 and 3 based on their west-to-east occurrence, but this does not represent the order in which they might be constructed. If the proposed project which includes all three phases is not approved, phase 3 (which is Alternative 1: Historic Alignment in Union City) would likely be implemented, as stated in the MOU (Appendix A, item 30).

Phase 1: Widening Existing Roadway

Widening the existing roadway segment on Decoto Road and Paseo Padre Parkway is expected to take approximately 18 months. The construction work would be staged to minimize disruption to traffic and access to and from various properties fronting the project alignment.

Construction activities would generally occur Monday through Friday, between 8:00 a.m. and 6:00 p.m. At busy intersections, the work may be performed outside of these hours in order to minimize disruption to traffic.

Phase 2: Construction of New Roadway Segment (Paseo Padre Parkway to Alvarado-Niles Road)

Construction of the new roadway segment (undeveloped corridor) between Paseo Padre Parkway on the west and Alvarado-Niles Road on the east is expected to take 24 months. Construction of the bridges over the Alameda Creek Flood Control Channel and Old Alameda Creek would be timed to minimize potential impacts on biological resources and in compliance with the permitting conditions set by the resource agencies. Any work that may affect the creek bed or aquatic life would occur during the dry season (June 1 to October 15) and superstructure construction may occur at other times only if it can be performed in compliance with agency permit conditions.

Construction activities would generally occur Monday through Friday, between 8:00 a.m. and 6:00 p.m. There would be no pile driving, which is required for bridge construction, outside these hours. At busy intersections, the work may be performed outside of these hours in order to minimize disruption to traffic.

Phase 3: Construction of New Roadway Segment (Alvarado-Niles Road to Mission Boulevard) and Improvements to Intersections on Mission Boulevard

Construction of the new roadway segment (redevelopment corridor), between Alvarado-Niles Road in the west and Mission Boulevard in the east, is expected to take up to 36 months. Construction of the grade separation structures would require close coordination with BART and UPRR. To minimize disruption to existing operations, temporary shooflies would be constructed adjacent to existing tracks.

Construction activities would generally occur Monday through Friday, between 8:00 a.m. and 6:00 p.m. However, night work would be required for any work within BART's fenced right-of-way (operating envelope) or for construction activities involving cranes or heavy equipment adjacent to BART tracks. This night work within and immediately to adjacent BART's operating envelope would be limited to non-revenue hours, which are approximately 1:00 a.m. to 4:00 a.m. on weekdays, 1:00 a.m. to 5:00 a.m. on Saturdays, and 1:00 a.m. to 7:00 a.m. on Sundays. Night work would also be required for tie-ins along the UPRR Niles Subdivision line and Oakland Subdivision line.

2.3.2 Construction Methodology

The construction activities associated with the proposed project are described generally by project component, although project components with similar construction activities have been combined. Planned staging areas are also identified.

Modifications to Existing Roadways and Intersections

Modifications to existing roadways and intersections would include widening Decoto Road and Paseo Padre Parkway, all intersection improvements, and the 7th Street realignment and modifications to the Union City Corporation Yard. Construction activities would include shallow excavation to allow for construction of the new pavement sections and trenching for the installation of underground utilities conduits and structures. The widening would also require the installation of various types of poles and foundation to facilitate modification of traffic signals, street lights, relocation of existing overhead utility lines, and the adjustment of covers for existing underground utility vaults and boxes.

Landscaping installed in roadway medians and adjacent to sidewalks at various locations would include drought-tolerant trees and shrubs. Some of the tree wells would be designed to act as infiltration facilities to minimize stormwater runoff.

Interconnect cables would be installed to connect the traffic signals along the project alignment. This would enable signal operations at various intersections to be coordinated and monitored in the future.

There would be coldplaning (i.e., grinding of a uniform depth) of existing asphaltic concrete pavement before placement of the new asphaltic concrete pavement and/or overlay. In certain areas, slurry seal may be placed in lieu of coldplaning and overlay. Other activities would also include demolition of existing curb, gutter, and sidewalk and their reconstruction at different locations; and signing and striping.

New Roadway Construction and Quarry Lakes Drive Realignment

In general, construction for both the new roadway and the Quarry Lakes Drive realignment would require shallow or open excavation, ranging from 2 to 10 feet deep, to allow for construction of the new pavement sections and trenching for the installation of underground utilities conduits and facilities. A construction corridor of up to 30 feet on either side of the roadway alignment could be disturbed for construction equipment and activities.

At the approaches to the grade separation structures and for the segment of roadway between the grade separation structures, including its intersection with 11th Street, the maximum excavation depth would be approximately 25 feet. In addition, retaining walls may be constructed at both the north and south side of the roadway. As the roadway in this segment would be below existing ground, there would be a need to install a pump station to discharge stormwater runoff. The pump station would be located on the south side of the new roadway to the west of the BART tracks.

Clearing for this portion of the proposed project would entail the removal of trees and shrubs lining Old Alameda Creek, and the removal of grassland habitat throughout the remainder of the new roadway alignment and the two detention basins (New Basin and Basin 2C).

Once the clearing is completed, the existing ground would be graded to the appropriate depths and any underground utilities and pipes would be installed. Soundwalls, if required, would also be constructed. It is anticipated that excavation for the new roadway between Paseo Padre Parkway and Alvarado-Niles Road and the realignment of Quarry Lakes Road would total approximately 90,000 cubic yards. The curbs, multiuse path, and sidewalks would be formed before the roadway is paved with asphaltic concrete. Lighting, landscaping, irrigation, streetlights, traffic signals, and ancillary roadway furniture including signing and striping would be completed before the new roadway is completed.

Any work that is performed at or near the existing roadway and intersections would be phased to minimize disruption to traffic.

Other construction features associated with construction of the new roadway, such as the bridges and grade separation structures, are described below.

Once Quarry Lakes Drive is realigned to the new location, the old Quarry Lakes Drive would be demolished.

Rail and Road Grade Separation

Excavation

The construction of the BART and UPRR grade separation structures and the new roadway between these structures would require extensive excavation both in terms of volume and depth. It is anticipated that excavation for the grade separation and the new roadway between Alvarado-Niles Road and Mission Boulevard would total approximately 95,000 cubic yards and would extend up to 25 feet below the existing grade.

As the excavation would extend below the existing groundwater table, the proposed project would include the installation of a subsurface soil-cement-mix wall to create an impermeable wall around the portion of the proposed excavation that extends below the groundwater table. The wall would be constructed on an existing layer of clay so that the entire excavation could be performed with no need for continuous dewatering, thereby minimizing any impact on the groundwater table.

To minimize the width of the overall excavation and to maintain a slope of not more than two horizontal to one vertical (2H:1V), reinforced concrete retaining walls would be constructed along a segment of the roadway from just west of the BART grade separation structure to just east of the UPRR Niles Subdivision grade separation structure.

The roadway pavement would be either asphaltic concrete or Portland cement concrete, and would be determined during final design.

Grade Separation Structures

The grade separation structures for BART and UPRR would be composed of three separate structures. The structures would be ballasted deck using either steel or concrete for the super structure and would accommodate two sets of tracks. The substructures would be concrete supported on file foundations.

Where possible, existing utilities and pipelines that run along the various railroad lines would be supported in place during construction and placed on the new grade-separated structures upon completion.

Shoofly

A shoofly is a temporary railroad track. During construction of the grade separation structures, shooflies would be required for the BART, UPRR Oakland Subdivision, and UPRR Niles Subdivision tracks in order to allow continued operations of Amtrak, BART, and freight trains that operate along these tracks. Shoofly design has not yet been finalized but would be prepared in close consultation with BART and UPRR. The shooflies would be constructed to allow for the removal of the existing tracks and the construction of the grade separation structures while maintaining existing operations. They would be constructed within the existing railroad rights-of-way, and would extend approximately 2,000 feet north and south of the roadway alignment. There would be a minimum distance of 15 feet between the centerline of the shoofly track and adjacent residential soundwalls. Each shoofly would be constructed adjacent to the existing tracks, and temporary shoring would be required. Once the grade separation structures are completed, BART and UPRR would be restored to their existing alignments on the new structures, and the shooflies would be removed.

Construction Sequence

The first order of work would be the installation of the subsurface soil-cement-mix wall, followed by the excavation for the grade separation structures. The existing grade for the shooflies would be maintained. The pile foundation for the grade separation structures would then be constructed. The bridge superstructure construction would follow. The remaining excavation would occur after the railroad tracks are relocated to the permanent structures.

The retaining wall would then be constructed, followed by the installation of underground utilities, pipelines, and a drainage pump station. The curbs, multiuse path, and sidewalks would be formed before the new roadway is paved. Lighting, landscaping, irrigation, streetlights, traffic signals, and ancillary roadway furniture including signing and striping would be completed before the new roadway is completed.

Alameda Creek Flood Control Channel Bridge

The concrete slab, seven-span bridge would be supported by six bents and two abutments on pile foundations (Figure 2-8). For the purposes of analysis, it is estimated that there would be approximately 24 concrete piles and that each pile would be approximately 40 feet long and 1 to 3 feet in diameter. The bents would be placed at the edges of the relatively permanent waters[5]. It is anticipated that it would take approximately 2 months to install the bridge foundation. The piles would be installed with pile driving, using a diesel hammer. Bridge foundation construction would occur during the dry season (June 1 to October 15) or as mandated in resource agency permits. The construction of temporary diversion structures may be required during low flow periods to divert flow around the excavation to allow for the construction of bridge foundation and piers. The temporary diversion structure would be removed upon completion of the foundation and piers.

Once the foundation and piers are completed, the bridge superstructure would be constructed on falsework supported on the completed piers or in the channel bed if so permitted. The falsework would span between piers. There would be temporary screens and netting to prevent materials from falling into the channel.

Old Alameda Creek Bridges

There would be two concrete box girder bridges that span Old Alameda Creek (Figure 2-8).

Location 1 (closest to Alameda Creek Flood Control Channel) would be a four-span structure with span lengths between 110 and 150 feet. The bridge would have end abutments and intermediate pier walls supported on pile foundations. The piles would be installed with pile driving, using a diesel hammer. For the purposes of analysis, it is estimated that there would be approximately 42 piles up to 60 feet long and 1 to 3 feet in diameter. The abutments and piers would be at the two edges of the relatively permanent waters area. Construction is anticipated to take 5 weeks.

Location 2 (east of Location 1) would be a single-span structure supported by abutments on pile foundations at both ends. The piles would be installed with pile driving, using a diesel hammer. The foundation work is anticipated to take 2 weeks.

Bridge foundation construction would occur during the dry season (June 1 to October 15) or as mandated in resource agency permits. The construction of temporary diversion structures may be required during low flow periods to divert flow around the excavation to allow for the construction of bridge foundation and piers in the dry. The diversion structure would be removed upon completion of the pile bents.

Once the foundation and piers are completed, the bridge deck would be constructed on falsework supported on the completed piers or in the creek bed if

[5] Relatively permanent waters are defined as waters that flow year-round or have continuous flow at least seasonally (typically 3 months).

so permitted. The falsework would span between piers. There would be temporary screens and netting to prevent materials from falling into the creek.

Silva Farmhouse Demolition

The proposed project would entail demolition and removal of the Silva farmhouse and barn located along Alvarado-Niles Road, approximately 300 feet south of Osprey Drive. A detailed hazardous materials survey would be performed, and any identified and regulated hazardous materials would be removed by a specialist contractor in compliance with the necessary laws and regulations. Thereafter, the building would be demolished. All necessary permits and manifests would be obtained. Any solid waste generated from the demolition would be handled in compliance with Union City recycling ordinances.

Line M Channel and Diversion Pipeline

The Line M Channel would be modified as part of the proposed project. At approximately 250 feet east of Chesapeake Drive, a concrete drainage bifurcation structure would be installed and would connect to a double ~~8~~10-foot-by-5-foot concrete box culvert and an 84-inch diversion pipeline. The box culvert would have a depth of 12 to 14 feet and would reconnect to the existing Line M Channel just west of the Union City Corporation Yard. This can generally be completed by open cut excavation.

The 84-inch pipeline would continue along the south side of the new roadway and eventually discharge into Old Alameda Creek~~ via an outfall structure comprised of a 84-inch pipe and 110-square-foot rock slope protection area~~. The depth of the pipeline would vary from approximately 12 feet at the bifurcation structure to 28~~30~~ feet near Old Alameda Creek. The depth of the excavation would require the use of shoring to support the excavation. An outfall structure would be constructed where the pipeline ends at Old Alameda Creek to eliminate the risk of creek bank erosion. The outfall structure for the 84-inch pipe would likely be a concrete trough (3-sided box) and rock slope protection area in a new open channel in the wetlands mitigation site along Old Alameda Creek.

Wetlands Mitigation Site

Construction of the wetlands mitigation site would involve excavation of an estimated 230,000 cubic yards of soil, based on the draft wetlands mitigation plan developed as part of the biological resources analysis, ~~an undetermined amount of excavation ~~to create the necessary channel and graded banks to support the wetlands and vegetation, as described under Section 2.2.2, New Roadway and Other Improvements, Wetlands Mitigation Site, above.

Changes to Old Alameda Creek Outlets at Alameda Creek Flood Control Channel

The only work that may be performed under the proposed project would be the replacement of existing automatic drainage gates. That work would require minor excavation and the removal of the existing gates prior to the placement of the new gates. However, to minimize any potential impacts on aquatic and biological resources, and on water quality, the work would be performed during the dry season (June 1 to October 15).

Staging Areas

As discussed in Section 2.3.2, Construction Methodology, the proposed project would likely be constructed in three separate phases, and each phase would have a different requirement for the locations and sizes of staging areas (shown in Figure 2-1c).

Phase 1: Widening Existing Roadway

The construction required for Phase 1 is general in nature. The contractor would need an area for a field office, and storage of construction equipment such as pickup trucks, excavators, and backhoes. There would also be a need for storing general construction materials such as cutback, pipes, utility vaults, and the like. These staging needs can be accommodated by any open areas that are in the general proximity of the project alignment such as underused parking lots and undeveloped sites.

Phase 2: Construction of New Roadway Segment (Paseo Padre Parkway to Alvarado-Niles Road)

The construction required for Phase 2 would involve the use of heavy equipment, and the storage of piles, falsework, and formwork materials. The contractor would need a staging area that is in close proximity to the bridge structures. The areas proposed to be used as staging areas are identified below.

- An existing open area to the east of Alameda Creek Flood Control Channel just north of the new roadway alignment. Access to the area can be provided via the existing service road running along the channel.
- An existing open area between the two proposed Old Alameda Creek crossings just south of the new roadway alignment. Access to the area can be provided via a temporary roadway connecting to Quarry Lakes Drive.
- An existing open area between the proposed realigned Quarry Lakes Drive and Alvarado-Niles Road to the south of the new roadway alignment. Access to the area can be provided via Quarry Lakes Drive.

Phase 3: Construction of New Roadway Segment (Alvarado-Niles Road to Mission Boulevard) and Improvements to Intersections on Mission Boulevard

The proposed project can generally be constructed using the existing and new roadway and railroad right-of-way. However, an open area at the southeast quadrant of the proposed intersection of Alvarado-Niles Road and the new roadway would be provided to the contractor for use during construction.

Materials Disposal

The proposed project would generate solid waste, including asphalt and other materials removed during roadway widening, intersection modifications, Quarry Lakes Drive realignment, and trail relocation. This material would be recycled to the extent practicable. Some items, such as signal hardware, may be delivered back to the cities. Surplus material would become property of the contractor and be disposed at an appropriate offsite location.

The proposed project would excavate approximately 430,000~~200,000~~ cubic yards of dirt (Table 2-2). The excavated material would be reused to the greatest extent possible to build roadway embankments and berms. Surplus material would become the property of the contractor where it will likely be reused on other projects requiring embankment material.

The following assumptions were made for purposes of analysis.

- All three construction phases, as well as improvements associated with implementation of the wetlands mitigation plan, could occur simultaneously.
- Wetland mitigation plan improvements would begin following completion of all site grading and excavation activities required for roadway construction.
- For roadway improvements, the maximum area simultaneously disturbed in a single day would be 25% of the total project alignment.
- For the wetlands mitigation plan improvements, the maximum area simultaneously disturbed in a single day would be 0.5 acre.
- The average capacity of haul trucks would be 14 cubic yards.

Table 2-2. Excavation Requirements

Roadway Segment	Amount of ~~Roadway~~ Excavation (cubic yards)	Amount of Fill (cubic yards)	Approximate Net Volume to be Reused or Off-Hauled (cubic yards)
Segment 1 Decoto (Cabrillo to Fremont)	7,600	0	7,600
Segment 2 Decoto (Fremont to Paseo Padre)	3,100	0	3,100
Segment 3 Paseo Padre (Decoto to Isherwood)	4,000	0	4,000
Segment 4 New Roadway (Paseo Padre to Alvarado-Niles)	107,000	13,000	94,000
Segment 5 New Roadway (Alvarado-Niles to Mission)	130,000	38,000	92,000
Segment 6 Mission (O'Connel to Line M)	1,400	0	1,400
Wetlands Mitigation Site		230,000	230,000

Note: Segment 4 does not include excavation that would be required to implement the ~~conceptual~~draft wetlands mitigation plan ~~because this is conceptual~~ at ~~this point~~. Approval and design would need to be coordinated with relevant agencies such as the U.S. Army Corps of Engineers and Regional Water Quality Control Board. Excavation estimates for the wetlands mitigation site are based on the draft wetlands mitigation plan developed as part of the biological resources analysis, and are considered conservative.

Dewatering

The construction of the Line M Channel diversion pipeline could require dewatering when the excavation is deeper than the groundwater table. However, it is expected that the amount of dewatering would be limited in scale. During the final design phase, construction specifications would be developed in consultation with ACWD and would include the methodology used for measuring the volume of water being dewatered and best management practices to minimize the amount of dewatering.

Best Management Practices

To reduce constructed-related impacts, ACTA and its construction contractor would implement best management practices (BMPs) in accordance with RWCB specifications, other permitting standards and requirements, and specific mitigation measures identified in Chapter 3.

2.4 Required Permits and Approvals

The agencies that have project permitting or approval authority or that may use this Draft EIR for their decision-making are identified in Table 2-3. These agencies have been informed of the proposed project, and some have participated in meetings with members of the project development team and engineering staff to discuss project design and operation.

Table 2-3. Required Permits and Other Approvals

Agency	Required Permits, Approvals or Other Entitlements	Reason Required
Alameda County Flood Control District	Encroachment Permit	Work in Alameda Creek Flood Control Channel
Alameda County Water District	Approval ~~or~~ and Permit for Water Main Construction	Work in Alameda Creek Flood Control Channel Public water facility modification or construction anywhere subsurface drilling activities occur and where groundwater may be affected
Bay Area Air Quality Control Board	Demolition Permit	Asbestos and other issues associated with demolishing the Silva farmhouse
Bay Area Rapid Transit	Encroachment Permit	Grade separation and shoofly construction affecting BART tracks
California Department of Transportation	Encroachment Permit	Intersection improvements affecting Mission Boulevard at east end of the project alignment
California Department of Fish and Game	Section 1602 Streambed Alteration Agreement	Disturbance to Alameda Creek Flood Control Channel and Old Alameda Creek.
California State Historic Preservation Office	Section 106 Consultation	Potential impacts on the Peterson Farm
California Public Utilities Commission	Approval of BART crossing and commercial rail crossing	Alignment requires construction of grade separation and alteration of the BART and UPRR crossings.
City of Fremont	Planning Commission approval, City Council approval, and Public Works Encroachment Permit	Portion of project alignment within City of Fremont
City of Union City	Planning Commission approval; City Council approval; Public Works Encroachment Permit; Planning, Building, and Fire Department approval/permits	Portion of project alignment within City of Union City. Relocation of the compressed natural gas station refueling island at the Union City Corporation Yard.
East Bay Regional Park District	Encroachment Permit	Construction of bridge over Alameda Creek Flood Control Channel, affecting EBRPD trails

Agency	Required Permits, Approvals or Other Entitlements	Reason Required
Regional Water Quality Control Board	Section 401 Water Quality Certification; possible Waste Discharge Requirements	Discharge to Old Alameda Creek and fill within ~~Corps~~ jurisdictional wetlands/waters of the United States and State; possible discharge to ~~state~~ waters of the State (including Line M Channel)
Union Pacific Railroad	Right-of-Entry Construction and Maintenance Agreement	Grade separation and shoofly construction affecting UPRR tracks
U.S. Army Corps of Engineers	Section 404 Permit	Disturbance to jurisdictional waters and wetlands of the United States
U.S. Fish and Wildlife Service	Section 7 Consultation under federal Endangered Species Act	Potential impacts on California red-legged frog pending protocol-level surveys
National Marine Fisheries Service	Section 7 Consultation under federal Endangered Species Act	Potential impacts on steelhead in Alameda Creek Flood Control Channel

Chapter 3

Environmental Setting and Impact Analysis

Section 3.1
Aesthetics

Section 3.1
Aesthetics

3.1.1 Introduction

This section describes the affected environment and regulatory setting for aesthetics, also referred to as visual resources. It also describes the aesthetic impacts that would result from implementation of the proposed project, and mitigation measures that would reduce these impacts. All impacts identified for this resource topic can be mitigated to a less-than-significant level.

Additional information on aesthetics is provided in the Visual Impact Analysis, (ICF Jones Stokes 2008) (Appendix F).

Visual Resources Definitions

Visual character describes the visible setting within a particular area. It may be influenced by a combination of natural features and urban features. The appearance of the landscape is described in terms of the dominance of these various features, and judgments of visual character are based on a regional frame of reference, as the same components of the visual setting may have a different degree of visual quality and sensitivity when they appear in different geographic areas.

Visual quality defines how pleasing, memorable, or otherwise valuable a view may be. Whereas visual character more generally describes the elements in an area, visual quality attempts to define the positive and negative characteristics that create the atmosphere, and to assign some value to the relevant view. This is generally a subjective process highly affected by personal taste, though proper visual analysis requires the analyst to view the setting as objectively as possible.

A **scenic resource** is a specific visible component of the visual setting—usually a recognizable landmark—that is valued for its contribution to the area's visual quality and character. Visual resources may be either natural or constructed. Examples of common scenic resources include buildings, statues, trees or other vegetation, and rock outcroppings.

A **viewshed** comprises all of the surface area visible from a particular location (e.g., an overlook) or sequence of locations (e.g., a roadway or trail) (Federal

Highway Administration 1983). Aesthetics impact assessment generally requires that important viewsheds be identified and delineated.

Viewer response is the psychological reaction of a person or group of people to visible changes in a viewshed, and is based on the sensitivity and exposure of the viewer to the viewshed. Sensitivity relates to the magnitude of the viewer's concern, value, and expectations for a viewshed. Exposure is a function of the number of affected viewers and the distance, perspective, and duration of the view. The importance of a view is related in part to the viewer's position relative to the resource. Generally, the closer a resource is to the viewer, the more dominant it is and the greater its importance to the viewer.

Visual sensitivity describes the relative importance of a viewshed or landscape to viewers. Visual sensitivity is dependent on the number and type of viewers and the frequency and duration of views. Visual sensitivity is also modified by viewer activity, awareness, and visual expectations in relation to the number of viewers and viewing duration. For example, visual sensitivity is generally higher for views seen by people who are driving for pleasure; people engaging in recreational activities such as hiking, biking or camping; and homeowners. Sensitivity tends to be lower for views seen by people driving to and from work or as part of their work. Commuters and non-recreational travelers have generally fleeting views and tend to focus on commute traffic and not on surrounding scenery, and therefore are generally considered to have low visual sensitivity.

3.1.2 Setting

Sources of Information and Methodology

Discussion of the existing setting along the project alignment relies on the description provided in the Visual Impact Analysis, for which pedestrian surveys of the project alignment were conducted and representative photographs were taken (Appendix F). Other information sources include the municipal general plans maintained by the Cities of Union City and Fremont.

Evaluation of the existing visual setting is based on direct field observation from representative and critical vantage points and photographic documentation of key views of and from the project alignment. For this proposed project, key views concentrate on public vantage points, as opposed to private views such as those from nearby residences. This aesthetics analysis supports the CEQA environmental review for the proposed project, and CEQA concentrates on public views rather than private views. The intent of CEQA is to consider the impact of a project on the environment in general, not the impact on the environment of particular persons. The existing and post-project views from private locations are discussed, but detailed analysis and visual simulations from private locations are not a part of the analysis presented in this section.

Existing Conditions

This section discusses the existing conditions related to aesthetics along the project alignment (Appendix F). The text is supported by figures illustrating conditions along the project alignment, and figures showing simulations of the permanent visible changes that would accompany project implementation. Locations of the photographs and visual simulations are shown in Figures 3.1-1a through 3.1-1d.

Regional Visual Character

The project alignment is located in a flat, developed area located between a set of hills in the east and I-880 in the west. Beyond I-880 is San Francisco Bay, spanned by the Dumbarton Bridge. In the project vicinity, the hillsides remain mostly undeveloped, but contain small areas of residential and agriculturally related development that is occasionally visible from the flat land to the west. The region's visual setting is characterized by a combination of moderately dense urban development—featuring single- and multi-family residential, commercial, institutional, and industrial buildings; infrastructure; landscape; and hardscape—and the adjacent hillsides, which are mostly covered in nonnative grasses, with scattered patches of oak and shrubs, as well as occasional development.

Visual Character and Visual Quality

The project alignment is located on flat land amid a combination of moderately dense urban development and semi-disturbed land formerly used for agriculture and industrial purposes. The project alignment traverses three distinct visual settings, as defined in the Visual Impact Analysis. The existing roadway segment comprises the existing alignments of Decoto Road and Paseo Padre Parkway, which extend through developed areas. The new roadway segment has two distinct visual components. The undeveloped corridor extends from Paseo Padre Parkway to Alvarado-Niles Road and includes Old Alameda Creek and former agricultural area. The redevelopment corridor extends from Alvarado-Niles Road to Mission Boulevard and includes detention basins and former industrial land that has been and is currently being redeveloped with residential and commercial uses.

Existing Roadway (Decoto Road and Paseo Padre Parkway)

The land surrounding the existing roadway segment of the project alignment is almost entirely developed and contains mostly single-family residences appearing to have been built from the 1970s through the1990s. Some older homes remain, dating from the 1910s through the1940s, scattered along Decoto Road. Newer residential development along Decoto Road is buffered from the road by walls ranging from 6 to 8 feet high, often with well-maintained landscaped buffers between the walls and the sidewalks. Older residences fronting the road are not buffered by walls or landscaping, and sidewalks are often absent in these locations because of the variable street right-of-way.

Commercial development is centered along sections of Decoto Road east and west of Fremont Boulevard. The commercial buildings represent a wide range of appearances, including low-standing structures set back from the roadway, newer strip-mall type development, and a two-level office building. Most commercial development features paved parking areas buffered from the road by hedges and/or grass, while some commercial development west of Fremont Boulevard features unpaved dirt parking areas surrounded by chain-link fencing. A large church is located east of Fremont Boulevard.

Pole-mounted street lights and telephone or electric wires hanging from tall wooden poles are visible in from portions of the existing roadway segment. The width and appearance of Decoto Road's right-of-way varies because additional width was granted and the sidewalk improved as land was developed. The frontage of older development is marked by grass, weeds, dirt, or gravel areas with no sidewalks existing.

The entire length of the project-related portion of Decoto Road features a raised median that is variably landscaped with trees and shrubs. Where no landscaping exists, there are areas of bare dirt or concrete hardscape. These conditions do not exist on Paseo Padre Parkway, where the western side of the street is fully improved with gutters and sidewalks, and is buffered from adjacent residential development by landscaped areas. The eastern side of the street is fully improved with a gutter. There is no sidewalk located along most of this street because pedestrians are served by a public trail further east and fronting the Alameda Creek Flood Control Channel. Paseo Padre Parkway features a raised median that is not landscaped. Street lights are visible throughout these two streets, hanging from poles stationed either in the sidewalk or in the median. Several of the intersections along the project-related stretch of Decoto Road are signalized and have traffic lights hanging from poles at the intersections. The only signalized intersection along the project-related stretch of Paseo Padre Parkway is Isherwood Way.

The Alameda Creek Flood Control Channel fronts the eastern edge of Paseo Padre Parkway, and its banks and vegetation are visible from the road and southern sidewalk in this portion of the road. Between the road and the channel is a paved trail that is landscaped with trees and shrubs of varying heights and density, but the landscaping is generally too thin to screen views. Another trail is located on the opposite bank. These trails are part of the Alameda Creek Regional Trail, a 12-mile linear trail maintained by the East Bay Regional Park District (EBRPD) that connects Niles Canyon in the northeast to San Francisco Bay in the southwest. In the vicinity of the project alignment, the trail on the creek's western bank is paved and available to pedestrians and bicyclists; the trail on the creek's eastern bank is unpaved and available to pedestrians, bicyclists, and horseback riders (East Bay Regional Park District 2008).

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Figure 3.1-1a
Photo Locations: Decoto Road
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00703.07 Visual Impact (rev.12-08)

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Figure 3.1-1b
Photo Locations: Paseo Padre Parkway
ACTA East-West Connector Project

00703.07 Visual Impact (7-08)

Note: This drawing shows Quarry Lakes Drive Realignment Option 1 but does not preclude Option 2 from being considered.

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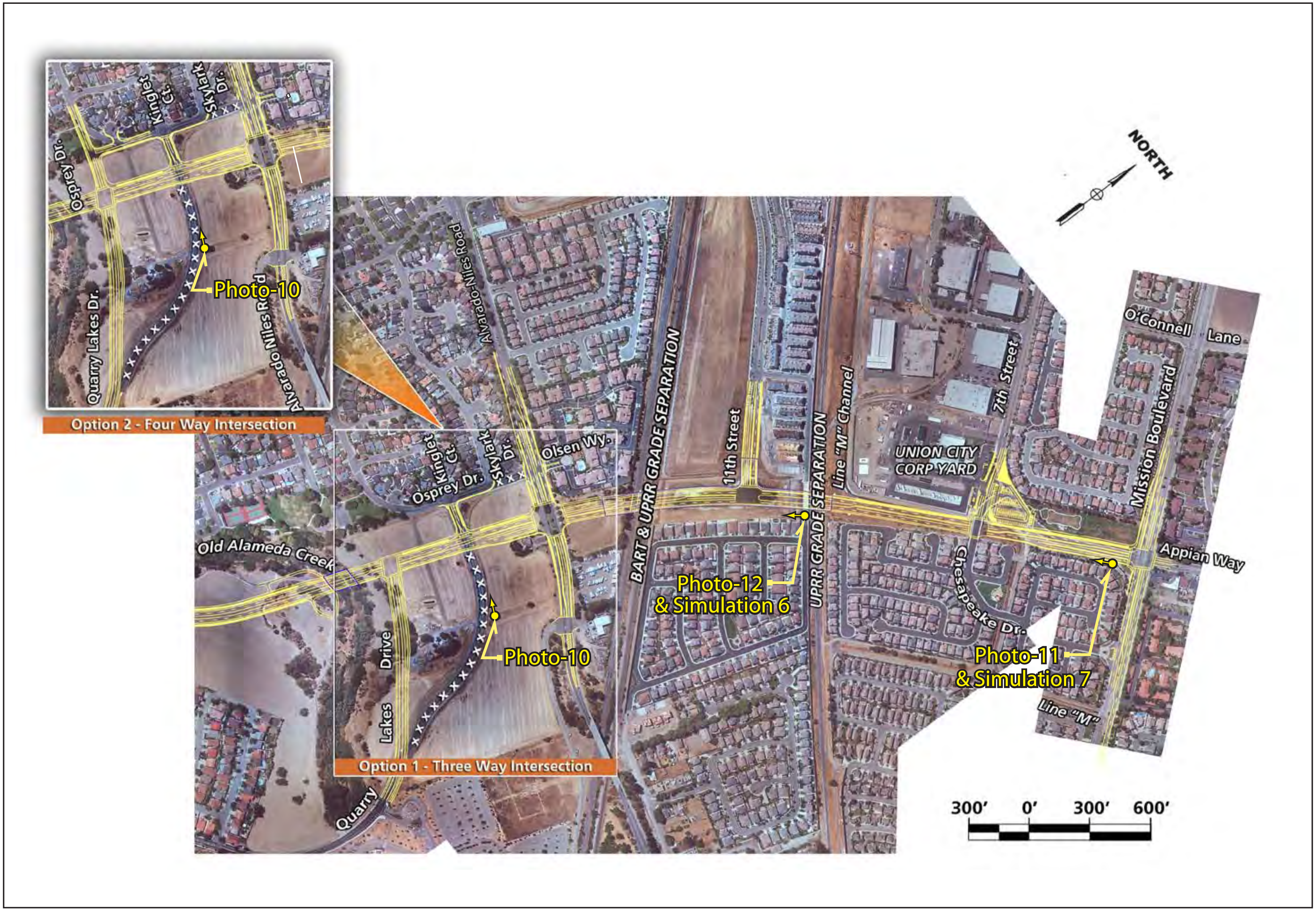
Figure 3.1-1c
Photo Locations: New Roadway (Paseo Padre Parkway to Alvarado-Niles Road)
ACTA East-West Connector Project



00703.07 Visual Impact (7-08)

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Figure 3.1-1d
Photo Locations: New Roadway (Alvarado-Niles Road to Mission Boulevard)
ACTA East-West Connector Project

Figure 3.1-2 shows two representative views along Decoto Road. Photograph 1 is taken from the sidewalk along the westbound side of Decoto Road near the intersection of Canal Terrace, and it provides a view toward the eastern hills. The sidewalk, landscape buffer, and soundwalls of newer residential development are shown at the left, and an older residence is shown on the opposite side of the street, behind white picket fencing. The undeveloped hillsides are shown in the background, partially screened from view by ample vegetation, with utility poles and wire also intervening. Photograph 2 is taken from the edge along the eastbound side of Decoto Road, west of the Fremont Boulevard intersection, which is visible in the middle ground. Like Photograph 1, this view shows the distant hillside from Decoto Road, including partial screening by vegetation and the street lights. Photograph 2 also shows the inconsistent nature of the right-of-way and sidewalk improvements that exist at several locations along this segment of Decoto Road. Also evident in the background is the church tower located on the northern side of Decoto Road, east of Fremont Boulevard.

Figure 3.1-3 shows two representative views along Paseo Padre Parkway. Both Photographs 2 and 3 were taken from the sidewalk on the western side of the road, and both were taken at the approximate location where the proposed project would create a new intersection for the bridge crossing of Alameda Creek Flood Control Channel. Photograph 3 shows the view northward, including the roadway, unvegetated median, fronting sidewalk, and adjacent landscaping. Farther in the distance, landscaping beside the Alameda Creek Regional Trail is evident, and the eastern bank of the creek channel is visible beyond that, with residential development beyond the creek. Photograph 4 shows the view eastward, across the undeveloped corridor, with the channel in the middle ground and the undeveloped eastern hillsides in the distance. This photograph exemplifies the relatively undisturbed hillside view that is occasionally visible from portions of Paseo Padre Parkway.

Figure 3.1-4 shows two representative photographs of the Alameda Creek Flood Control Channel, as taken from and near the paved portion of the Alameda Creek Regional Trail on the western bank. Photograph 5 shows the channel itself, with views of open water, vegetation, rock riprap, and a portion of the undeveloped corridor visible beyond on the opposite bank. Also on the opposite bank are single-family residences, amply screened from view by dense vegetation. Photograph 6 is a typical view of the trail, looking toward the location where the proposed bridge over Alameda Creek Flood Control Channel would be situated. This photograph shows the vegetated channel on one side and Paseo Padre Parkway on the other, with mature trees intervening between the trail and the roadway. Again, the eastern hillsides are visible in the distance. This is a particularly key public vantage point in the project alignment because of the quality of the scenery, the popularity of the public Alameda Creek Regional Trail, and the location of the proposed bridge. A comparison of these two photos shows the seasonal variation in the color and character of local vegetation.

New Roadway Segment (Paseo Padre Parkway to Alvarado-Niles Road)

Between Paseo Padre Parkway and Alvarado-Niles Road, the project alignment can be characterized as an undeveloped corridor. It is in a predominantly flat area that contains a mixture of residential development, former agricultural land, and riparian open space along the banks of Old Alameda Creek. This area contains land owned by a number of agencies and reserved for use as a roadway corridor, as proposed in this project. The visual character of the area combines the semi-rural setting of the former agricultural area with extensive residential development immediately surrounding portions of the proposed alignment. The winding creek channel is characterized by steep banks and riparian vegetation that is dense and overgrown, such that the creek bed itself often is not visible from the banks. Portions of the creek are littered with garbage and debris, including shopping carts and signs of apparent homeless encampments. A paved public trail winds along the creek's southern banks. This trail is a City of Fremont facility, and is neither part of the Alameda Creek Regional Trail nor maintained by the EBRPD. The undeveloped, former agricultural fields offer open hillside views toward the east from the trail on the creek's southern bank. The former agricultural land in this is area is covered in nonnative grassland that occasionally is disked.

Residences in the area are one- and two-level single-family homes that do not have soundwalls, but have fences and vegetation that for the most part screen direct views of and from the corridor. Two homes are located in the undeveloped, fallow agricultural area east of Old Alameda Creek and stand out from the denser development located along the project alignment. One is a two-level 1880s farmhouse (at the Peterson Farm) accompanied by a barn, a water tower, and a horse corral. This residence is located immediately adjacent to Quarry Lakes Drive and is mostly screened from view from that road by dense, overgrown vegetation. The other residence (at the Silva Farm) is a smaller, one-level home dating to the 1920s, with an adjacent barn that is in disrepair, located adjacent to Alvarado-Niles Road. As discussed in Section 3.4, Cultural Resources, the Peterson farmhouse has been identified as eligible for listing in the National Register of Historic Places and the California Register of Historic Resources, and the Silva farmhouse has been identified as ineligible for historic resource listing.

Arroyo Park, a public park facility owned and operated by the Union City Public Works Department, is located north of the proposed alignment on Osprey Drive and is situated between a single-family residential subdivision in Union City and the undeveloped corridor. The park contains grass play areas, play equipment, tennis courts, basketball courts, and a restroom. These facilities are mostly screened from views of the corridor by dense vegetation.

Figure 3.1-5 shows two representative panoramic views of the undeveloped corridor, both taken from the trail on the southern (Fremont) side of Old Alameda Creek, but from slightly different vantage points. The views show the open fields covered in nonnative grassland, with riparian vegetation along the creek in the middle ground and open views of the hillsides to the east in the distance. The

Photo 1: Westbound Decoto Road, facing east

Photo 2: Eastbound Decoto Road, facing east

Photo locations are shown in Figure 3.1-1a

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Figure 3.1-2
Photos 1 and 2
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Photo 3: Southbound Paseo Padre Parkway, facing north

Photo 4: Southbound Paseo Padre Parkway, facing east

Photo locations are shown in Figure 3.1-1b

00703.07 Visual Impact (7-08)

Figure 3.1-3
Photos 3 and 4
ACTA East-West Connector Project

Photo 5: Alameda Creek Flood Control Channel from public trail, facing southeast

Photo 6: Alameda Creek Flood Control Channel and public trail corridor, facing south

Photo locations are shown in Figure 3.1-1b

Figure 3.1-4
Photos 5 and 6
ACTA East-West Connector Project


Photo 7: Riparian vegetation and undeveloped grassland from public trail near Old Alameda Creek, facing east


Photo 8: Riparian vegetation and undeveloped grassland from public trail near Old Alameda Creek, facing east

Photo locations are shown in Figure 3.1-1c

Figure 3.1-5
Photos 7 and 8
ACTA East-West Connector Project

photographs depict the seasonal variation in vegetation (Photograph 7 was taken in January 2008; Photograph 8 was taken in May 2008).

Figure 3.1-6 shows two more important public views from within the undeveloped corridor. Photograph 9 is a view of Old Alameda Creek from a clearing at the edge of Arroyo Park, depicting the dense riparian vegetation within and surrounding the creek channel. Photograph 10 is a view of Quarry Lakes Drive from the trail fronting the road, facing the adjacent Union City residential development and showing the nonnative grassland of the Peterson Farm.

New Roadway Segment (Alvarado-Niles Road to Mission Boulevard)

Between Alvarado-Niles Road and Mission Boulevard, the project alignment can be characterized as a redevelopment corridor. It traverses primarily flat land that is largely disturbed and is visually characterized by recent and ongoing redevelopment of a former industrial area for residential use. The project alignment itself is primarily undeveloped and covered in nonnative grasses, but it includes two stormwater detention basins between the railroad tracks and 7th Street at the eastern end. It is not accessible to the public. Land uses adjacent to the project alignment include a small residential subdivision adjacent to Alvarado-Niles Road, three sets of railroad tracks (BART and UPRR), recently constructed residential subdivisions on both sides, ongoing redevelopment of former industrial land, and the Union City Corporation Yard. North of the 7th Street portion of the project alignment is the Drigon Dog Park, a Union City facility with play structures for pet dogs, which is adjacent to an irrigated and maintained patch of grass.

Residential developments bordering the project alignment feature 8- to 10-foot soundwalls that substantially screen views to and from the project alignment. The eastern hillsides, which are partially developed in this area, are visible from portions of the alignment, including from some second-floor residential viewpoints and the sidewalks and park along 7th Street. Figure 3.1-7 shows two representative views of the project alignment from the eastern portion of this new roadway segment. Photograph 11 shows a rock-lined portion of the Line M Channel in the foreground, but also depicts the character of the adjacent residential development, including the soundwalls at the far left; at the far right are 7th Street and the Drigon Dog Park. Also evident are prominent utility poles and wires that follow 7th Street. Photograph 12 shows a view of the New Basin (stormwater detention basin) from the sidewalk on the Green Street bridge. Public views in this portion of the project alignment are limited, particularly in the western portion, because the area is either undeveloped or is screened from the views of recent residential development by high walls.

Scenic Vistas

Parts of the project alignment offer views of the undeveloped hillsides to the east. These views are highly vivid and intact from certain parts of the undeveloped corridor, such as from public trails oriented toward the hills, and augmented by vast expanses of grass field (Figures 3.1-4 and 3.1-5). Because of the vividness and intactness of the views from public vantage points along the trails south of Old Alameda Creek, and because of the importance of these views to trail users' recreational experience, these views are significant scenic vistas. As observed from the existing roadway segment and the new roadway segment between Alvarado-Niles Road and Mission Boulevard, hillside views would not be considered significant scenic vistas, because they are screened by existing development or obstructed by prominent intervening features.

Scenic Resources

The project alignment does not currently contain any scenic resources, as designated by the respective Cities or other agencies. The hills east of the project alignment are identified by the City of Fremont in the General Plan as "unique visual resources" (Figure 3.1-8), but the General Plan does not necessarily protect views of these resources. Rather, the designation informs potential modification of the hillsides themselves and the accompanying visible impacts that would result. Therefore, the views of the Fremont hills are not considered significant scenic resources. Some of the grass fields east of the project alignment are designated as scenic resources by the Fremont General Plan ("open space views"), but no part of the project alignment is considered as such. There are no scenic resources designated by Union City along the project alignment. There are no landmark trees in the project alignment, as listed in the City of Fremont's inventory. Several tall trees that are likely subject to the Union City and Fremont tree ordinances exist along the project alignment. The proposed project must comply with the Cities' ordinances and obtain permits to remove any such trees, but these trees are not necessarily considered significant scenic resources.

Viewer Groups

Viewer groups with views of the project alignment include drivers, bicyclists, and pedestrians using the roads, bike lanes, and sidewalks along project roadways. Views are also enjoyed by bicyclists, joggers, and pedestrians using the Alameda Creek Regional Trail fronting the Alameda Creek Flood Control Channel and the public trail near Old Alameda Creek in the undeveloped corridor; users of two public parks adjacent to the project alignment; residents of neighboring homes; patrons and employees of the businesses located along the road; and BART and Amtrak passengers. The visibility of the project alignment to these viewer groups and their varying responses and sensitivity to these views are discussed below.

Photo 9: Old Alameda Creek near eastern crossing

Photo 10: Quarry Lakes Drive, facing north

Photo locations are shown in Figure 3.1-1c

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Figure 3.1-6
Photos 9 and 10
ACTA East-West Connector Project


Photo 11: Line M Channel from south of 7th Street, facing west


Photo 12: New Basin from Green Street bridge, facing west

Photo locations are shown in Figure 3.1-1d

00703.07 Visual Impact (7-08)

Figure 3.1-7
Photos 11 and 12
ACTA East-West Connector Project

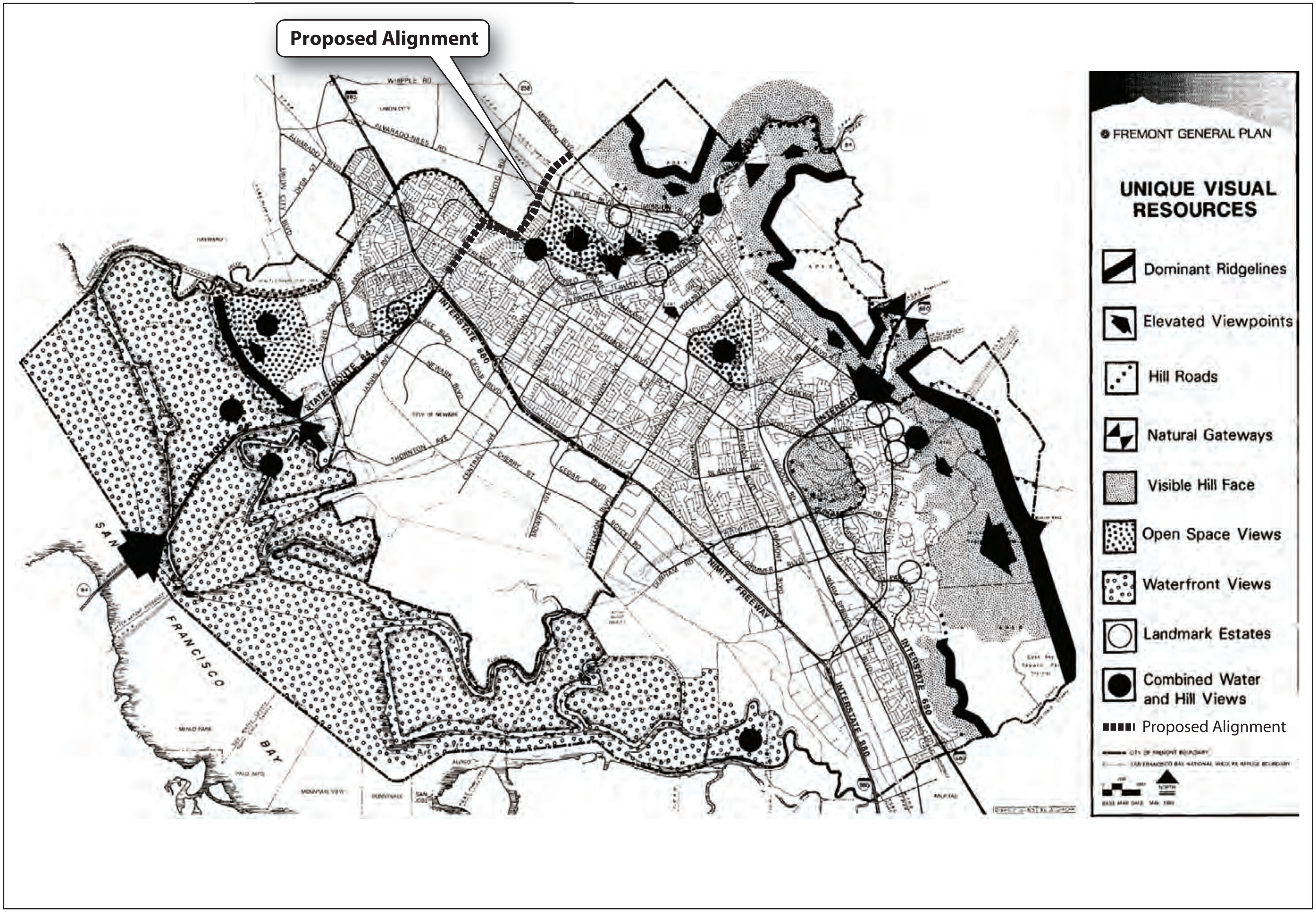

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Figure 3.1-8
City of Fremont Unique Visual Resources
ACTA East-West Connector Project

The project alignment is visible to motorists and bicyclists traveling on the roads proposed for widening and modification as part of the proposed project. Auto and truck drivers have extended views of the project alignment as the roadway is generally straight, the topography surrounding the roadway is relatively flat, and the project alignment has limited landscaping and established vegetation. In general, motorists travelling through developed areas have limited sensitivities to visual changes because of the rate of travel along roadway corridors. In addition, the driver is focused on roadway conditions rather than the surrounding area. As drivers grow accustomed to the developed nature of the scenery within an urban environment, sensitivity to additional development and growth along a commuter corridor is reduced. Therefore, overall sensitivity to changes within the built environment is minimal. Bicyclists along the same corridor have a greater sensitivity to views than motorists because they are travelling at slower speeds along the same roadway corridor. However, attention to the roadway conditions remains the primary concern of the cyclist, minimizing sensitivity to changes in the built environment surrounding a commuter route.

Along portions of Decoto Road and Paseo Padre Parkway, landscaped sidewalks are used by pedestrians from local neighborhoods. Pedestrians travel the same corridors as motorists and cyclists within this developed portion of the project alignment. However, the rate of travel by pedestrians is slower than motorists or cyclists, and they are removed from the busy roadway corridor by sidewalks and vegetative buffers. This allows more extended views of the developed environment surrounding the existing roadways. Therefore, the level of sensitivity to pedestrian views of the developed portion of the project alignment is higher.

Trail users in the project vicinity, including pedestrians, bicyclists, and other recreational users, have a higher degree of sensitivity than those using roads and sidewalks because of the semi-natural setting visible from these trails and the reduced presence of urban development. These users are likely to be engaged in activities that are augmented by the views of their surroundings, and are likely to value the semi-natural character of these portions of the project alignment.

Users of Arroyo Park and Drigon Dog Park have views of the project alignment. In general, park users are sensitive to the visual elements of their surroundings because of the leisurely nature of their activities and their likely intention of visiting the park to enjoy time outdoors. Arroyo Park users enjoy a densely landscaped facility that features grass areas and is lined with trees and shrubs. Because of this ample vegetation, Arroyo Park is screened to a great degree from views of the project alignment. Drigon Dog Park, on the other hand, features no screening and is located immediately off 7th Street, in plain view of the existing road.

BART and Amtrak riders have a very brief view of the project alignment. BART riders, who cross the alignment as they travel between the Union City Station and the Fremont Station, would have a longer view because of the slower train speeds. Passengers traveling these rail routes have views of the eastern hillsides in the distance, with foreground views containing a mixture of the local urbanized area, vacant and disturbed land planned for development, and, farther east of the site, the Quarry Lakes Regional Park. BART riders are primarily commuters with limited sensitivity to surrounding visible features because of the routine nature of their travel. Amtrak riders may be less frequent viewers, but the greater speed of the passenger trains limits visibility of the project alignment.

Residents of the single-family homes fronting the project alignment have views of the alignment. Residences with views of the Decoto Road portion of the project alignment are older homes facing Decoto Road—some of which lack vegetation, fencing, or other type of visual screening—and newer homes whose views are partially screened by soundwalls or other fencing and by vegetation. In some areas, walls screen the ground floor from view but the road is still visible from second-level windows. The same is the case with homes along Paseo Padre Parkway, where most residences are screened by fencing and landscaping. Several homes whose backyards front the undeveloped corridor have views of this portion of the project alignment, including the creek and undeveloped grass areas adjacent to the banks. Most of these residences are screened by fences and vegetation, although unscreened views from second-level windows also exist. Farther east, residents of the Peterson farmhouse have views of Quarry Lakes Drive and the new roadway alignment, as well as more distant views of the project alignment farther north. Newer residential areas in the redevelopment corridor also have second-level views of the new roadway alignment, as ground-level views are blocked by extensive soundwalls constructed in these areas.

Regulatory Setting

Federal

There are no federal regulations pertaining to aesthetics or visual resources that apply to the proposed project.

State

Caltrans Review of Visual Impacts

Caltrans considers visual resources impacts during environment review of projects affecting roads within their jurisdiction. Scenic Resource Evaluations and Visual Impact Assessments are required on larger projects, conducted by landscape architects, and coordinated with the agency’s Landscape Architecture Program. Caltrans’s review is based on the visual resources component of CEQA. Caltrans maintains design standards for various components of state jurisdiction roads in their *Highway Design Manual* and *Landscape Architecture Guide* (California Department of Transportation 2006), but, as the agency does not maintain impact assessment procedures of their own, such assessment often follows methods set forth in the FHWA *Visual Impact Assessment for Highway Projects* (Federal Highway Administration 1983).

For this proposed project, Caltrans jurisdiction is limited to the short section of Mission Boulevard and its existing intersection with 7th Street, which represents the eastern terminus of the project alignment. The project proposes slight widening of Mission Boulevard and lane reconfiguration, but does not propose landscaping removal or any other components that would damage the existing visual environment. Therefore, neither a Scenic Resource Evaluation nor Visual Impact Assessment, prepared to Caltrans standards, is necessary for this proposed project. Caltrans will use this Draft EIR and the Visual Impact Analysis when considering the proposed project's minimal aesthetic impact on the portion of Mission Boulevard under state jurisdiction. ACTA will continue to coordinate with Caltrans regarding design for the component of the proposed project that is within state jurisdiction.

Local

The proposed project would be implemented by ACTA, coordinating with the Cities of Union City and Fremont. ACTA does not maintain any visual resources policies for the roads it builds, but the two Cities maintain general plans and other planning documents that include provisions regarding visual resources, as summarized below. A full listing and discussion of the General Plan goals and policies pertinent to the proposed project are provided in Section 3.8, Land Use and Planning.

Union City General Plan

Broadly speaking, the Union City General Plan (City of Union City 2002) notes "place making" as a high priority for the City and its residents, emphasizing such elements as high-quality design and architectural richness, beautiful streets and parks, creation of civic spaces, connections between districts, and the recognition of the natural landscape in order to strengthen the identity of existing neighborhoods and new development. (Union City General Plan, Introduction pp. i–ii.) A few specific goals and policies contained in the plan's Community Design Element are pertinent to the aesthetics characteristics of the project vicinity. These include goals for creating "distinct and attractive corridor environments along Union City's major roadways and transit lines" (Goal CD-C.1) and for creating "positive first impressions for motorists/pedestrians entering the City through enhancement of the City's gateways" (Goal CD-D.1).

Union City Tree Preservation and Mitigation Requirements

Union City considers larger trees within its boundaries to be important components of the scenic environment (though this does not necessarily make them significant scenic resources pursuant to CEQA). The City maintains a program whereby projects that propose removing large trees (those featuring a trunk diameter of 2 inches or greater, when measured at 4.5 feet above the ground) must plot the trees on a survey map and collect size and health data on the trees to be removed, in consultation with a qualified arborist. City planning staff reviews this information and determines on a project-specific basis the appropriateness of preservation or replacement.

Fremont General Plan

The Natural Resources Element of the Fremont General Plan (City of Fremont 1991) includes goals and policies pertaining to visual resources. The plan includes a Unique Visual Resources map (Figure 3.1-8) that identifies the dominant ridgelines, elevated viewpoints, hills, roads, natural gateways, visible hill face, open space views, waterfront views, landmark estates, and combined water and hill views within the City's jurisdiction that are considered scenic resources. Two types of City-designated scenic resources are visible from or present near the project alignment: the "visible hill face" and "open space views." However, the proposed project does not entail modifying these designated resources. Figure 9-9 of the Fremont General Plan identifies the scenic routes within the City limits, and shows Paseo Padre Parkway as an Alameda County- and-City-designated scenic route. Goals, objectives, and policies within the Natural Resources Element pertinent to the proposed project include Goal NR 13, creating a "distinctive, positive visual image for Fremont," and Goal NR 14, "maintaining visual access to scenic resources."

City of Fremont Tree Preservation Ordinance

Fremont has a Tree Preservation Ordinance requiring a permit for the removal of large trees (those featuring a trunk diameter, measured at 4.5 feet above the ground, of 18 inches or larger, 10 inches or larger if native to Fremont, or 6 inches if on undeveloped or vacant land). The permit process requires preparation of an arborist report providing details on size and health of trees. City planning staff determines on a project-specific basis the appropriateness of preservation or replacement. Replacement is required at a 1:1 ratio with a 24-inch box size replacement tree of a species of the same type and size as the removed tree.

The City of Fremont also maintains a landmark tree listing, but there are no listed trees within or adjacent to the project alignment.

3.1.3 Impact Analysis

This section describes the impact analysis relating to aesthetics for the proposed project. It describes the methods used to determine the impacts of the proposed project and lists the thresholds used to conclude whether an impact would be significant. Measures to mitigate (i.e., avoid, minimize, rectify, reduce, eliminate, or compensate for) significant impacts accompany each impact discussion.

Methodology

Impacts on aesthetic or visual resources along the project alignment were assessed by reviewing project construction drawings and a series of visual simulations prepared at selected views by qualified landscape architects. These simulations concentrate on the key public viewpoints along the project alignment, rather than private views, though private views are analyzed descriptively as well. The post-project conditions for visual character, visual quality, visual resources, viewer groups/sensitivity, and view duration were then described, as were the proposed project's potential impacts on any scenic resources or scenic vistas, pursuant to the significance criteria defined below. In accordance with the selected criteria, project plans were also reviewed for their potential to add significant sources or amounts of light or glare.

Significance Criteria

For this analysis, an impact pertaining to aesthetics was considered significant under CEQA if it would result in any of the following environmental effects, which are based on professional practice and State CEQA Guidelines Appendix G (14 CCR 15000 *et seq*.). A significant impact is identified if the project would:

- substantially degrade the existing visual character or quality of the site and its surroundings;
- substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings along a scenic highway;
- have a substantial adverse effect on a scenic vista; or
- create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area.

Project Impacts and Mitigation Measures

The proposed project would result in several significant aesthetics impacts related to both the temporary construction phase and the permanent operation of the new roadway. Mitigation that would reduce these impacts is identified, but not all of the impacts would be reduced to a less-than-significant level. Therefore, the proposed project would result in a significant and unavoidable aesthetics impact.

The impact discussion is separated into the following three segments.

- Existing Roadway
- New Roadway (Paseo Padre Parkway to Alvarado-Niles Road)
- New Roadway (Alvarado-Niles Road to Mission Boulevard)

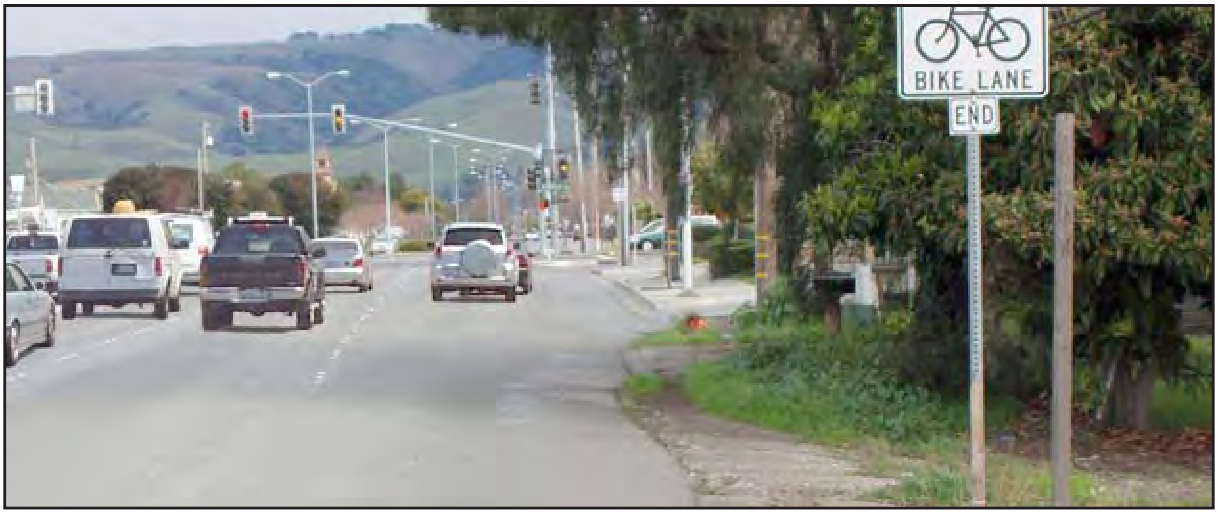
Existing Roadway (Decoto Road and Paseo Padre Parkway)

Impact AES-1: Degradation of Visual Character or Visual Quality for Views Along Decoto Road and Paseo Padre Parkway (Less than Significant)

Construction activities along the existing roadway alignment would be temporary in nature and would support common construction components, including heavy equipment, bare graded areas of land, trenches, paving, and the installation of new infrastructure to support the expanded roadway. Within an urban environment, construction activities are common, and views of construction equipment, staging areas, and work sites are frequently seen along roadway corridors, including the project roadway alignment. The land surrounding the existing roadway alignment is developed, does not support a natural environment, and is not heavily vegetated. Because construction activities within and along the roadway alignment are common occurrences, the additional construction activities that would occur through implementation of the project would not greatly affect the quality of views throughout the existing roadway alignment. Therefore, construction-related changes to visual character and visual quality are not considered substantial. Permanent visible changes along Decoto Road and Paseo Padre Parkway would be minimal because the proposed project would entail minor changes to roadways in a fully developed area that contains existing roadway, median, sidewalk, and other improvements. Changes would include roadway widening, intersection improvements, and new or revised landscaping. The median may be modified and reduced, and landscaping may be removed, but replaced landscaping would maintain a consistent aesthetic character compatible with the surrounding development. Accordingly, this visual change would not be significant. Figures 3.1-9 and 3.1-10 show before-and-after visual simulations of the project improvements at representative public viewpoints along this portion of the project alignment.

Along Decoto Road, widening would require intermittent right-of-way expansion to conform the road, gutter, and sidewalk to a uniform alignment, as shown in Figure 3.1-9. Some of this widening would occur in front of older homes that look directly onto the existing road, reducing the buffer area between the residences and the road. As a result, the proposed project would slightly increase the dominance of the roadway as perceived from these homes. Project improvements may be noticeable from some second-floor views at residences whose backyards front Decoto Road (otherwise screened by existing soundwalls), but the road is already developed and change would be minimal.

As perceived by public viewers, including drivers, bicyclists, and pedestrians using the road and sidewalk of Decoto Road, impacts would be minimal. Visible changes to the already developed roadway would be barely visible to Decoto Road drivers and bicyclists, whose sensitivity to visual change is low or low to moderate, as explained above. To pedestrians who are able to concentrate more on the visual character, project impacts would be beneficial, as the intermittent



Before


After

Photo location is shown in Figure 3.1-1a

00703.07 Visual Impact (rev. 3-09)

Figure 3.1-9
Visual Simulation #1,
Decoto Road
ACTA East-West Connector Project


Before


After

Photo location is shown in Figure 3.1-1b

00703.07 Visual Impact (7-08)

Figure 3.1-10
Visual Simulation #2,
Paseo Padre Parkway
ACTA East-West Connector Project

right-of-way expansion and roadway conformity would improve the unity of the landscape character along the project-related portion of Decoto Road.

Project-related Paseo Padre Parkway widening would be accomplished by reducing the median, and no right-of-way would be taken along this road, near the new intersection that would be created at the proposed Alameda Creek Flood Control Channel bridge. Figure 3.1-10 shows a visual simulation of improvements in this area. The sidewalk on the western side of the street would be retained, and no landscaping would be removed. The median would be landscaped—an improvement over the existing feature—and would include trees and other vegetation compatible with the existing planting schemes surrounding the roadway. This constitutes a beneficial impact, as the proposed project would provide pleasing visible features that would add to the area's vividness. Figure 3.1-10 also shows an example of the infrastructure that would be added for traffic lights in the median and for traffic lights and street lights on the edges of the road. These features are similar to those already on the road and would not constitute an adverse visual impact.

In conclusion, the temporary and permanent changes to the existing roadways would not substantially degrade the visual character or visual quality along Decoto Road and Paseo Padre Parkway. This impact is considered less than significant. No mitigation is required.

Impact AES-2: Change to Scenic Vistas and Scenic Resources along Paseo Padre Parkway (Less than Significant)

Paseo Padre Parkway is designated as a scenic route by Alameda County and the City of Fremont. The distant eastern hillsides are visible from portions of this road, particularly for southbound drivers and bicyclists, but no aspect of the proposed project would substantially obstruct or intrude into distant views from this roadway.

Foreground views from Paseo Padre Parkway where it crosses the proposed alignment are currently open space views with the vegetation along Old Alameda Creek and large trees near the Alameda Creek Flood Control Channel. Trees and vegetation would be removed and these foreground views would be altered by the proposed project. These trees are not designated as landmark trees and thus are not considered significant scenic resources. Tree removal would be subject to compliance with the Fremont Tree Preservation Ordinance, requiring permission from the City and planting of new trees at a 1:1 ratio.

The proposed project would include new vegetation, traffic lights, street lights, and a new bridge over Alameda Creek Flood Control Channel beginning in this location. These features would alter the views along Paseo Padre Parkway, but would not result in a substantial divergence from the existing character of this scenic route. Furthermore, the project proposes to enhance the character of this scenic route by adding landscaping to the median. The overall change in views would not have a substantial adverse impact on scenic vistas nor would it substantially damage scenic resources. This impact is considered less than significant. No mitigation is required.

Impact AES-3: New Source of Substantial Light or Glare along Decoto Road and Paseo Padre Parkway (Less than Significant)

Construction of this existing roadway segment would not occur at night and would not require temporary light fixtures to illuminate work. No component of construction activity would create a substantial source of glare during the daytime. Therefore, the temporary construction phase would result in no impact for this portion of the proposed project.

The project-related stretches of Decoto Road and Paseo Padre Parkway are already lit with pole-mounted street lights. Project improvements may replace or modify existing light standards and may add a minimal amount of new standards where current lighting is inadequate to provide necessary safe conditions. The project does not propose any new sources of lighting that would be incompatible with existing conditions or with the area's aesthetic character. There are no components of the proposed project that would emit glare. This impact is considered less than significant. No mitigation is required.

New Roadway (Paseo Padre Parkway to Alvarado-Niles Road)

Impact AES-4: Temporary Degradation of Visual Character or Visual Quality along New Roadway Segment between Paseo Padre Parkway and Alvarado-Niles Road during Construction (Less than Significant with Mitigation)

Project construction would include equipment and materials staging, clearing, grading, paving, and erection of structures within the Alameda Creek Flood Control Channel and Old Alameda Creek. This activity would be highly visible to public recreational users of the Alameda Creek Regional Trail and the trails surrounding Old Alameda Creek, and to viewers in the residential areas immediately adjacent to the proposed alignment and the wetlands mitigation site. Likely staging areas are shown in Figure 2-1c.

Staging areas and construction activity would be visible to recreational users of the trail system in the project's vicinity. This visibility would be temporary and would cease with completion of the work in this area, but there would be substantial degradation of the visual character and quality during construction. This impact is considered significant. The following mitigation measure would reduce this impact to a less-than-significant level.

Mitigation Measure AES-1: Provide Screened Fencing around Project Staging Areas during Construction

For all work occurring between Paseo Padre Parkway and Alvarado-Niles Road, ACTA will require their contractors to provide screens on all fencing that surrounds staging areas. Screens must be of a neutral color and made of a material that will prevent glare, as received from views outside the staging areas.

Impact AES-5: Change of Visual Character or Visual Quality along New Roadway Segment between Paseo Padre Parkway and Alvarado-Niles Road (Less than Significant with Mitigation)

The proposed project would result in a new four-lane roadway with three bridges on currently undeveloped land between Paseo Padre Parkway and Alvarado-Niles Road. The proposed project would also entail construction of a new wetlands mitigation site (Mitigation Measure BIO-7) and infiltration basins (Mitigation Measure HWQ-5) on either side of Old Alameda Creek in this portion of the project alignment. This segment of the roadway alignment is currently characterized by nonnative grassland, human-made and natural creek features, and dense riparian vegetation surrounding the natural creeks.

Portions of the new roadway and bridges would be constructed close to public trails and residences, making them highly visible to certain public and private receivers. The following discussion generally follows the description of the new roadway and its potential impacts from west (Paseo Padre Parkway) to east (Alvarado-Niles Road). The concrete bridge over the Alameda Creek Flood Control Channel would be supported by six concrete bents, and would rise slightly above the street grade to enable adequate structural support. The bridge would be visible from public trail views, both north and south of the bridge, and from several residences in the development northeast of the new roadway's proposed intersection with Paseo Padre Parkway. Figure 3.1-11 shows a visual simulation of the bridge, as viewed from the Alameda Creek Regional Trail on the Alameda Creek Flood Control Channel's western bank, facing south. The new bridge would be similar in scale and appearance to bridges already spanning the channel at Decoto Road and Isherwood Way. The presence of the bridge would be noticeable from public trail views, but would not present an entirely new type of landscape component and would not substantially degrade the area's character because of the urbanized character of the flood control channel and its surroundings.

Beginning east of the Alameda Creek Flood Control Channel bridge, the new roadway would be constructed at grade in certain areas and slightly below grade in certain areas. Below-grade construction is intended primarily to reduce noise but would also reduce the roadway's intrusion into the landscape. Most homes and public streets in the residential areas immediately north and south of the alignment are screened from the proposed road by fencing or by riparian vegetation along Old Alameda Creek. However, the project alignment would be visible from adjacent homes that do not have solid fencing or considerable vegetation screening, from the second floors of adjacent and nearby homes, from public streets directly fronting the undeveloped corridor on the south (Conovan Lane, Chaplin Drive, Gleason Lane, Goldsmith Drive, Beeching Lane, and Barnard Drive), and from Arroyo Park located northwest of the proposed Quarry Lakes Drive realignment. These areas would have views of the soundwalls (if constructed within the new roadway alignment), of vegetation in the project alignment, and potentially of open road and vehicles traveling on the road. This would represent a substantial change from the current views of the semi-disturbed, vegetated corridor.

In some areas where the new roadway would be adjacent to existing residences, soundwalls would be required to reduce noise levels so they are within the established thresholds (Section 3.9, Noise and Vibration). Final plans for the soundwalls have not yet been determined. Soundwalls may be constructed either adjacent to the new roadway itself or on the edges of residential lots abutting the undeveloped corridor. See further discussion in Section 3.9, Noise and Vibration. Because the impact of locating the soundwall along residential property lines would be more severe, it is discussed as a separate impact. Figure 3.1-12 shows a visual simulation of the new roadway, with soundwalls and landscaping along the road, as seen from the public trail on the southern bank of Old Alameda Creek, and assuming that walls are built adjacent to the new roadway alignment rather than on adjacent residential properties.[1] Views of the road from residences adjacent to the proposed alignment would be similar, but the narrowness of the westernmost portion of the undeveloped corridor would make the project alignment much more apparent.

The project proposes two bridges over Old Alameda Creek that would be visible from public trails, Arroyo Park, and residential neighborhoods located near the project alignment. Both bridges would be concrete girder bridges, with the western bridge supported by five concrete bents or abutments (three visible in the open channel) and the eastern bridge supported by two concrete abutments (none visible in the open channel). Bridge construction would entail removal of riparian vegetation on both sides of Old Alameda Creek surrounding the proposed bridge locations. This vegetation is a dominant visual feature of the area as viewed from public trails, Arroyo Park, and adjacent residential areas. The proposed landscaping and the wetlands mitigation plan, which are part of the proposed project, would include replacement and enhancement of this vegetation. The bridges themselves would be partially or completely obscured by vegetation once mature. Figure 3.1-13 shows a visual simulation of the eastern Old Alameda Creek bridge, as viewed from the edge of Arroyo Park. This view also depicts the realignment and the trail passing under the bridge on the creek's southern bank. The Old Alameda Creek bridges would not constitute a significant degradation of the area's existing visual character.

The infiltration basins would replace existing nonnative grassland with infiltration basins planted with grasses and other vegetation (refer to Mitigation

[1] Visual simulation #4, shown in Figure 3.1-12, presents a view of the new roadway with incorporation of landscaping but without incorporation of Mitigation Measure AES-5, which restricts extremely tall trees that could block hillside views.

Before

After

Photo location is shown in Figure 3.1-1b

Figure 3.1-11
Visual Simulation #3,
Alameda Creek Flood Control Channel Bridge
ACTA East-West Connector Project

00703.07 Visual Impact (7-08)

Before

After

00703.07 Visual Impact (7-08)

Photo location is shown in Figure 3.1-1c

Figure 3.1-12
Visual Simulation #4,
View from Old Alameda Creek Trail
ACTA East-West Connector Project

Before

After

00703.07 Visual Impact (rev. 3-09)

Photo location is shown in Figure 3.1-1c

Figure 3.1-13
Visual Simulation #5,
Eastern Bridge Over Old Alameda Creek
ACTA East-West Connector Project

Measure HWQ-5 and Figure 3.7-4 in Section 3.7). The wetlands mitigation site would replace existing areas of nonnative grassland, small patches of riparian and scrub habitat, and urban landscaping with a new open channel, wetlands, and riparian vegetation featuring native brush and trees (Mitigation Measure BIO-7 and Figure 3.3-3). The existing trail situated on the southern bank of Old Alameda Creek would be moved further south and would continue along the southeastern side of existing Old Alameda Creek. This area would be visible from recreational trails surrounding Old Alameda Creek; public roads (Quarry Lakes Drive, Barnard Drive, Beeching Lane, and Osprey Drive); and from residences located on Barnard Drive and Osprey Drive. Once vegetation is established, the mitigation site would appear similar in character to the existing creek banks. This would not constitute a significant degradation of the area's existing visual character.

The proposed project includes realigning Quarry Lakes Drive southwest of its existing alignment, which would relocate the road from the front of the Peterson Farm to a location behind and further from the farmhouse. Building the new alignment would entail removing some vegetation surrounding the house, but not to the degree that would constitute substantial degradation of visual character. Realigning Quarry Lakes Drive would not substantially change the visual character of this area because the existing road already represents a visual intrusion when viewed from this residence and other adjacent land uses.

In conclusion, the new roadway and its features (bridges, soundwalls, and Quarry Lakes Drive realignment) would result in a substantial change in views from public trails, a public park, and residential areas adjacent to the new roadway alignment. It would result in a more urbanized appearance, reducing the visual quality and character of the currently undeveloped corridor between Paseo Padre Parkway and Alvarado-Niles Road. This impact is considered significant. Implementation of the following mitigation measures would reduce this impact to a less-than-significant level. The infiltration basins and the wetland mitigation site would not degrade the visual character in this area, and would not constitute a significant impact.

Mitigation Measure AES-2: Prepare and Implement~~Incorporate~~ a ~~Vegetated Buffer in the Project~~ Landscape Plan along the Project Alignment~~between Paseo Padre Parkway and Alvarado-Niles Road~~

ACTA will prepare and implement a landscape plan that includes landscaping in the median of the existing and new roadway and along the outside of the new roadway. This will include native, drought-tolerant trees and shrubs.

The project landscape plan will include a vegetated buffer extending from the outside of the soundwalls planted with small trees, shrubs, or vines to screen the walls from outside views. ~~All landscaping will be drought-tolerant.~~ The buffer also may include berms or other minimal landform modifications to soften the landscape and provide visual relief from the new roadway. Slopes will be graded to appear as natural as possible.

Final design of the landscape plan will be developed~~conducted~~ in consultation with the ~~planning departments of the~~ City~~ies~~ of Fremont Landscape Division and the Union City Planning Department, to enable the incorporation of specific local landscaping or gateway requirements, and with Alameda County Water District (ACWD) to determine appropriate irrigation facilities. These agencies will have the opportunity review and revise the plan.

Mitigation Measure AES-3: Incorporate Aesthetically Sensitive Design into the Soundwalls between Paseo Padre Parkway and Alvarado-Niles Road

ACTA, through consultation with planning staff at the Cities of Fremont and Union City, and with input from residents of the affected neighborhoods, will incorporate aesthetically sensitive design into the soundwalls. For example, the soundwall design will incorporate texture and color that are compatible to the greatest extent feasible with the existing visual setting. The soundwall design will match the themes of local development and present a unified design throughout the corridor.

Impact AES-6: Potential Placement of Soundwalls Adjacent to Residential Property between Paseo Padre Parkway and Alvarado-Niles Road (Less than Significant with Mitigation)

If soundwalls are constructed along the edges of the residential lots abutting the new roadway alignment, then new masonry-block walls of approximately 5 to 6 feet in height would replace wooden fencing and landscaping. City policy does not consider changes to private views to be a significant impact, but placing walls on residential property would result in an intrusion into the visual setting of these residences and represent a potential degradation of the visual quality and visual character from these private vantage points. Architectural design of the walls that is sensitive to the visual impacts of the affected residences and compatible with the existing community character will properly address this impact, but the walls' architectural design has not yet been identified. Therefore, this impact is considered significant and mitigation is required. The following mitigation measure would reduce this impact to a less-than-significant level.

Mitigation Measure AES-3: Incorporate Aesthetically Sensitive Design into the Soundwalls between Paseo Padre Parkway and Alvarado-Niles Road

Impact AES-7: Encroachment of Quarry Lakes Drive Realignment Option 2 (Four-Way Intersection) into Arroyo Park (Less than Significant with Mitigation)

The proposed project includes the realignment of Quarry Lakes Drive southwest of its current location, to intersect the new roadway further away from Alvarado-Niles Road. Two options are under consideration for connecting Quarry Lakes Drive to the existing and proposed roadway network. Option 1 is a three-way intersection with the new roadway, and Option 2 is a four-way intersection with the new roadway whereby Quarry Lakes Drive extends through the new roadway and creates a new intersection with Osprey Drive, south of the existing Osprey/Quarry Lakes Drive intersection. The new alignment of Quarry Lakes Drive near its intersection with Osprey Drive would encroach into the northern edge of Arroyo Park, requiring right-of-way acquisition from Arroyo Park. Several trees, shrubs, and grass that contribute considerably to the park's visual character would be removed.

The new roadway would be highly visible to park users and would encroach substantially on the park's aesthetic quality, resulting in a degradation of the visual quality of this public use area. This impact is considered significant. The following mitigation measure would reduce this impact to a less-than-significant level.

Mitigation Measure AES-4: Provide Landscape Plan for Arroyo Park
ACTA will prepare a landscape plan for the affected portion of Arroyo Park that provides a buffer area at the park's edge. The landscape plan will include a physical barrier separating the new roadway from the park for safety and noise reduction, and a vegetation buffer planted with dense shrubs and trees to eliminate views of the new roadway from the park. Vegetation must be "Bay-friendly landscaping" in that it is native, drought-tolerant and thrives in the Bay Area. The plan must be submitted for approval to the Union City Public Works Department.

Impact AES-8: Obstruction of Scenic Vistas from Public Trails Adjacent to Old Alameda Creek (Less than Significant with Mitigation)

As shown in Figure 3.1-5, the views from the public trail south of Old Alameda Creek in the vicinity of the new roadway alignment include open grassland and distant hillsides that contribute to scenic vistas. Temporary project construction activities would not present a substantial encroachment on this view beyond that which was described under Impact AES-4. The new roadway alignment has the potential to encroach permanently into this scenic vista, replacing middle-ground views of open grassland with views of an amply landscaped roadway enclosed in soundwalls, and blocking views of the distant hillside with the tall trees proposed in the landscape plan.

The new roadway and associated facilities, including soundwalls and landscaping, would permanently alter~~obstruct~~ a scenic vista containing open grassland and distant hillsides. Important public views from the trails south of Old Alameda Creek would be adversely affected by the urbanization of this open area, and the ~~screening of~~ hillside views could be obstructed if the landscape plan includes very tall trees~~that would result from implementing the proposed project~~. This impact is considered significant based on a conservative interpretation of Fremont general plan policies under Goal NR 14 to retain views of scenic resources. The following mitigation measures would reduce the impact to a less-than-significant level.

Mitigation Measure AES-2: Prepare and Implement ~~Incorporate a Vegetated Buffer in the Project~~a Landscape Plan ~~between Paseo Padre Parkway and Alvarado-Niles Road~~along the Project Alignment

Mitigation Measure AES-3: Incorporate Aesthetically Sensitive Design into the Sound Walls between Paseo Padre Parkway and Alvarado-Niles Road

Mitigation Measure AES-5: Ensure the Landscape Plan Precludes Extremely Tall Vegetation along the New Roadway Alignment between the Two Old Alameda Creek Bridge Crossings

ACTA will ensure that the final landscape plan prepared for the proposed project does not include planting tall vegetation along the new roadway segment between the two bridge crossings of Old Alameda Creek. This portion of the new roadway alignment will instead be planted with trees, shrubs, and native vegetation ~~(i.e., vegetation that stays under 10 feet in height)~~ whose height will allow maintenance of views of the eastern hillsides while still buffering external views of the proposed soundwalls. ACTA will coordinate with the City of Fremont Landscape Division to ensure that this aspect of the landscape plan is mutually agreeable.

Impact AES-9: New Source of Light and Glare from New Roadway between Paseo Padre Parkway and Alvarado-Niles Road (Less than Significant with Mitigation)

During project construction, a limited amount of glare would be caused by sunlight reflecting from the glass and metal surfaces of construction equipment. There would be no nighttime construction along this new roadway segment that would require temporary light fixtures to illuminate work. No component of construction activity would create a substantial source of new light and glare during the daytime or evening. Therefore, this impact is considered less than significant with no mitigation required.

The project would permanently install pole-mounted street lights needed to ensure driver, bicyclist, and pedestrian safety within this new roadway. This would represent a new source of light, as the undeveloped corridor is currently unlit. Without proper design consideration, this street lighting could spill into neighboring residences, particularly in those areas where the corridor narrows and homes are located close to the roadway. Additionally, the vehicles traveling on the new roadway would introduce light and glare into this area, as sunlight reflects off the metal during the day and headlights are used at night. However, the relatively low profile of the roadway and proposed landscaping along the roadway would minimize this increase, and soundwalls would further contain new light and glare if they are located along the roadway rather than along residential properties.

The new light from the pole-mounted street lights along the roadway would create a substantial amount of additional light. This is considered a significant impact. The following mitigation measure would reduce this impact to a less-than-significant level.

Mitigation Measure AES-6: Install Low-Standing Light Standards with Directional Shields Downward along the New Roadway

The light standards used along the new roadway segment will be low-standing with shields directing the light downward. The lights will be the lowest height practicable where new lights are introduced adjacent to residences and where residences are not shielded from direct lighting by soundwalls or landscaping.

New Roadway (Alvarado-Niles Road to Mission Boulevard)

Impact AES-10: Degradation of Visual Character or Visual Quality along the Redevelopment Corridor between Alvarado-Niles Road and Mission Boulevard (Less than Significant)

East of Alvarado-Niles Road, the addition of a new roadway and other project modifications would not result in substantial degradation of visual character or visual quality. The area is disturbed and undergoing redevelopment, and would not be substantially affected by constructing a new, landscaped roadway. Moreover, few views of the project alignment currently exist. Unlike the undeveloped corridor section of the project alignment, the redevelopment corridor does not currently include public trails, and thus no sensitive trail views exist. Public views from sidewalks along Green Street and 7th Street are currently of a semi-urban area that contains newer residential development, industrial buildings, and disturbed areas, including two stormwater detention basins. Existing residences along the new roadway alignment are screened from views of the corridor by substantial soundwalls, which were installed to shield noise from the new roadway and existing BART and UPRR railroad tracks, but also serve as visual buffers.

The new roadway alignment would be mostly below grade in this area, as grade separations are required at the rail crossings. The grade separation structures would be visible by viewers using the new roadway, including drivers and bicyclists on the road and pedestrians on the separated path. The structures would also be visible by drivers and pedestrians on the Green Street bridge, who currently look out onto a disturbed, semi-urban environment. The addition of grade separations would not constitute a substantial change in character. Figure 3.1-14 shows a visual simulation of the project-related replacement of the New Basin with the subgrade new roadway alignment, viewed from the bridge at Green Street. The new roadway alignment would feature ample landscaping in the median and on both sides of the roadway, and a divided sidewalk on the westbound side of the street. The uniform character of the new roadway's landscaping would mark a visual improvement from these public and private vantage points.

The project-related modification and improvements of 7th Street and the realignment of the 7th Street/Chesapeake Drive intersection would be visible from Drigon Dog Park and the adjacent sidewalk. The proposed project would entail a minor right-of-way acquisition from the grass-covered edge of the park and a realignment of the adjacent sidewalk, but this would not remove fencing or encroach into the developed portion of the park. Foreground and middle-ground views from this vantage point are urbanized, consisting of a paved roadway with un-landscaped sidewalks, and do not include any notable scenic elements. The proposed project would result in a beneficial impact on these foreground and middle-ground views, as the project landscaping would be an improvement to the scenic character of the adjacent street. Figure 3.1-15 shows a visual simulation of the project roadway improvements proposed in this area of 7th Street, with existing vegetation on the street's southern side complemented by a new landscaped median and landscaping lining the new roadway's northern end.

The project proposes minor widening of Mission Boulevard near its existing intersection with 7th Street and Appian Way. Widening would be limited to the parcels at the intersection's southwest and southeast corner, and would not extend further along Mission Boulevard. This widening would require removal of a small amount of grass on the fringe of the Union City-owned parcel at the intersection's southwest corner and a realignment of the sidewalk that extends from 7th Street. No other landscaping would be removed along Mission Boulevard. The sidewalk is incomplete on this short stretch of Mission Boulevard, and project improvements would entail completion of this sidewalk and provision of landscaping along the frontage of this parcel. The median, which is not landscaped in this area, would also be landscaped, pursuant to a design determined in consultation with Caltrans.

Minimal views of the alignment by BART and Amtrak riders would be slightly improved by the new roadway. Currently, views of the alignment from the train are very brief and include an urban and disturbed area characterized by recent and ongoing development, industrial uses, and the detention basins. The new roadway, with its ample landscaping, would lead to a more intact visual scene.

This portion of the project alignment contains few notable scenic elements. The new roadway alignment extends through a stand of large, mature trees in the median of Alvarado-Niles Road. These trees are not designated landmark trees and thus are not scenic resources, but removal would be subject to compliance with the Union City tree ordinance, requiring permission from Union City and planting of new trees at a ratio to be determined in coordination with the Union City Planning Department. The stormwater detention basins located in the corridor are not scenic resources, and their removal and replacement with open, landscaped roadway does not constitute a negative visual impact.

In summary, the construction of the landscaped road through this segment of the project site would not constitute a degradation of visual character or quality. This impact is less than significant. No mitigation is required.

Before

After

00703.07 Visual Impact (7-08)

Photo location is shown in Figure 3.1-1d

Figure 3.1-14
Visual Simulation #6, View from Green Street Bridge
ACTA East-West Connector Project

Before

After

Photo location is shown in Figure 3.1-1d

00703.07 Visual Impact (7-08)

Figure 3.1-15
Visual Simulation #7,
Eastern End of Project Alignment
ACTA East-West Connector Project

Impact AES-11: New Source of Light and Glare along BART Corridor during Construction (Significant and Unavoidable)

During project construction, some night work would be required in this portion of the new roadway alignment to construct the BART and UPRR grade separations. Nighttime work would be necessary along the BART tracks. This work would occur intermittently throughout Phase 3 of the project schedule. This temporary nighttime work would require installation of flood lights to illuminate work areas on a temporary basis, and the lights would likely be visible from adjacent residences. Because of the high intensity of this light and the proximity to residences, this construction lighting would constitute a significant visual impact.

This impact is considered significant. The following mitigation measure would partially reduce this impact, but not to a less- than-significant level.

Mitigation Measure NOI-2: Prepare a Community Awareness Program for Project Construction

In consultation with the representatives of Fremont and Union City, ACTA will prepare and maintain a program to enhance community awareness of project construction issues, including the noise, vibration, nighttime noise, nighttime lighting, and park or trail closures. Initial information packets will be prepared and mailed to all residences within a 1,000- foot radius of project construction, with updates prepared as necessary to indicate new scheduling or processes. A project liaison will be identified who will be available to respond to community concerns regarding noise, vibration, and light.

Mitigation Measure AES-7: Minimize Fugitive Light from Portable Sources

In order to minimize fugitive light impacts on residents located along the existing and temporary BART alignment, portable construction lighting will use color-corrected halide lights. At a minimum, construction-related light and glare will be minimized to the maximum extent feasible, given safety considerations. Portable lights will be operated at the lowest allowable height. All lights will be screened and directed downward toward work activities and away from residences adjacent to the project alignment. The number of nighttime lights used will be minimized to the greatest extent possible.

Impact AES-12: New Source of Light and Glare from New Roadway between Alvarado-Niles Road and Mission Boulevard (Less than Significant with Mitigation)

During project construction, a limited amount of glare would be caused by sunlight reflecting from the glass and metal surfaces of construction equipment. Aside from the nighttime work related to the BART grade separation (Impact AES-9), there would no nighttime construction work along this new roadway segment that would require temporary light fixtures to illuminate work.

Therefore, this impact is considered less than significant. No mitigation is required.

The project would permanently install pole-mounted street lights to ensure driver, bicyclist, and pedestrian safety in this new roadway segment. This would represent a new source of light, as the redevelopment corridor is currently unlit. Without proper design, this street lighting could spill into neighboring residences, particularly in those areas where the corridor narrows and homes are located close to the roadway. Additionally, the vehicles traveling on the new roadway would introduce light and glare into this area, as sunlight reflects off the metal during the day and headlights are used at night. However, the below grade roadway and proposed landscaping along the roadway would minimize this increase, and soundwalls would further contain new light and glare if they are located along the new roadway rather than along residential properties.

The new light from the pole-mounted street lights along the new roadway would create a substantial amount of additional light in the area at night. This is considered a significant impact. The following mitigation measure would reduce this impact to a less-than-significant level.

Mitigation Measure AES-6: Install Low-Standing Light Standards with Directional Shields Downward along the New Roadway

Section 3.2
Air Quality

Section 3.2
Air Quality

3.2.1 Introduction

This section describes the affected environment and regulatory setting for air quality in the project area and its vicinity. It also describes the impacts on air quality that would result from implementation of the proposed project, and mitigation measures that would reduce these impacts.

3.2.2 Setting

Existing Conditions

Ambient air quality is affected by climatological conditions, topography, and the types and amounts of pollutants emitted. The following discussion describes relevant characteristics of the air basin and offers an overview of conditions affecting pollutant ambient air concentrations in the basin.

Sources of Information

The key sources of data and information used in the preparation of this section are listed and briefly described below.

- Bay Area Air Quality Management District (BAAQMD) CEQA Guidelines: Assessing the Air Quality Impacts of Projects and Plans (Bay Area Air Quality Management District 1999).
- Air quality monitoring data from the Fremont-Chapel Way monitoring station in Fremont.
- Traffic data included in Section 3.12, Transportation and Circulation, and in Appendix Q. This includes existing conditions analysis on roadways, methodology description for travel demand forecasting, and operational analysis of roadways under future No Project and With Project conditions based upon level of service reports provided by Dowling and Associates.
- Climate change literature and data (California Air Resources Board 2008a; California Energy Commission 2006b, 2007; Hendrix and Cori 2007; Intergovernmental Panel on Climate Change 2007).

Climate and Topography

The project alignment is located in the Livermore Valley. The Livermore Valley is an inland valley east of the San Francisco Bay. The valley is bordered on the east and west by hills of approximately 1,000 to 1,500 feet in elevation. Two gaps, Hayward Pass and Niles Canyon, connect the valley to the central Bay Area to the west. There is one major passage, the Altamont Pass, and several secondary passages to the west that connect to the San Joaquin Valley. The Black Hills and Mount Diablo form the northern boundary of the valley. A northwest to southeast channel connects the Livermore Valley to the Diablo Valley. Mountains on the south side of the Livermore Valley rise to approximately 3,000 to 3,500 feet.

High temperatures in the Livermore Valley range from the high 80s (degrees Fahrenheit) to the low 90s, with extremes in the 100s during the summer. Average winter maximum temperatures range from the high 50s to the low 60s. Minimum temperatures in the winter range from the mid- to high 30s, with extremes in the high 10s and low 20s.

During the summer months, under conditions of strong inversion with a low ceiling, air movement is weak and pollutants become trapped and concentrated in the Livermore Valley. Occasionally during the summer, a strong Pacific high-pressure cell, coupled with hot inland temperatures, creates an onshore pressure gradient, which produces a strong afternoon wind. With a weak temperature inversion, air moves over the hills, dispersing pollutants into the San Joaquin Valley. In the winter, cold air drains off the hills and moves into the gaps and passes. On the eastern side of the valley, the prevailing winds blow from north, northeast, and east out of Altamont Pass. Winds are light during the late night and early morning hours. Winter daytime winds sometimes flow from the south through Altamont Pass to the San Joaquin Valley.

Criteria Pollutants

The following is a general description of the pollutants for which there are standards (criteria pollutants) and ambient measurements.

Ozone

Ozone (O_3) is a respiratory irritant that increases susceptibility to respiratory infections. It is also an oxidant that can cause substantial damage to vegetation and other materials.

Ozone is not emitted directly into the air but is formed by a photochemical reaction in the atmosphere. Ozone precursors (reactive organic gases [ROG] and oxides of nitrogen [NO_X]) react in the atmosphere in the presence of sunlight to form ozone. Because photochemical reaction rates depend on the intensity of ultraviolet light and air temperature, ozone is primarily an air pollution problem in the summer.

State and federal standards for ozone have been set for 1- and 8-hour averaging times. The state 1-hour ozone standard is 0.09 parts per million (ppm), not to be exceeded. The U.S. Environmental Protection Agency (EPA) recently replaced the 1-hour ozone standard with an 8-hour standard of 0.075 ppm. However, the California 1-hour standard will remain in effect. The state 8-hour standard is 0.070 ppm, not to be exceeded.

Carbon Monoxide

Carbon monoxide (CO) is a public health concern because it combines readily with hemoglobin and reduces the amount of oxygen transported in the bloodstream. CO can cause health problems such as fatigue, headache, confusion, dizziness, and even death.

Motor vehicles are the dominant source of CO emissions in most areas. High CO levels develop primarily during winter when periods of light winds combine with the formation of ground-level temperature inversions (typically from the evening through early morning). These conditions result in reduced dispersion of vehicle emissions. Motor vehicles also exhibit increased CO emissions at low air temperatures.

State and federal CO standards have been set for 1- and 8-hour averaging times. The state 1-hour standard is 20 ppm, not to be exceeded, whereas the federal 1-hour standard is 35 ppm, not to be exceeded more than 1 day per year. The state 8-hour standard is 9.0 ppm while federal standard is 9 ppm. This means that a monitored 8-hour CO concentration from 9.1 to 9.4 ppm violates the state but not the federal standard.

Inhalable Particulate Matter

Particulates can damage human health and retard plant growth. Health concerns associated with suspended particulate matter focus on those particles small enough to reach the lungs when inhaled. Particulates also reduce visibility and corrode materials. Particulates are measured by size class: PM10 refers to particulate matter smaller than 10 microns in diameter; PM2.5 refers to particulate matter smaller than 2.5 microns in diameter. Sources of PM10 in Alameda County include urban sources, including industrial emissions; dust suspended by vehicle traffic; and secondary aerosols formed by reactions in the atmosphere.

The state PM10 standard is 50 micrograms per cubic meter ($\mu g/m^3$) as a 24-hour average and 20 μ/m^3 as an annual arithmetic mean. The federal PM10 standard is 150 $\mu g/m^3$ as a 24-hour average. For PM2.5, the state has adopted a standard of 12 $\mu g/m^3$ for the annual arithmetic mean. The federal PM2.5 standard is 35 $\mu g/m^3$ for the 24-hour average and 15 $\mu g/m^3$ for the annual arithmetic mean.

Toxic Air Contaminants

Toxic air contaminants (TACs) are pollutants that may result in an increase in mortality or serious illness, or that may pose a present or potential hazard to human health. Health effects of TACs include cancer, birth defects, neurological damage, damage to the body's natural defense system, and diseases that lead to death. In 1998, following a 10-year scientific assessment process, the California Air Resources Board (ARB) identified particulate matter from diesel-fueled engines as a TAC. Compared to other air toxics that ARB has identified and controlled, diesel particulate matter emissions are estimated to be responsible for about 70% of the total ambient air toxics risk (California Air Resources Board 2008a).

The federal Clean Air Act as amended in 1990 (CAA) identifies 188 pollutants as being hazardous air pollutants (HAPs). From this list, the EPA identifies a group of 21 as mobile source air toxics (MSATs) in their final rule, Control of Emissions of Hazardous Air Pollutants from Mobile Sources (66 *Federal Register* [FR] 17235) in March 2001. From this list of 21 MSATs, the EPA identifies six MSATs—benzene, formaldehyde, acetaldehyde, diesel particulate matter/diesel exhaust organic gases, acrolein, and 1,3-butadiene—as being priority MSATs.

Greenhouse Gases

Greenhouse gases (GHG) include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and fluorinated gases. Presented below is a description of each GHG and their known sources.

Carbon dioxide (CO_2) enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees, and wood products; and through respiration and as a result of other chemical reactions (e.g., manufacture of cement). Carbon dioxide is also removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of the biological carbon cycle.

Methane (CH_4) is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and by the decay of organic waste in municipal solid waste landfills.[1]

Nitrous oxide (N_2O) is emitted during agricultural and industrial activities, as well as during combustion of fossil fuels and solid waste.[2]

Fluorinated gases are synthetic, strong GHGs that are emitted from a variety of industrial processes. Fluorinated gases are sometimes used as substitutes for ozone-depleting substances. These gases are typically emitted in smaller

[1] *Ibid.*
[2] *Ibid.*

quantities, but because they are potent GHGs, they are sometimes referred to as high global warming potential gases.[3]

- *Chlorofluorocarbons (CFCs)* are GHGs covered under the 1987 Montreal Protocol and used for refrigeration, air conditioning, packaging, insulation, solvents, or aerosol propellants. Since they are not destroyed in the lower atmosphere (troposphere, stratosphere), CFCs drift into the upper atmosphere where, given suitable conditions, they break down ozone. These gases are being replaced by other compounds that are GHGs covered under the Kyoto Protocol.
- Perfluorocarbons (PFCs) are a group of human-made chemicals composed of carbon and fluorine only. These chemicals (predominantly perfluoromethane [CF_4] and perfluoroethane [C_2F_6]) were introduced as alternatives, along with HFCs, to the ozone-depleting substances. In addition, PFCs are emitted as byproducts of industrial processes and are also used in manufacturing. PFCs do not harm the stratospheric ozone layer, but they are strong GHGs.
- Sulfur hexafluoride (SF_6) is a colorless gas soluble in alcohol and ether, slightly soluble in water. SF_6 is a strong GHG used primarily in electrical transmission and distribution systems as a dielectric.[4]
- Hydrochlorofluorocarbons (HCFCs) contain hydrogen, fluorine, chlorine, and carbon atoms. Although ozone-depleting substances, they are less potent than CFCs. They have been introduced as temporary replacements for CFCs and are also GHGs.
- Hydrofluorocarbons (HFCs) contain only hydrogen, fluorine, and carbon atoms. They were introduced as alternatives to ozone-depleting substances in serving many industrial, commercial, and personal needs. HFCs are emitted as by-products of industrial processes and are also used in manufacturing. They do not significantly deplete the stratospheric ozone layer, but they are strong GHGs.

Existing Air Quality Conditions

Existing air quality conditions in the project vicinity can be characterized in terms of the ambient air quality standards that the federal and state governments have established for various pollutants and by monitoring data collected in the region. Monitoring data concentrations are typically expressed as ppm or $\mu g/m^3$. The nearest air quality monitoring station in the project vicinity is the Fremont-Chapel Way monitoring station, located at 40733 Chapel Way in the City of Fremont, which monitors for ozone, CO, PM10, PM2.5, sulfur dioxide (SO_2), methane, total hydrocarbons, and NO_2. Air quality monitoring data from the Fremont-Chapel Way monitoring station is summarized in Table 3.2-1. These data represent air quality monitoring data for the last 3 years (2005 through 2007) in which complete data is available.

[3] *Ibid.*
[4] An electrical insulator that is highly resistant to the flow of an electric current.

Table 3.2-1. Ambient Air Quality Monitoring Data Measured at the Fremont-Chapel Way Monitoring Station

Pollutant Standards	2005	2006	2007
OZONE			
Maximum 1-hour concentration (ppm)	0.105	0.102	0.079
Maximum 8-hour concentration (ppm)	0.078	0.074	0.068
Number of days standard exceeded[a]			
CAAQS 1-hour (>0.09 ppm)	1	4	0
NAAQS 8-hour (>0.08 ppm)	0	0	0
CARBON MONOXIDE (CO)			
Maximum 8-hour concentration (ppm)	0.78	0.74	0.68
Number of days standard exceeded[a]			
NAAQS 8-hour (≥9.0 ppm)	0	0	0
CAAQS 8-hour (≥9.0 ppm)	0	0	0
NAAQS 1-hour (≥35 ppm)	0	0	0
CAAQS 1-hour (≥20 ppm)	0	0	0
PARTICULATE MATTER (PM10)B			
National[c] maximum 24-hour concentration (μg/m^3)	51.7	54.0	57.5
National[c] second-highest 24-hour concentration (μg/m^3)	33.1	40.6	47.4
State[d] maximum 24-hour concentration (μg/m^3)	54.1	56.6	60.6
State[d] second-highest 24-hour concentration (μg/m^3)	34.7	41.5	49.7
National annual average concentration (μg/m^3)	17.2	19.6	19.0
State annual average concentration (μg/m^3)[e]	17.8	20.0	19.6
Number of days standard exceeded[a]			
NAAQS 24-hour (>150 μg/m^3)[f]	0.0	0.0	0.0
CAAQS 24-hour (>50 μg/m^3)[f]	1	1	1
PARTICULATE MATTER (PM2.5)			
National[c] maximum 24-hour concentration (μg/m^3)	33.4	43.9	51.2
National[c] second-highest 24-hour concentration (μg/m^3)	30.9	39.7	43.3
State[d] maximum 24-hour concentration (μg/m^3)	33.4	43.9	51.2
State[d] second-highest 24-hour concentration (μg/m^3)	30.9	39.7	43.3
National annual average concentration (μg/m^3)	9.0	–	8.7
State annual average concentration (μg/m^3)[e]	9.0	–	8.7
Number of days standard exceeded[a]			
NAAQS 24-hour (>65 μg/m^3)	0	–	0

Notes: CAAQS = California ambient air quality standards. ppm = parts per million.
NAAQS = national ambient air quality standards. μg/m^3 = micrograms per cubic meter.
– = insufficient data available to determine the value.

[a] An exceedance is not necessarily a violation.

[b] Measurements usually are collected every 6 days.

[c] National statistics are based on standard conditions data. In addition, national statistics are based on samplers using federal reference or equivalent methods.

[d] State statistics are based on local conditions data, except in the South Coast Air Basin, for which statistics are based on standard conditions data. In addition, State statistics are based on California-approved samplers.

[e] State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.

[f] Mathematical estimate of how many days' concentrations would have been measured as higher than the level of the standard had each day been monitored.

Sources: California Air Resources Board 2008b; U.S. Environmental Protection Agency 2008.

As shown in Table 3.2-1, the Fremont-Chapel Way monitoring station experienced no violations of the federal or state CO standards during the 3-year monitoring period. The state ozone standards were exceeded once in 2005 and four times in 2006 in the 3-year monitoring period. There were no violations of the federal 24-hour PM10 standard and PM2.5 standard; however, state PM10 standards were exceeded once each in 2005, 2006, and 2007.

An estimate of local CO concentrations at congested intersections throughout the project vicinity is provided below in Table 3.2-2 using the methodology described in Section 3.3.2, Impact Analysis, Methodology). As shown in Table 3.2-2, localized 1-hour and 8-hour CO concentrations under existing conditions are well below the state standard of 20 ppm and 9.0 ppm for the 1-hour and 8-hour averaging periods, respectively.

Table 3.2-2. Local Area Carbon Monoxide Concentrations—Existing Conditions

Intersection	Peak Period [a]	Maximum 1-Hour 2008 Base Concentration (ppm)[b]	Maximum 8-Hour 2008 Base Concentration (ppm)[c]
Decoto at Mission	AM	5.1	3.5
	PM	5.6	3.9
Decoto at 7th	AM	3.6	2.5
	PM	4.0	2.8
Decoto at 11th	AM	3.8	2.6
	PM	4.0	2.8
Decoto at Union	AM	4.0	2.8
	PM	4.7	3.3
Decoto at Alvarado	AM	4.2	2.9
	PM	4.3	3.0
Decoto at Perry	AM	4.6	3.2
	PM	5.5	3.8
Decoto at Paseo Padre	AM	4.5	3.1
	PM	4.9	3.4
Decoto at Brookmill	AM	4.2	2.9
	PM	5.4	3.8
Decoto at Fremont	AM	4.6	3.2
	PM	4.6	3.2
Decoto at Canal	AM	4.9	3.4
	PM	5.7	4.0
Decoto at northbound ramps	AM	7.9	5.5
	PM	10.5	7.3
Decoto at southbound ramps	AM	6.7	4.7
	PM	7.7	5.4
Mission at Appian	AM	3.5	2.4
	PM	3.8	2.6
Alvarado at Mann/Union	AM	3.3	2.3
	PM	3.4	2.4

Intersection	Peak Period [a]	Maximum 1-Hour 2008 Base Concentration (ppm)[b]	Maximum 8-Hour 2008 Base Concentration (ppm)[c]
Paseo Padre at Wyndham	AM	4.5	3.1
	PM	4.3	3.0
Paseo Padre at Tamayo	AM	3.4	2.4
	PM	3.3	2.3
Paseo Padre at Thornton	AM	3.8	2.6
	PM	4.1	2.8
Paseo Padre at Peralta	AM	3.8	2.6
	PM	2.1	1.4
Fremont at southbound ramps	AM	3.4	2.4
	PM	3.9	2.7
Fremont at Paseo Padre	AM	3.7	2.6
	PM	4.0	2.8
Thornton at northbound on-ramp	AM	4.4	3.1
	PM	5.1	3.5
Thornton at Fremont	AM	3.5	2.4
	PM	3.4	2.4
Alvarado at Nursery	AM	3.3	2.3
	PM	3.6	2.5
Alvarado at Linda	AM	3.1	2.1
	PM	3.2	2.2
Mission at Nursery	AM	3.9	2.7
	PM	4.2	2.9
Mission at Niles	AM	4.0	2.8
	PM	4.7	3.3

Notes:
CALINE4 dispersion model output sheets and EMFAC2007 emissions factors are provided in Appendix G.
ppm = parts per million.

[a] Peak hour traffic volumes are based on the Traffic Impact Analysis prepared for the project by Dowling Associates Inc, May 2008.

[b] 2008 1-hour ambient background concentration (1.77 ppm) + 2008 base traffic CO 1-hour contribution.

[c] 2008 8-hour ambient background concentration (1.24 ppm) + 2008 base traffic CO 8-hour contribution.

Source: Compiled from data provided in Appendix G.

Areas are classified as either *attainment, unclassified,* or *nonattainment* with respect to state and federal ambient air quality standards. If a pollutant concentration is lower than or meets the state or federal standard over a designated period of time, the area is classified as being in attainment of the standard for that pollutant. If a pollutant violates the standard, the area is considered a nonattainment area for that pollutant. If data are insufficient to determine whether a pollutant is violating the standard, the area is designated unclassified. This typically occurs in undeveloped areas where levels of the pollutant are not a concern.

The State of California has designated the San Francisco Bay Area Air Basin (SFBAAB) as being in serious nonattainment for the state ozone standards and as a nonattainment area for the state PM10 standards. The SFBAAB is classified as an attainment area for the CO standards. The EPA has designated the SFBAAB as not classified/moderate/ other attainment for the federal ozone standards (2006 attainment deadline). The EPA has designated the SFBAAB as being unclassified/attainment for the federal PM10 standards and as unclassified/attainment for the federal CO standards.

Sensitive Receptors

A sensitive receptor is generally defined as a facility or land use that houses or attracts members of the population, such as children, the elderly, and people with illnesses, who are particularly sensitive to the effects of air pollutants. Examples of sensitive receptors include schools, hospitals, convalescent facilities, and residential areas. Since residential dwelling units are the predominant land uses in the project vicinity, sensitive receptors are present throughout the project area.

State Greenhouse Gas Emissions

California is the second largest emitter of GHG in the United States (Texas is the largest GHG emitter) and the sixteenth largest GHG emitter in the world. However, because of more stringent emission regulations and its mild climate, in 2001 California ranked fourth lowest in carbon emissions per capita and fifth lowest among states in CO_2 emissions from fossil fuel consumption per unit of gross state product (total economic output of goods and services). In 2004, California produced 492 million metric tons (MMT) of carbon dioxide equivalent (-CO_2e) GHG emissions, of which 81% were CO_2 from the combustion of fossil fuels, 2.8% were from other sources of CO_2, 5.7% were from methane, and 6.8% were from N_2O. The remaining 2.9% of GHG emissions were from high global warming potential gases (California Energy Commission 2006a).

Carbon dioxide emissions from human activities represent 84% of the total GHG emissions. California's transportation sector is the single largest generator of state GHG emissions, producing 40.7% of the state's total emissions. Electricity generation for in-state consumption is the second largest source, with 22.2%. While out-of-state electricity generation comprises 20 to 33% of California's total electricity supply, it contributes 39 to 57% of the GHG emissions associated with electricity consumption in the state. Industrial activities are California's third largest source of GHG emissions, producing 20.5% of state's total emissions. Other major sources of GHG emissions include mineral production, waste combustion, land use, and forestry changes. Agriculture, forestry, commercial, and residential activities comprise the balance of California's GHG emissions.[5]

[5] *Ibid.*

Climate change could affect the natural environment in California in the following ways, including:

- raising sea levels along the California coastline, particularly in San Francisco and the San Joaquin Delta as a result of ocean expansion;
- causing extreme-heat conditions such as heat waves and very high temperatures, which could last longer and become more frequent;
- increasing heat-related human deaths, infectious diseases, and a higher risk of respiratory problems caused by deteriorating air quality;
- reducing snow pack and stream flow in the Sierra Nevada mountains, affecting winter recreation and water supplies;
- increasing the severity of winter storms, affecting peak stream flows and flooding;
- changing growing season conditions that could affect California agriculture, causing variations in crop quality and yield; and
- changing the distribution of plant and wildlife species as a result of changes in temperature, competition from colonizing species, changes in hydrologic cycles, changes in sea levels, and other climate-related effects.

These changes in California's climate and ecosystems are occurring at a time when California's population is expected to increase from 34 million to 59 million by the year 2040.The number of people potentially affected by climate change, and the amount of anthropogenic GHG emissions expected under a "business as usual" scenario, are expected to increase. Similar changes as those noted for California would also occur in other parts of the world, affecting regional variations in resources and regional vulnerability to adverse effects.

Regulatory Setting

The air quality management agencies of direct importance in Alameda County include the EPA, ARB, and BAAQMD. The EPA has established federal standards for which ARB and BAAQMD have primary implementation responsibility. The ARB and BAAQMD are responsible for ensuring that state standards are met.

The proposed project site is located in the Alameda County portion of the SFBAAB, which comprises Santa Clara, Alameda, Contra Costa, Marin, San Francisco, San Mateo, and Napa Counties, as well as portions of Solano and Sonoma Counties. Air quality in the SFBAAB is regulated by BAAQMD, which administers air quality regulations developed at the federal, state, and local levels. These regulations are described below.

Federal

Clean Air Act

The CAA is the federal law that governs air quality. Its counterpart in California is the California Clean Air Act of 1988 (CCAA). These laws set standards for the quantity of pollutants that can be in the air. At the federal level, these standards are called national ambient air quality standards (NAAQS). Standards have been established for six criteria pollutants that have been linked to potential health concerns: CO, NO_2, O_3, PM10, PM2.5, lead (Pb), and SO_2.

Under the CAA, the U.S. Department of Transportation (DOT) cannot fund, authorize, or approve federal actions to support programs or projects that are not first found to conform to a State Implementation Plan (SIP) for achieving the goals of the CAA requirements. Conformity with the CAA takes place on two levels—first, at the regional level and second, at the project level. The proposed project must conform at both levels to be approved.

Regional level conformity in California is concerned with how well the region is meeting the standards set for CO, NO_2, ozone, PM10, and PM2.5. California is in attainment for the other criteria pollutants. At the regional level, Regional Transportation Plans (RTP) include all of the transportation projects planned for a region over a period of years, usually at least 20 years. Based on the projects included in the RTP, an air quality model is run to determine whether or not the implementation of those projects would conform to emission budgets or other tests showing that attainment requirements of the CAA are met. If the conformity analysis is successful, the regional planning organization, such as the Metropolitan Transportation Commission for the Bay Area and the appropriate federal agencies, such as the FHWA, make the determination that the RTP is in conformity with the SIP for achieving the goals of the CAA. Otherwise, the projects in the RTP must be modified until conformity is attained. If the design and scope of the proposed project are the same as described in the RTP, then the proposed project is deemed to meet regional conformity requirements for purposes of project-level analysis.

Conformity at the project level also requires “hot spot” analysis if an area is nonattainment or maintenance for CO and/or particulate matter. A region is a nonattainment area if one or more monitoring stations in the region fail to attain the relevant standard. Areas that were previously designated as nonattainment areas but have recently met the standard are called maintenance areas. Hot spot analysis is essentially the same, for technical purposes, as CO or particulate matter analysis performed for National Environmental Policy Act (NEPA) purposes. Conformity does include some specific standards for projects that require a hot spot analysis. In general, projects must not cause the CO standard to be violated, and in nonattainment areas the project must not cause any increase in the number and severity of violations. If a known CO or particulate matter violation is located in the project vicinity, the project must include measures to reduce or eliminate the existing violation(s) as well.

Typically, evaluating whether a project is included in a conforming RTP and/or Transportation Improvement Plan (TIP) is done to determine transportation conformity for ozone precursors. Because PM10, PM2.5, and CO are localized pollutants, the determination of transportation conformity for these pollutants is assessed by identifying whether the proposed project would generate elevated hotspot concentrations for these pollutants. For PM10 and PM2.5, the determination of conformity is qualitative; for CO, the determination is quantitative.

Mobile Source Air Toxics

The CAA identified 188 pollutants as being air toxics or HAPs. From this list, the EPA identified a group of 21 as MSATs in their final rule, Control of Emissions of Hazardous Air Pollutants from Mobile Sources (66 FR 17235) in March 2001. From this list of 21 MSATs, the EPA has identified six MSATs—benzene, formaldehyde, acetaldehyde, diesel particulate matter/diesel exhaust organic gases, acrolein, and 1,3-butadiene—as being priority MSATs. To address emissions of MSATs, the EPA has issued a number of regulations that will dramatically decrease MSATs through cleaner fuels and cleaner engines. The area of air toxics analysis is a new and emerging issue and is a continuing area of research. Although much work has been done to assess the overall health risk of air toxics, many questions remain unanswered. In particular, the tools and techniques available for assessing project-specific health impacts from MSATs are limited. Given the emerging state of the science and of project-level analysis techniques, there are no established criteria for determining when MSAT emissions should be considered a significant issue in NEPA context. FHWA is currently preparing guidance as to how mobile source health risks should factor into project-level decision-making under NEPA. In addition, the EPA has not established regulatory concentration targets for the six relevant MSAT pollutants appropriate for use in the project development process. In light of the recent development regarding MSATs, the FHWA has issued interim guidance for the assessment of MSATs in NEPA documents.

Federal Climate Change Policy

Twelve U.S. states and cities (including California), in conjunction with several environmental organizations, have sued to force the EPA to regulate GHGs as a pollutant pursuant to the CAA (*Massachusetts vs. Environmental Protection Agency et al.* [U.S. Supreme Court No. 05–1120; argued November 29, 2006; decided April 2, 2007]). The Supreme Court ruled that the plaintiffs had standing to sue, that GHGs fit within the CAA's definition of a pollutant, and that the EPA's reasons for not regulating GHGs were insufficiently grounded in the CAA. Despite the Supreme Court ruling, there are no promulgated federal regulations to date limiting GHG emissions.

State

California Air Resources Board

Responsibility for achieving California's ambient air quality standards (CAAQS) (Table 3.2-3), which, for certain pollutants and averaging periods are more stringent than federal standards, is placed on ARB and local air pollution control districts. State standards are to be achieved through district-level air quality management plans that are incorporated into the SIP. In California, EPA has delegated authority to prepare SIPs to ARB, which, in turn, has delegated that authority to individual air districts.

ARB traditionally has established CAAQS, maintained oversight authority in air quality planning, developed programs for reducing emissions from motor vehicles, developed air emission inventories, collected air quality and meteorological data, and approved SIPs. Responsibilities of air districts include overseeing stationary source emissions, approving permits, maintaining emissions inventories, maintaining air quality stations, overseeing agricultural burning permits, and reviewing air quality-related sections of environmental documents required by CEQA.

Table 3.2-3. Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	CAAQS[a]	NAAQS[b]
Ozone (O_3)	1 hour	0.09 ppm[c]	–
	8 hour	0.07 ppm	0.075 ppm
Carbon Monoxide (CO)	1 hour	20.0 ppm	35.0 ppm
	8 hour	9.0 ppm	9.0 ppm
Nitrogen Dioxide (NO_2)	1 hour	0.18 ppm	–
	Annual	0.03 ppm	0.053 ppm
Sulfur Dioxide (SO_2)	1 hour	0.25 ppm	–
	3 hour	–	0.5 ppm
	24 hour	0.04 ppm	0.14 ppm
	Annual	–	0.030 ppm
Inhalable Particulate Matter (PM10)	24 hour	50.0 $\mu g/m^3$[c]	150.0 $\mu g/m^3$
	Annual	20.0 $\mu g/m^3$	–
Fine Particulate Matter (PM2.5)	24 hour	–	35.0 $\mu g/m^3$
	Annual	12.0 $\mu g/m^3$	15.0 $\mu g/m^3$
Sulfates	24 hour	25.0 $\mu g/m^3$	–
Lead (Pb)	30 day	1.5 $\mu g/m^3$	–
	Calendar quarter	–	1.5 $\mu g/m^3$
Hydrogen Sulfide	1 hour	0.03 ppm	–
Vinyl Chloride	24 hour	0.01 ppm	–

Notes:

[a] The CAAQS for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, PM10, and PM2.5 are values not to be exceeded. All other California standards shown are values not to be equaled or exceeded.

Pollutant	Averaging Time	CAAQS[a]	NAAQS[b]

[b] The NAAQS, other than O_3 and those based on annual averages, are not to be exceeded more than once a year. The O_3 standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above the standard is equal to or less than one.

[c] ppm = parts per million by volume; μg/m^3 = micrograms per cubic meter

Source: California Air Resources Board, June 26, 2008acompiled from data provided in Appendix G.

California Clean Air Act of 1988

The CCAA substantially added to the authority and responsibilities of air districts. The CCAA designates air districts as lead air quality planning agencies, requires air districts to prepare air quality attainment plans, and grants air districts authority to implement transportation control measures. In addition, the CCAA focuses on attainment of the CAAQS and requires designation of attainment and nonattainment areas with respect to these standards. The CCAA also requires that local and regional air districts expeditiously adopt and prepare an air quality attainment plan if the district violates state air quality standards for ozone, CO, SO_2, NO_2, or ozone. These plans are specifically designed to attain state standards and must be designed to achieve an annual 5% reduction in district-wide emissions of each nonattainment pollutant or its precursors. No locally prepared attainment plans are required for areas that violate the state PM10 standards; ARB is responsible for developing plans and projects that achieve compliance with the state PM10 standards.

The CCAA requires that the CAAQS be met as expeditiously as practicable, but, unlike the CAA, does not set precise attainment deadlines. Instead, the CCAA establishes increasingly stringent requirements for areas that will require more time to achieve the standards. The attainment status for the SFBAAB with respect to all criteria pollutants is provided in Table 3.2-4.

Table 3.2-4. Federal and State Attainment Status for San Francisco Bay Area Air Basin

Pollutants	Federal Classification	State Classification
O_3 (1-hour standard)	–	Nonattainment, Serious
O_3 (8-hour standard)	Nonattainment, Marginal	–
PM10	Unclassified/Attainment	Nonattainment
PM2.5	Unclassified/Attainment	Nonattainment
CO	Attainment/Maintenance	Attainment
NO_2	Unclassified/Attainment	Attainment
SO_2	Attainment	Attainment

Source: California Air Resources Board 2008a; compiled from data provided in Appendix G

The CCAA emphasizes the control of "indirect and area-wide sources" of air pollutant emissions. The CCAA does not define the terms *indirect [sources]* and *area-wide sources*. However, Section 110 of the CAA defines an indirect source as

> a facility, building, structure, installation, real property, road, or highway which attracts, or may attract, mobile sources of pollution. Such term includes parking lots, parking garages, and other facilities subject to any measure for management of parking supply….

The CCAA gives local air pollution control districts explicit authority to regulate indirect sources of air pollution and to establish traffic control measures (TCMs). TCMs are defined in the CCAA as "any strategy to reduce trips, vehicle use, vehicle miles traveled, vehicle idling, or traffic congestion for the purpose of reducing vehicle emissions."

Global Warming Solutions Act of 2006 (AB 32)

On June 1, 2005, Governor Arnold Schwarzenegger signed Executive Order S-3-05. The goal of this Executive Order is to reduce California's GHG emissions to 1) 2000 levels by 2010, 2) 1990 levels by 2020, and 3) 80% below 1990 levels by 2050. In 2006, this goal was further reinforced with the passage of Assembly Bill 32 (AB 32), the Global Warming Solutions Act of 2006. AB 32 sets the same overall GHG emissions reduction goals while further mandating that ARB create a plan, which includes market mechanisms, and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases." Executive Order S-20-06 further directs state agencies to begin implementing AB 32, including the recommendations made by the state's Climate Action Team.

ARB identified early actions in its April 20, 2007, report (California Air Resources Board 2007):

- **Group 1**—Three new GHG-only regulations are proposed to meet the narrow legal definition of "discrete early action greenhouse gas reduction measures" in Section 38560.5 of the Health and Safety Code. These include the Governor's Low Carbon Fuel Standard, reduction of refrigerant losses from motor vehicle air conditioning maintenance, and increased methane capture from landfills. These actions are estimated to reduce GHG emissions between 13 and 26 MMT-CO_2e annually by 2020 relative to projected levels. If approved for listing by the Governing Board, these measures will be brought to hearing in the next 12 to 18 months and take legal effect by January 1, 2010. When these actions take effect, they would influence GHG emissions associated with vehicle fuel combustion and air conditioning but would not affect project site design or implementation.
- **Group 2**—ARB is initiating work on another 23 GHG emission reduction measures in the 2007–2009 period, with rulemaking to occur as soon as possible where applicable. These GHG measures relate to the following sectors: agriculture, commercial, education, energy efficiency, fire suppression, forestry, oil and gas, and transportation.

- **Group 3**—ARB has identified 10 conventional air pollution control measures that are scheduled for rulemaking in the 2007–2009 period. These control measures are aimed at criteria and toxic air pollutants, but will have concurrent climate co-benefits through reductions in CO_2 or non-Kyoto pollutants (i.e., diesel particulate matter, other light-absorbing compounds, and/or ozone precursors) that contribute to global warming.

With the exception of the low-carbon fuel standard, none of the Group 1 measures specifically relate to construction or operation of the proposed project. Proposed Groups 2 and 3 measures that could become effective during implementation of the proposed project and could pertain to construction-related equipment operations or specific facility design include the following actions:

- Measure 2-6, Education: Guidance and protocols for local governments to facilitate GHG emission reductions.
- Measure 2-9, Energy Efficiency: Light-covered paving, cool roofs, and shade trees.
- Measures 2-14, 3-2, and 3-4, Transportation: Emission reductions for heavy-duty vehicles, on-road diesel trucks, and off-road diesel equipment (non-agricultural); efficiency improvements.
- Measure 2-20, Transportation: Tire inflation program.

These measures have not yet been adopted. Some proposed measures will require new legislation to implement, some will require subsidies, some have already been developed, and some will require additional effort to evaluate and quantify.

In consultation with ARB and California Public Utilities Commission, the California Energy Commission is currently establishing a GHGs emission performance standard for local, public-owned electric utilities (pursuant to Senate Bill [SB] 1368). This standard will limit the rate of GHGs emissions to a level that is no higher than the rate of emissions of GHGs for combined-cycle natural gas baseload generation.

Senate Bill 1368

On August 31, 2006, the California Senate passed SB 1368 (signed into law on September 29, 2006), which required the California Public Utilities Commission to develop and adopt a “greenhouse gasses emission performance standard” by February 1, 2007, for the private electric facilities under its regulation. California Public Utilities Commission adopted an interim standard on January 25, 2007. These standards apply to all long-term financial commitments entered into by electric utilities (California Senate Bill 2006). California Energy Commission was required to adopt a consistent standard by June 20, 2007. However, this date was missed; California Energy Commission will address the concerns of the Office of Administrative Law and resubmit the rulemaking as soon as possible. The rulemaking then must be approved by Office of Administrative Law before it can take effect.

Assembly Bill 1493

On July 1, 2002, the California Assembly passed AB 1493 (signed into law on July 22, 2002), requiring ARB to “adopt regulations that achieve the maximum feasible and cost-effective reduction of GHG emissions from motor vehicles.” The regulations will apply to 2009 and later model-year vehicles. In September 2004, ARB responded by adopting “CO_2e fleet average emission” standards. The standards will be phased in from 2009 to 2016, reducing emissions by 22% in the near term (2009–2012) and 30% in the mid-term (2013–2016), as compared to 2002 model-year fleets.

Executive Order S-01-07

Executive Order S-01-07 was enacted by Governor Schwarzenegger on January 18, 2007. Essentially, the order mandates the following: 1) that a statewide goal be established to reduce the carbon intensity of California’s transportation fuels by at least 10% by 2020; and (2) that a Low Carbon Fuel Standard for transportation fuels be established in California.

Local

Bay Area Air Quality Management District

BAAQMD is responsible for implementing federal and state standards and strategies for air quality improvement, and for recommending mitigation measures for new growth and development. At the local level, air quality is managed through land use and development planning practices, which are implemented in Alameda County through the general planning process. BAAQMD is responsible for establishing and enforcing local air quality rules and regulations that address the requirements of federal and state air quality laws.

Guidance for the determination of significant air impacts under CEQA in Alameda County is found in the BAAQMD document, BAAQMD CEQA Guidelines: Assessing Air Quality Impacts of Projects and Plans (Bay Area Air Quality Management District 1996, revised 1999).

BAAQMD does not require quantification of construction emissions. Instead, it requires implementation of effective and comprehensive feasible control measures to reduce PM10 emissions (Bay Area Air Quality Management District 1996, revised 1999). PM10 emitted during construction activities varies greatly depending on the level of activity, the specific operations taking place, the equipment being operated, local soils, and weather conditions. Despite this variability in emissions, experience has shown that there are a number of feasible control measures that can be reasonably implemented to reduce PM10 emissions during construction; these measures are summarized below in Table 3.2-5. According to BAAQMD, if all control measures listed in Table 3.2-5 are implemented (as appropriate, depending on the size of the project area), air pollutant emissions from construction activities would be considered less than significant (Bay Area Air Quality Management District 1996, revised 1999). Construction equipment also emits CO and ozone precursors. Guidance from BAAQMD indicates that construction emissions are already included in the emission inventory that forms the basis for BAAQMD's regional air quality plans and because those emissions are not expected to impede attainment or maintenance of ozone and CO standards in the Bay Area (Bay Area Air Quality Management District 1996, revised 1999).

Table 3.2-5. BAAQMD Feasible Control Measures for Construction Emissions of PM10

Basic Control Measures
The following controls should be implemented at all construction sites. ▪ Water all active construction areas at least twice daily. ▪ Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least 0.6 meter (2 feet) of freeboard. ▪ Pave, apply water three times daily, or apply (nontoxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites. ▪ Sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas at construction sites. ▪ Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets.
Enhanced Control Measures
The following measures should be implemented at construction sites greater than 4 acres in area. ▪ Hydroseed or apply (nontoxic) soil stabilizers to inactive construction areas (i.e., previously graded areas inactive for 10 days or more). ▪ Enclose, cover, water twice daily, or apply (nontoxic) soil binders to exposed stockpiles (e.g., dirt and sand). ▪ Limit traffic speeds on unpaved roads to 15 miles per hour. ▪ Install sandbags or other erosion control measures to prevent silt runoff to public roadways. ▪ Replant vegetation in disturbed areas as quickly as possible.
Optional Control Measures
The following control measures are strongly encouraged at construction sites that are large in area, located near sensitive receptors, or for any other reason may warrant additional emissions reductions, but the project applicant is not required to implement. ▪ Install wheel washers for all exiting trucks, or wash off the tires or tracks of all trucks and equipment leaving the site. ▪ Install windbreaks or plant trees or vegetative wind breaks at windward side(s) of construction areas. ▪ Suspend excavation and grading activity when winds (instantaneous gusts) exceed 25 miles per hour. ▪ Limit the area subject to excavation, grading, and other construction activity at any one time.

For project operations, BAAQMD identifies a significant air quality impact as being a:

- net increase in pollutant emissions of 80 pounds per day or 15 tons per year of ROGs, NO_X, or PM10, or
- project-related contribution to CO concentrations exceeding the CAAQS for the 1- and 8-hour standards. Projects that do not result in the following are

presumed to result in less-than-significant levels of CO emissions, and no estimation of CO concentrations is necessary (Bay Area Air Quality Management District 1996, revised 1999):

- vehicle emissions of CO exceeding 550 pounds per day;
- project traffic impacting intersections or roadway links operating at level of service (LOS) D, E, or F;
- project traffic causing intersection or roadway link LOS to decline to D, E, or F; or
- project traffic increasing traffic volumes on nearby roadways by 10% or more (unless the increase in traffic volume is less than 100 vehicles per hour).

Recently, BAAQMD has recommended additional air quality analyses that include a quantitative estimate of gross emissions (volatile organic compounds [VOCs], NO_X, and PM10) from construction equipment (Tholen pers. comm.). This recommendation is in addition to the guidelines published in 1999, which require a qualitative assessment and mitigation of construction dust impacts. Quantitative significance thresholds in the guidelines only apply to operational emissions and BAAQMD has not yet developed, nor does it currently recommend, a threshold of significance for gross emissions from construction activity. It is likely that once BAAQMD publishes construction emission thresholds they will be greater than operational thresholds; this is because construction emissions are transient and temporary whereas operational emissions are persistent. For this analysis, construction emission thresholds will be assumed equal to the operational emission thresholds given the absence of BAAQMD construction emission threshold guidelines.

3.2.3 Impact Analysis

Methodology

The proposed project would generate construction-related and operational emissions. The methodology used to evaluate construction and operational effects is described below.

Construction Impact Assessment Methodology

Construction activity is a source of dust and exhaust emissions that can have substantial temporary impacts on local air quality (i.e., exceed CAAQS for ozone, CO, PM10, and PM2.5). Such emissions would result from earthmoving and use of heavy equipment, as well as land clearing, ground excavation, cut-and-fill operations, and the construction of roadways. Emissions can vary substantially from day to day, depending on the level of activity, the specific operations, and the prevailing weather. A major portion of dust emissions for the proposed project would likely be caused by construction traffic on temporary areas.

The Road Construction Emissions Model

The Road Construction Emissions Model (Version 6.3) was used to estimate emission rates of CO, ROG, NO_X, and PM10 from project-related construction activities. The road construction model is a public-domain spreadsheet model formatted as a series of individual worksheets. The model enables users to estimate emissions using a minimum amount of project-specific information. The model estimates emissions for load hauling (on-road heavy-duty vehicle trips), worker commute trips, construction site fugitive PM10 dust, and off-road construction vehicles. This analysis is based on anticipated construction equipment calculated by the Road Construction Emissions Model, which estimates construction equipment based on project size, duration of construction activities, and level of daily construction activities. Although exhaust emissions are estimated for each activity, fugitive dust estimates are currently limited to the major dust-generating activities, which include grubbing/land clearing and grading/excavation.

Operational Impact Assessment Methodology

Section 15126 of the CEQA Guidelines provides that the environmental setting, which consists of existing physical conditions (at the time the notice of preparation [NOP] to prepare an EIR is distributed), will normally be the baseline by which a lead agency determines whether impacts are significant. When the project being analyzed is a transportation project that would not be constructed and operational for several years into the future, it is common professional practice for traffic, air quality, and noise analyses to use future conditions without the project as the baseline to compare future conditions with the project. The reason for using this baseline is that project conditions can only be reasonably described under a future design year condition. An existing-plus-project condition would never occur because it would be several years before the proposed project is operational. With respect to air quality, a comparison of the future-with-project condition to existing conditions would understate impacts because future-year mobile emissions factors improve (i.e., are less polluting) at a faster rate than the expected increases in local and regional background vehicle miles traveled (VMT). In order to characterize the direct impact of the proposed project, changes in localized and regional air quality are evaluated by comparing project conditions to no-project conditions in the same time frame (i.e., design year conditions). To remove the effect of improved emissions factors from the direct impact assessment, project and no-project conditions must be compared in the same time frame. For this analysis of the proposed project, the future years used are 2015 when project construction is expected to be complete and 2035 based on the industry standard of projecting 20 to 25 years out

The primary operational emissions associated with the proposed project are CO, PM10, PM2.5, ozone precursors (ROG and NO_X), and CO_2 emitted as vehicle exhaust. The evaluation of transportation conformity with regards to criteria pollutants was done by evaluating the inclusion of the proposed project in the most recent RTP. The effects of localized CO hotspot emissions were evaluated through CO dispersion modeling using Caltrans' CO Protocol developed for Caltrans by the Institute of Transportation Studies at the University of California, Davis (Garza et al. 1997).

Transportation Conformity

State Implementation Plan

The proposed project is located in a marginal nonattainment area for the federal 8-hour ozone standard. Because ozone and its precursors are regional pollutants, the proposed project must be evaluated under the transportation conformity requirements described earlier. An affirmative regional conformity determination must be made before the proposed project can proceed. Such a determination is not required if the proposed project is described in an approved RTP or TIP and the proposed project has not been altered in design concept or scope.

Carbon Monoxide

The proposed project is located in a maintenance area for the federal CO standard (Table 3.2-3). Consequently, the evaluation of transportation conformity for CO is required. The CO transportation conformity analysis is based on and adheres to the methodology contained in Appendix B of the CO Protocol developed for Caltrans by the Institute of Transportation Studies at the University of California, Davis (Garza et al. 1997).

Particulate Matter

The proposed project is located in an area designated unclassified/attainment area for the federal PM10 and PM2.5 standards. Consequently, conformity with regards to these pollutants is not applicable.

Ozone Precursors

The proposed project was included in the regional emissions analysis conducted by the Metropolitan Transportation Commission for the conforming Transportation 2030 Plan, approved on February 23, 2005 (Metropolitan Transportation Commission Resolution 3681, project number 21896) (Metropolitan Transportation Commission 2005). The proposed project's design concept and scope have not changed significantly from what was analyzed in both the 2030 RTP and the 2008 TIP. This analysis found that the plan and, therefore, the individual projects contained in the plan, are conforming projects, and will have air quality impacts consistent with those identified in the SIPs for achieving the NAAQS. FHWA determined the RTP to conform to the SIP on June 28, 2006.

The proposed project is also included in the federally required Metropolitan Transportation Commission 2007 TIP dated July 28, 2006, and would not delay or otherwise interfere with any TCMs in the applicable SIP. The proposed project's "open to the public year" is consistent with (within the same regional emission analysis period as) the construction completion date identified in the federal TIP and/or RTP. The federal TIP gives priority to eligible TCMs identified in the SIP and provides sufficient funds to provide for their implementation. FHWA determined the TIP to conform to the SIP on October 2, 2006 (Fong pers. comm.).

Dispersion Modeling

Predicting the ambient air quality impacts of pollutant emissions requires an assessment of the transport, dispersion, chemical transformation, and removal processes that affect pollutant emissions after their release from a source. Gaussian dispersion models are frequently used for such analyses. These models are a general type of mathematical equation used to describe the horizontal and vertical distribution of pollutants downwind from an emission source.

Gaussian dispersion models treat pollutant emissions as being carried downwind in a defined plume, subject to horizontal and vertical mixing with the surrounding atmosphere. The plume spreads horizontally and vertically with a reduction in pollutant concentrations as it travels downwind. Mixing with the surrounding atmosphere is greatest at the edge of the plume, resulting in lower pollutant concentrations outward (horizontally and vertically) from the center of the plume. This decrease in concentration outward from the center of the plume is treated as following a Gaussian (normal) statistical distribution. Horizontal and vertical mixing generally occurs at different rates. Because turbulent motions in the atmosphere occur on a variety of spatial and time scales, vertical and horizontal mixing also vary with distance downwind from the emission source.

The CALINE4 Model

The ambient air quality effects of traffic emissions were evaluated using the CALINE4 dispersion model (Benson 1989). CALINE4 is a Gaussian dispersion model specifically designed to evaluate air quality impacts of roadway projects. Each roadway link analyzed in the model is treated as a sequence of short segments. Each segment of a roadway link is treated as a separate emission source producing a plume of pollutants that disperses downwind. Pollutant concentrations at any specific location are calculated using the total contribution from overlapping pollution plumes originating from the sequence of roadway segments.

When winds are essentially parallel to a roadway link, pollution plumes from all roadway segments overlap. This produces high concentrations near the roadway (near the center of the overlapping pollution plumes) and low concentrations well away from the roadway (at the edges of the overlapping pollution plumes). When winds are at an angle to the roadway link, pollution plumes from distant roadway segments make essentially no contribution to the pollution concentration observed at a receptor location. Under such cross-wind situations, pollutant concentrations near the highway are lower than under parallel wind conditions (fewer overlapping plume contributions), while pollutant concentrations away from the highway may be greater than would occur with parallel winds (near the center of at least some pollution plumes).

The CALINE4 model employs a "mixing cell" approach to estimating pollutant concentrations over the roadway itself. The size of the mixing cell over each roadway segment is based on the width of the traffic lanes of the highway (generally 12 feet per lane) plus an additional turbulence zone on either side (generally 10 feet on each side). Parking lanes and roadway shoulders are not counted as traffic lanes. The height of the mixing cell is calculated by the model.

Pollutants emitted along a highway link are treated as being well-mixed within the mixing cell volume as a result of mechanical turbulence from moving vehicles and convective mixing due to the temperature of vehicle exhaust gases. Pollutant concentrations downwind from the mixing cell are calculated using horizontal and vertical dispersion rates, which are a function of various meteorological and ground surface conditions.

Local area CO concentrations for roadways were evaluated using the CALINE4 line-source dispersion model developed by Caltrans, in combination with EMFAC2007 emission factors[6]. The analysis of roadway CO impacts followed the protocol recommended by Caltrans and published in the document titled Transportation Project-Level Carbon Monoxide Protocol, December 1997. All emissions calculation worksheets and air quality modeling output files are provided in Appendix G.

Vehicle Emission Rates

CO emission rates were determined using EMFAC2007 for the years 2015(opening year) and 2035 (future design year) for a Alameda County vehicle fleet with average speeds ranging from 3 (idling) to 40 miles per hour.

Receptor Placements for CO Hotspot Analysis

Consistent with the modeling procedures prescribed in the Caltrans CO Protocol, receptors were placed all four corners of each intersection analyzed. Receptor locations for the 1-hour concentration analysis were placed at 3 meters from each intersection corner, while receptor locations for the 8-hour concentration analysis were placed at 7 meters from each intersection corner.

Mobile Source Air Toxics—Screening Procedure

The FHWA has issued interim guidance on how MSATs should be addressed in NEPA documents for highway projects and has developed a tiered approach for this analysis. This same approach is used to evaluate project impacts under CEQA. Depending on the specific project circumstances, FHWA has identified three levels of analysis:

- no analysis for exempt projects or projects with no potential for meaningful MSAT effects,
- qualitative analysis for projects with low-potential MSAT effects, or

[6] The EMission FACtors (EMFAC) model is used to calculate emission rates from all motor vehicles, from passenger cars to heavy-duty trucks, operating on highways, freeways and local roads in California. EMFAC2007 is the most recent version of this model.

- quantitative analysis to differentiate alternatives for projects with higher potential MSAT effects.

Exempt Projects or Projects with No Meaningful Potential MSAT Effects

The types of projects included in this category are:

- projects qualifying as a categorical exclusion under 23 CFR 771.117(c);
- projects exempt under the CAA conformity rule under 40 CFR 93.126; or
- other projects with no meaningful impacts on traffic volumes or vehicle mix.

Projects that are categorically excluded under 23 CFR 771.117(c), or are exempt under the CAA pursuant to 40 CFR 93.126, require no analysis or discussion of MSATs. Documentation sufficient to demonstrate that the project qualifies as a categorical exclusion and/or exempt project will suffice. For other projects with no or negligible traffic impacts, regardless of the class of NEPA environmental document, no MSAT analysis is required.[7] However, the project record must document the basis for the determination of "no meaningful potential impacts" with a brief description of the factors considered.

Projects with Low Potential MSAT Effects

This category covers a broad range of projects, including those that improve operations of highway, transit, or freight without adding substantial new capacity or without creating a facility that is likely to increase emissions.

FHWA anticipates that most highway projects will fall into this category. Any projects not meeting the threshold criteria for higher potential impacts identified in subsection (3), above, and not meeting the criteria in subsection (1), above, should be included in this category. Examples of these types of projects are minor widening projects and new interchanges, such as those that replace a signalized intersection on a surface street or where design year traffic is not projected to meet the annual average daily traffic (AADT) criterion of 140,000 to 150,000 automobiles.[8]

A qualitative assessment of emissions projections should be conducted for these projects. The qualitative assessment would compare, in narrative form, the expected effect of the proposed project on traffic volumes, vehicle mix, or routing of traffic and the associated changes in MSATs for the project alternatives, based on VMT, vehicle mix, and speed. It would also discuss national trend data projecting substantial overall reductions in emissions resulting from stricter engine and fuel regulations issued by EPA. Because the emission effects of these projects are low, FHWA expects there would be no appreciable difference in overall MSAT emissions among the various alternatives. In

[7] The types of projects categorically excluded under 23 CFR 771.117(d) or exempt from conformity under 40 CFR 93.127 do not warrant an automatic exemption from an MSAT analysis, but they usually will have no meaningful impact.

[8] The FHWA guidance for the assessment of MSATs in NEPA documents does not specifically address the analysis of construction-related emissions because of their relatively short duration. The FHWA is considering whether more guidance is needed on construction activities in future versions of their guidance.

addition, quantitative emissions analysis of these types of projects will not yield credible results that are useful to project-level decision-making because of the limited capabilities of the transportation and emissions forecasting tools.

Projects with Higher Potential MSAT Effects

Projects included in this category have the potential for meaningful differences among project alternatives. FHWA expects only a limited number of projects to meet this two-pronged test. To fall into this category, projects must:

- create or significantly alter a major intermodal freight facility that has the potential to concentrate high levels of diesel particulate matter in a single location; or
- create new or add significant capacity to urban highways such as interstates, urban arterials, or urban collector-distributor routes with traffic volumes where the AADT is projected to be in the range of 140,000 to 150,000[9], or greater, by the design year; and must also
- be proposed to be located in proximity to populated areas or in rural areas, in proximity to concentrations of vulnerable populations (i.e., schools, nursing homes, hospitals).

Projects falling within this category should be more rigorously assessed for impacts, and FHWA should be contacted for assistance in developing a specific approach for assessing impacts. This approach would include a quantitative analysis that would attempt to measure the level of emissions for the six priority MSATs for each alternative, to use as a basis of comparison. This analysis also may address the potential for cumulative impacts, where appropriate, based on local conditions. How and when cumulative impacts should be considered would be addressed as part of the assistance outlined above. If the analysis for a project in this category indicates meaningful differences in levels of MSAT emissions, mitigation options should identified and considered.

In addition to the criteria air pollutants for which there are NAAQS, EPA also regulates air toxics. Most air toxics originate from human-made sources, including on-road mobile sources, nonroad mobile sources (e.g., airplanes), area sources (e.g., dry cleaners), and stationary sources (e.g., factories or refineries).

MSATs are a subset of the 188 air toxics defined by the CAA. The MSATs are compounds emitted from highway vehicles and nonroad equipment. Some toxic compounds are present in fuel and are emitted to the air when the fuel evaporates or passes through the engine unburned. Other toxics are emitted from the incomplete combustion of fuels or as secondary combustion products. Metal air toxics also result from engine wear or from impurities in oil or gasoline.

The EPA is the lead federal agency for administering the CAA and has certain responsibilities regarding the health effects of MSATs. The EPA issued a Final

[9] Using EPA's MOBILE6.2 emissions model, FHWA technical staff determined that this range of AADT would be roughly equivalent to the CAA definition of a major HAP source (i.e., 25 tons per year for all HAPs or 10 tons per year for any single HAP. Significant variations in conditions such as congestion or vehicle mix could warrant a different range for AADT.

Rule on Controlling Emissions of Hazardous Air Pollutants from Mobile Sources (66 FR 17229) on March 29, 2001. This rule was issued under the authority in Section 202 of the CAA. In its rule, EPA examined the impacts of existing and newly promulgated mobile source control programs, including its reformulated gasoline program, its national low-emission vehicle standards, its Tier 2 motor vehicle emissions standards and gasoline sulfur control requirements, and its proposed heavy duty engine and vehicle standards and on-highway diesel fuel sulfur control requirements. FHWA projects that even with a 64% increase in VMT between 2000 and 2020, these programs will reduce on-highway emissions of benzene, formaldehyde, 1,3-butadiene, and acetaldehyde by 57% to 65%, and on-highway diesel particulate matter emissions by 87%.

As a result, EPA concluded that no further motor vehicle emissions standards or fuel standards were necessary to further control MSATs. The agency is preparing another rule under authority of CAA Section 202(l) that will address these issues and could make adjustments to the full 21 and the primary six MSATs.

Applicable Project MSAT Category Assessment

With respect to the proposed project, the projected AADT volumes at horizon year 2035 of 14,870 to 57,015 would be well below the 140,000 to 150,000 AADT criterion established by FHWA for projects considered to have higher potential for MSAT effects. As such, the proposed project is considered a project with low-potential MSAT effects.

Information not Available for Project-Specific MSAT Impact Analysis

This air quality assessment includes a basic analysis of the likely MSAT emission impacts of this proposed project. However, available technical tools do not enable the prediction of project-specific health impacts of the emission changes associated with the proposed project in this technical study. Because of these limitations, the following discussion is included in accordance with CEQA regulations (40 CFR 1502.22[b]) regarding incomplete or unavailable information.

Information that is Unavailable or Incomplete

Evaluating the environmental and health impacts from MSATs on a proposed highway project would involve several key elements, including emissions modeling, dispersion modeling to estimate ambient concentrations resulting from the estimated emissions, exposure modeling to estimate human exposure to the estimated concentrations, and then final determination of health impacts based on the estimated exposure. Each of these steps is encumbered by technical shortcomings or uncertain science that prevents a more complete determination of the MSAT health impacts of the proposed project at this time.

Emissions

EPA tools to estimate MSAT emissions from motor vehicles are not sensitive to key variables determining emissions of MSATs in the context of highway projects. Although MOBILE 6.2 is used to predict emissions at a regional level, it has limited applicability at the project level. MOBILE 6.2 is a trip-based model—emission factors are projected based on a typical trip of 7.5 miles and on average speeds for this typical trip. This means that MOBILE 6.2 does not have the ability to predict emission factors for a specific vehicle operating condition at a specific location at a specific time. Because of this limitation, MOBILE 6.2 can only approximate the operating speeds and levels of congestion likely to be present on the largest-scale projects and cannot adequately capture emissions effects of smaller projects. For particulate matter, the model results are not sensitive to average trip speed, although the other MSAT emission rates do change with changes in trip speed. Also, the emissions rates used in MOBILE 6.2 for both particulate matter and MSATs are based on a limited number of tests of mostly older-technology vehicles. Lastly, in its discussions of PM under the conformity rule, EPA has identified problems with MOBILE6.2 as an obstacle to quantitative analysis.

These deficiencies compromise the capability of MOBILE 6.2 to estimate MSAT emissions. MOBILE6.2 is an adequate tool for projecting emissions trends, and performing relative analyses between alternatives for very large projects, but it is not sensitive enough to capture the effects of travel changes tied to smaller projects or to predict emissions near specific roadside locations.

Dispersion

The tools to predict how MSATs disperse are also limited. The EPA's current regulatory models, CALINE3 and CAL3QHC, were developed and validated more than a decade ago for the purpose of predicting episodic concentrations of CO to determine compliance with the NAAQS. The performance of dispersion models is more accurate for predicting maximum concentrations that can occur at some time at some location within a geographic area. This limitation makes it difficult to predict accurate exposure patterns at specific times at specific highway project locations across an urban area to assess potential health risk. The National Cooperative Highway Research Program is conducting research on best practices in applying models and other technical methods in the analysis of MSATs. This work also will focus on identifying appropriate methods of documenting and communicating MSAT impacts in the NEPA process and to the general public. Along with these general limitations of dispersion models, FHWA is also faced with a lack of monitoring data in most areas for use in establishing project-specific MSAT background concentrations.

Exposure Levels and Health Effects

Finally, even if emission levels and concentrations of MSATs could be accurately predicted, shortcomings in current techniques for exposure assessment and risk analysis preclude reaching meaningful conclusions about project-specific health impacts. Exposure assessments are difficult because it is difficult to calculate accurate annual concentrations of MSATs near roadways and to determine the portion of a year that people are actually exposed to those concentrations at a specific location. These difficulties are magnified for 70-year cancer assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over a 70-year period. There are also considerable uncertainties associated with the existing estimates of toxicity of the various MSATs, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population. Because of these shortcomings, any calculated difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with calculating the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information against other project impacts that are better suited for quantitative analysis.

Summary of Existing Credible Scientific Evidence Relevant to Evaluating the Impacts of MSATs

Research into the health impacts of MSATs is ongoing. For different emission types, there are a variety of studies that show that some either are statistically associated with adverse health outcomes through epidemiological studies (frequently based on emissions levels found in occupational settings) or that animals demonstrate adverse health outcomes when exposed to large doses.

Exposure to toxics has been a focus of a number of EPA efforts. Most notably, the agency conducted the National Air Toxics Assessment in 1996 to evaluate modeled estimates of human exposure applicable to the county level. Although not intended for use as a measure of or benchmark for local exposure, the modeled estimates in the National Air Toxics Assessment database best illustrate the levels of various toxics when aggregated to a national or state level.

The EPA is in the process of assessing the risks of various kinds of exposures to these pollutants. The EPA Integrated Risk Information System (IRIS) is a database of human health effects that may result from exposure to various substances found in the environment. The IRIS database is located at <http://www.epa.gov/iris>. The following toxicity information for the six prioritized MSATs was taken from the IRIS database *Weight of Evidence Characterization* summaries. This information is taken verbatim from EPA's IRIS database and represents the agency's most current evaluations of the potential hazards and toxicology of these chemicals or mixtures.

- **Benzene** is characterized as a known human carcinogen.
- The potential carcinogenicity of **acrolein** cannot be determined because the existing data are inadequate for an assessment of human carcinogenic potential for either the oral or inhalation route of exposure.
- **Formaldehyde** is a probable human carcinogen, based on limited evidence in humans and sufficient evidence in animals.
- **1,3-butadiene** is characterized as carcinogenic to humans by inhalation.
- **Acetaldehyde** is a probable human carcinogen based on increased incidence of nasal tumors in male and female rats and laryngeal tumors in male and female hamsters after inhalation exposure.
- **Diesel exhaust** is likely to be carcinogenic to humans by inhalation from environmental exposures. Diesel exhaust as reviewed in this document is the combination of diesel particulate matter and diesel exhaust organic gases. Diesel exhaust causes chronic respiratory effects, possibly the primary noncancer hazard from MSATs. Prolonged exposures may impair pulmonary function and could produce symptoms such as cough, phlegm, and chronic bronchitis. Exposure relationships have not been developed from these studies.

Other studies have addressed MSAT health impacts in proximity to roadways. The Health Effects Institute, a nonprofit organization funded by EPA, FHWA, and industry, has undertaken a major series of studies to research near-roadway MSAT hotspots, the health implications of the entire mix of mobile source pollutants, and other topics. The final summary of the series is not expected for several years.

Some recent studies have reported that proximity to roadways is related to adverse health outcomes—particularly respiratory problems. Much of this research is not specific to MSATs, instead surveying the full spectrum of both criteria and other pollutants. FHWA cannot evaluate the validity of these studies, but more importantly, they do not provide information that would be useful to alleviate the uncertainties listed above and enable a more comprehensive evaluation of the health impacts specific to this proposed project.

Relevance of Unavailable or Theoretical Information to Impact Assessment

Because of the uncertainties outlined above, a quantitative assessment of the effects of air toxic emissions impacts on human health cannot be made at the project level. Although available tools do allow reasonable predictions of relative emissions changes between alternatives for larger projects, the amount of MSAT emissions from each of the project alternatives and MSAT concentrations or exposures created by each of the project alternatives cannot be predicted with enough accuracy to be useful in estimating health impacts. (As noted above, the current emissions model is not capable of serving as a meaningful emissions analysis tool for smaller projects.) Therefore, the relevance of the unavailable or incomplete information is that it is not possible to make a determination of whether any of the alternatives would have significant adverse impacts on the human environment.

Climate Change and Greenhouse Gas Emissions

Proposed project-related impacts relative to GHG emissions during construction and operations are provided below. The relative amounts of construction and operational GHG emissions associated with this proposed project are negligible. The proposed project's amount of emissions, without considering other cumulative global emissions, would be insufficient to cause substantial climate change directly. Thus, project emissions, in isolation, are considered less than significant. However, climate change is a global cumulative impact, and the proper context for analysis of this issue is not a project's emissions in isolation but rather as a contribution to cumulative GHG emissions.

Project-related GHG emissions were estimated using the following methodology. First, CO_2 emissions were calculated by multiplying EMFAC2007 emissions factors by the change in regional VMT related to project development. Then methane and N_2O emissions were compiled using the calculation formulas provided in the California Climate Action Registry, General Reporting Protocol, Reporting Entity-Wide Greenhouse Gas Emissions, version 2.2 (California Climate Action Registry 2007).

Significance Criteria

For this analysis, an impact pertaining to air quality was considered significant under CEQA if it would result in any of the following environmental impacts, which are based on professional practice and State CEQA Guidelines Appendix G (14 CCR 15000 *et seq*.). A significant impact is identified if the proposed project would:

- conflict with or obstruct implementation of the applicable air quality management plan,
- violate any air quality standard or contribute substantially to an existing or projected air quality violation,
- result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors),
- expose sensitive receptors to substantial pollutant concentrations, or
- create objectionable odors affecting a substantial number of people.

Additionally, while not identified specifically in Appendix G of the State CEQA Guidelines, the potential impacts associated with GHG emissions would be significant if the proposed project would:

- conflict with the state goal of reducing GHG emissions in California to 1990 levels by 2020, as set forth by the timetable established in AB 32, California Global Warming Solutions Act of 2006.

Project Impacts and Mitigation Measures

Impact AIR-1: Temporary Increase in Ozone Precursors (ROG and NO_X), CO, and PM10 Emissions during Grading and Construction Activities (Significant and Unavoidable)

Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation, and, for dust, the prevailing weather conditions. The assessment of construction air quality impacts considers each of these potential sources. The equipment mix and duration for each construction stage is detailed in the Road Construction Emissions Model and URBEMIS 2007 printout sheets provided in Appendix G.

The following assumptions were used as inputs to the Road Construction Emissions Model to estimate construction-period emissions.

- Air pollutant emissions are based on year 2011 emission factors regardless of the actual start date of the construction. Since emission factors estimates are expected to decrease in the future, using an earlier project start date results in greater emissions estimates (i.e., results are conservative).
- The predominant soil type along the project alignment is sand/gravel.
- EMFAC2007 emission factor estimates were used.
- The size of the project alignment would be the product of the centerline distance of a road by the roads proposed right-of-way if the road is expected to have any alteration. This approach results in the maximum possible project alignment for air quality calculations, whereas the actual project alignment for most links would only be a fraction of the total right-of-way.
- All the three construction phases, as well as improvements associated with implementation of the wetlands mitigation plan (Mitigation Measure BIO-7 in Section 3.3), would occur simultaneously.
- For roadway improvements, ~~The~~ the maximum area simultaneously disturbed in a single day was assumed to be 25% of the total project alignment.
- For the wetlands mitigation plan improvements, the maximum area simultaneously disturbed in a single day was assumed to be 0.5 acre.
- It is assumed that water trucks would be used; and that the average capacity of haul trucks ~~is~~ would be 14 cubic yards.

Project construction is anticipated to start in 2011 and conclude in 2015; and would occur in at least three phases. Phase 1 is anticipated to have a duration of 18 months; Phase 2 a duration of 24 months; and Phase 3 a duration of 36 months. The wetlands mitigation plan improvements (considered a fourth phase) are anticipated to have a duration of 36 months. The exact timing of construction phases is uncertain at this time; however, it is anticipated that all ~~three~~ four construction phases would be completed within a span of 42 months.

The total amount of construction, the duration of construction, and the intensity of construction activity would have a substantial impact on the amount of construction emissions occurring at any one time. As such, the emissions estimates provided below is based on the conservative assumption that the most intense elements of all three construction phases would occur concurrently and at the earliest possible moment (i.e., within year 2011). Because of this conservative assumption, actual emissions could be less than those forecasted. For example, if construction is delayed or occurs over a longer time period, emissions would be reduced because of either a more modern and cleaner burning construction equipment fleet mix, or a less intensive buildout schedule (i.e., fewer daily emissions occurring over a longer interval).

Table 3.2-6 presents the estimate of project construction emissions derived using the Road Construction Model for roadway improvements; and URBEMIS 2007 for wetland mitigation plan improvements. As shown therein, daily NO_X emissions are anticipated to exceed the 80 pounds per day significance criteria.

Table 3.2-6. Estimate of Emissions during Construction (pounds per day)

	ROG	NO_X	CO	PM10	PM2.5
Phase 1—Widening of Decoto Rd and Paseo Padre Pkwy (18-month duration)					
Grubbing/Land Clearing	5	38	21	22	6
Grading/Excavation	6	41	23	22	6
Drainage/Utilities/Sub-grade	5	33	19	22	6
Paving	4	16	12	2	1
Phase 2—New Roadway between Paseo Padre Pkwy and Alvarado-Niles Rd (24-month duration)					
Grubbing/Land Clearing	4	35	19	12	4
Grading/Excavation	4	48	35	12	4
Drainage/Utilities/Sub-grade	4	29	16	12	4
Paving	3	14	9	2	1
Phase 2—Bridge Construction Elements (24-month duration)					
Grubbing/Land Clearing	4	34	17	2	2
Grading/Excavation	5	45	23	3	2
Drainage/Utilities/Sub-grade	3	27	14	2	2
Paving	2	12	8	1	1
Phase 3—New Roadway between Alvarado-Niles Rd and Mission Blvd; and Missions Blvd Intersection Improvements (36-month duration)					
Grubbing/Land Clearing	5	36	19	27	7
Grading/Excavation	6	44	32	27	7
Drainage/Utilities/Sub-grade	4	28	16	27	7
Paving	3	13	9	1	1
Wetlands Mitigation Plan Improvements					
Excavation and Hauling	6	51	30	8	3
Maximum Concurrent Project Emissions[a]	~~21~~27	~~178~~229	~~113~~143	~~64~~72	~~19~~22
Regional Significance Threshold	80	80	–	80	–
Exceed Threshold?	**No**	**Yes**	**No**	**No**	**No**

Notes:

Road Construction Model and URBEMIS 2007 output sheets and emissions calculation worksheets are included in Appendix G.

[a] All ~~the three~~ four phases (including bridge construction under Phase 2 and wetlands mitigation plan improvements) are assumed to occur simultaneously. Hence, maximum construction emissions in a day are the sum of highest emissions from construction activities under each phase.

Source: Compiled from data provided in Appendix G

The construction of the proposed project would result in the temporary increase in emissions of ozone precursors (ROG and NO_X), CO, and particulates (PM10 and PM2.5), as shown in Table 3.2-6. During temporary construction activities, proposed project emissions are anticipated to exceed the established threshold of 80 pounds per day for NO_X).

This impact is considered significant. The following mitigation measure, which includes Caltrans and BAAQMD requirements that reduce pollutant emissions during construction (as described in Table 3.2-5), would reduce this impact, but not to a less than significant level.

Mitigation Measure AIR-1: Employ Measures to Reduce Criteria Pollutant Emissions during Construction

Construction activities are subject to Caltrans requirements found in the Caltrans document, Standard Specifications: For Construction of Local Streets and Roads (California Department of Transportation 2002). ACTA will follow Caltrans Standard Specification 7-1.01F, Standard Specification 10, and Standard Specification 18, which address the requirements of the local air pollution control district (BAAQMD) and dust control and dust palliative application, respectively. Standard Specification 7-1.01F stipulates that construction activities must comply with all rules, regulations, ordinances, and statutes of the local air pollution control district, while Standard Specification 10 addresses dust control requirements. In addition, BAAQMD requires the implementation of all feasible, effective, and comprehensive control measures to reduce PM10 emissions from construction activities. Therefore, this mitigation includes the following control measures.

- Install wheel washers for all exiting trucks, or wash off the tires or tracks of all trucks and equipment leaving the site.
- Install windbreaks or plant trees or vegetative wind breaks at windward side(s) of construction areas.
- Suspend excavation and grading activity when winds (instantaneous gusts) exceed 25 miles per hour.
- Limit the area subject to excavation, grading, and other construction activity at any one time.
- Hydroseed or apply (nontoxic) soil stabilizers to inactive construction areas (i.e., previously graded areas inactive for 10 days or more).
- Enclose, cover, water twice daily, or apply (nontoxic) soil binders to exposed stockpiles (e.g., dirt and sand).
- Limit traffic speeds on unpaved roads to 15 miles per hour.
- Install sandbags or other erosion control measures to prevent silt runoff to public roadways.
- Replant vegetation in disturbed areas as quickly as possible.
- Water all active construction areas at least twice daily.
- Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least 2 feet of freeboard.

- Pave, apply water three times daily, or apply (nontoxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites.
- Sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas at construction sites.
- Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets.
- Use alternate fuels, catalyst and filtration technologies, and retrofit existing engines in construction equipment.
- Minimize idling time to 5 minutes when construction equipment is not in use, unless per engine manufacturer's specifications or for safety reasons more time is required.
- Manage operation of heavy-duty equipment to reduce emissions and maintain heavy-duty earthmoving, stationary, and mobile equipment in optimum running conditions.
- Employ construction management techniques such as timing construction to occur outside the ozone season of May through October, or scheduling equipment use to limit unnecessary concurrent operation.
- Use electric equipment when feasible.
- Properly maintain equipment according to manufacturers' specifications.

Impact AIR-2: Violation of Carbon Monoxide NAAQS or CAAQS (Less than Significant/Beneficial)

In an urban setting, vehicle exhaust is the primary source of CO. Consequently, the highest CO concentrations are generally found in close proximity to congested intersection locations. Under typical meteorological conditions, CO concentrations tend to decrease as the distance from the emissions source (i.e., congested intersection) increases. For purposes of providing a conservative, worst-case impact analysis, CO concentrations are typically analyzed at congested intersection locations, because if impacts are less than significant in close proximity of the congested intersections, impacts will also be less than significant at more distant sensitive receptor locations.

The traffic study for the proposed project (Dowling Associates 2008b) was reviewed to identify intersection locations anticipated to operate at LOS C or worse during opening year 2015 and horizon year 2035, for both morning and evening peak-hour periods. Local area CO concentrations were predicted using the CALINE 4 line-source dispersion model. The analysis of CO impacts followed the protocol recommended by the Caltrans, published as Transportation Project-Level Carbon Monoxide Protocol, December 1997, whereas all four corners at each intersection were analyzed to determine whether the proposed project would result in a CO concentration that exceeds federal or state CO standards.

Predicted CO concentrations are presented in Table 3.2-7 (year 2015 results) and Table 3.2-8 (year 2035 results). As shown therein, the proposed project would not have a significant impact on 1-hour or 8-hour local CO concentrations as a result of mobile-source CO emissions. Because significant impacts would not occur at the intersections with the highest traffic volumes located adjacent to sensitive receptors, no significant impacts are anticipated to occur at any other locations in the study area because the conditions yielding CO hotspots would not be worse than those occurring at the analyzed intersections. The proposed project would not cause a new exceedance or exacerbate an existing exceedance of federal or state CO standards at any intersection location. As such, this impact is considered less than significant. No mitigation is required.

In addition, the traffic study indicates that implementation of the proposed project is anticipated to reduce vehicle hours of delay by 2,123 hours and 684 hours during the AM and PM peak travel times, respectively, at opening year 2015; and by 7,815 hours and 9,072 hours during the AM and PM peak travel times, respectively, at year 2035. This improvement in roadway operations through the alleviation of roadway congestion is anticipated to have a beneficial impact on localized air quality in the vicinity of these affected roadway intersections. This is because improvements to congestion would reduce the queuing time vehicles spend at intersections, thereby reducing the amount of time CO hotspots may be generated.

Table 3.2-7. Local Area Carbon Monoxide Dispersion Analysis—Year 2015

Intersection	Peak Period[a]	Maximum 1-Hour 2008 Base Concentration (ppm)[g]	Maximum 8-Hour 2008 Base Concentration (ppm)[h]	Maximum 1-Hour 2015 Base Concentration (ppm)[b]	Maximum 1-Hour 2015 with Project Concentration (ppm)[c]	Significant 1-Hour Concentration Impact?[d]	Maximum 8-Hour 2015 Base Concentration (ppm)[e]	Maximum 8-Hour 2015 w/ Project Concentration (ppm)[f]	Significant 8-Hour Concentration Impact?[d]
Alvarado-Niles at Nursery	AM	3.3	2.3	2.8	3.2	No	1.9	2.2	No
	PM	3.6	2.5	2.9	2.8	No	2.0	1.9	No
Decoto at 7th	AM	3.6	2.5	2.8	3.0	No	1.9	2.1	No
	PM	4.0	2.8	2.9	2.9	No	2.0	2.0	No
Decoto at 11th	AM	3.8	2.6	3.0	3.2	No	2.1	2.2	No
	PM	4.0	2.8	3.2	3.3	No	2.2	2.3	No
Decoto at Alvarado-Niles	AM	4.2	2.9	3.5	4.0	No	2.4	2.8	No
	PM	4.3	3.0	3.2	3.4	No	2.2	2.4	No
Decoto at Fremont	AM	4.6	3.2	3.3	4.0	No	2.3	2.8	No
	PM	4.6	3.2	3.2	3.6	No	2.2	2.5	No
Decoto at northbound ramps	AM	7.9	5.5	5.0	5.1	No	3.5	3.6	No
	PM	10.5	7.3	6.0	6.2	No	4.2	4.3	No
Decoto at Paseo Padre	AM	4.5	3.1	3.6	3.8	No	2.5	2.6	No
	PM	4.9	3.4	3.5	3.8	No	2.4	2.6	No
Decoto at southbound ramps	AM	6.7	4.7	4.8	4.5	No	3.3	3.1	No
	PM	7.7	5.4	4.9	5.0	No	3.4	3.5	No
Fremont at Paseo Padre	AM	3.7	2.6	3.0	3.1	No	2.1	2.2	No
	PM	4.0	2.8	3.1	3.1	No	2.2	2.2	No
Fremont at southbound ramps	AM	3.4	2.4	3.6	3.7	No	2.5	2.6	No
	PM	3.9	2.7	3.2	3.1	No	2.2	2.2	No
Mission at 7th	AM	3.5	2.4	2.9	4.4	No	2.0	3.1	No
	PM	3.8	2.6	2.9	4.3	No	2.0	3.0	No
Mission at Niles Canyon	AM	4.0	2.8	3.3	3.2	No	2.3	2.2	No
	PM	4.7	3.3	3.6	3.4	No	2.5	2.4	No
Mission at Nursery	AM	3.9	2.7	3.0	3.3	No	2.1	2.3	No
	PM	4.2	2.9	3.1	3.1	No	2.2	2.2	No

Intersection	Peak Period[a]	Maximum 1-Hour 2008 Base Concentration (ppm)[g]	Maximum 8-Hour 2008 Base Concentration (ppm)[h]	Maximum 1-Hour 2015 Base Concentration (ppm)[b]	Maximum 1-Hour 2015 with Project Concentration (ppm)[c]	Significant 1-Hour Concentration Impact?[d]	Maximum 8-Hour 2015 Base Concentration (ppm)[e]	Maximum 8-Hour 2015 w/ Project Concentration (ppm)[f]	Significant 8-Hour Concentration Impact?[d]
New Road at Osprey	AM	N/A	N/A	1.8	4.9	No	1.2	3.4	No
	PM	N/A	N/A	1.8	4.6	No	1.2	3.2	No
New Road at Paseo Padre	AM	N/A	N/A	1.8	5.3	No	1.2	3.7	No
	PM	N/A	N/A	1.8	6.3	No	1.2	4.4	No
Paseo Padre at Isherwood	AM	N/A	N/A	3.2	2.9	No	2.2	2.0	No
	PM	N/A	N/A	3.4	3.4	No	2.4	2.4	No
Paseo Padre at Peralta	AM	3.8	2.6	3.3	3.2	No	2.3	2.2	No
	PM	2.1	1.4	3.4	3.3	No	2.4	2.3	No
Paseo Padre at Tamayo	AM	3.4	2.4	3.1	2.7	No	2.2	1.9	No
	PM	3.3	2.3	2.7	2.9	No	1.9	2.0	No
Paseo Padre at Thornton	AM	3.8	2.6	3.3	3.2	No	2.3	2.2	No
	PM	4.1	2.8	3.1	3.3	No	2.2	2.3	No
Thornton at Fremont	AM	3.5	2.4	2.8	2.7	No	1.9	1.9	No
	PM	3.4	2.4	3.0	3.3	No	2.1	2.3	No
Thornton at northbound ramp	AM	4.4	3.1	4.2	1.8	No	2.9	1.2	No
	PM	5.1	3.5	3.9	1.8	No	2.7	1.2	No

Notes:

CALINE4 dispersion model output sheets and EMFAC2007 emissions factors are provided in Appendix G.

ppm = parts per million. N/A = this data is not available.

[a] Peak hour traffic volumes are based on the Traffic Impact Analysis prepared for the project by Dowling Associates Inc, September 2008.

[b] 2015 1-hour ambient background concentration (1.77 ppm) + 2015 base traffic CO 1-hour contribution.

[c] 2015 1-hour ambient background concentration (1.77 ppm) + 2015 with-project traffic CO 1-hour contribution.

[d] The State standard for the 1-hour average CO concentration is 20 ppm, and the 8-hour average concentration is 9.0 ppm.

[e] 2015 8-hour ambient background concentration (1.24 ppm) + 2015 base traffic CO 8-hour contribution.

[f] 2015 8-hour ambient background concentration (1.24 ppm) + 2015 with-project traffic CO 8-hour contribution.

[g] 2008 1-hour ambient background concentration (1.77 ppm) + 2008 base traffic CO 1-hour contribution.

[h] 2008 8-hour ambient background concentration (1.24 ppm) + 2008 base traffic CO 8-hour contribution.

Source: Compiled from data provided in Appendix G

Table 3.2-8. Local Area Carbon Monoxide Dispersion Analysis—Year 2035

Intersection	Peak Period[a]	Maximum 1-Hour 2008 Base Concentration (ppm)[g]	Maximum 8-Hour 2008 Base Concentration (ppm)[h]	Maximum 1-Hour 2015 Base Concentration (ppm)[b]	Maximum 1-Hour 2015 w/ Project Concentration (ppm)[c]	Significant 1-Hour Concentration Impact?[d]	Maximum 8-Hour 2015 Base Concentration (ppm)[e]	Maximum 8-Hour 2015 w/ Project Concentration (ppm)[f]	Significant 8-Hour Concentration Impact?[d]
Alvarado at Linda	AM	3.1	2.1	2.2	2.3	No	1.5	1.6	No
	PM	3.2	2.2	2.2	2.2	No	1.5	1.5	No
Alvarado at Nursery	AM	3.3	2.3	2.2	2.2	No	1.5	1.5	No
	PM	3.6	2.5	2.4	2.4	No	1.7	1.7	No
Alvarado at Union Square	AM	3.3	2.3	2.3	2.3	No	1.6	1.6	No
	PM	3.4	2.4	2.3	2.3	No	1.6	1.6	No
Decoto at 7th	AM	3.6	2.5	2.4	2.3	No	1.7	1.6	No
	PM	4.0	2,8	2.4	2.3	No	1.7	1.6	No
Decoto at 11th	AM	3.8	2.6	2.4	2.6	No	1.7	1.8	No
	PM	4.0	2.8	2.4	2.5	No	1.7	1.7	No
Decoto at Alvarado	AM	4.2	2.9	2.5	2.5	No	1.7	1.7	No
	PM	4.3	3.0	2.4	2.4	No	1.7	1.7	No
Decoto at Cabrillo	AM	N/A	N/A	2.3	2.5	No	1.6	1.7	No
	PM	N/A	N/A	2.4	2.5	No	1.7	1.7	No
Decoto at Fremont	AM	4.6	3.2	2.5	2.7	No	1.7	1.9	No
	PM	4.6	3.2	2.5	2.7	No	1.7	1.9	No
Decoto at northbound ramps	AM	7.9	5.5	3.0	3.1	No	2.1	2.2	No
	PM	10.5	7.3	3.1	3.1	No	2.2	2.2	No
Decoto at Paseo Padre	AM	4.5	3.1	2.5	2.7	No	1.7	1.9	No
	PM	4.9	3.4	2.4	2.5	No	1.7	1.7	No
Decoto at southbound ramps	AM	6.7	4.7	3.0	3.1	No	2.1	2.2	No
	PM	7.7	5.4	3.0	3.1	No	2.1	2.2	No
Decoto at Union Square	AM	4.0	2.8	2.3	2.3	No	1.6	1.6	No
	PM	4.7	3.3	2.3	2.3	No	1.6	1.6	No
Fremont at Paseo Padre	AM	3.7	2.6	2.5	2.6	No	1.7	1.8	No
	PM	4.0	2.8	2.5	2.5	No	1.7	1.7	No

Intersection	Peak Period[a]	Maximum 1-Hour 2008 Base Concentration (ppm)[g]	Maximum 8-Hour 2008 Base Concentration (ppm)[h]	Maximum 1-Hour 2015 Base Concentration (ppm)[b]	Maximum 1-Hour 2015 w/ Project Concentration (ppm)[c]	Significant 1-Hour Concentration Impact?[d]	Maximum 8-Hour 2015 Base Concentration (ppm)[e]	Maximum 8-Hour 2015 w/ Project Concentration (ppm)[f]	Significant 8-Hour Concentration Impact?[d]
Fremont at southbound ramps	AM	3.4	2.4	2.6	2.6	No	1.8	1.8	No
	PM	3.9	2.7	2.4	2.4	No	1.7	1.7	No
Mission at 7th	AM	3.5	2.4	2.4	2.9	No	1.7	2.0	No
	PM	3.8	2.6	2.3	2.8	No	1.6	1.9	No
Mission at Niles Canyon	AM	4.0	2.8	2.8	2.6	No	1.9	1.8	No
	PM	4.7	3.3	2.6	2.6	No	1.8	1.8	No
Mission at Nursery	AM	3.9	2.7	2.4	2.4	No	1.7	1.7	No
	PM	4.2	2.9	2.3	2.4	No	1.6	1.7	No
New Road at Alvarado	AM	N/A	N/A	1.8	2.4	No	1.2	1.7	No
	PM	N/A	N/A	1.8	2.5	No	1.2	1.7	No
New Road at Osprey	AM	N/A	N/A	1.8	2.5	No	1.2	1.7	No
	PM	N/A	N/A	1.8	2.5	No	1.2	1.7	No
Paseo Padre at Isherwood	AM	N/A	N/A	2.4	2.3	No	1.7	1.6	No
	PM	N/A	N/A	2.4	2.3	No	1.7	1.6	No
Paseo Padre at Peralta	AM	3.8	2.6	2.5	2.5	No	1.7	1.7	No
	PM	2.1	1.4	2.7	2.5	No	1.9	1.7	No
Paseo Padre at Tamayo	AM	3.4	2.4	2.2	2.3	No	1.5	1.6	No
	PM	3.3	2.3	2.2	2.2	No	1.5	1.5	No
Paseo Padre at Thornton	AM	3.8	2.6	2.4	2.4	No	1.7	1.7	No
	PM	4.1	2.8	2.4	2.4	No	1.7	1.7	No
Thornton at Fremont	AM	3.5	2.4	2.3	2.3	No	1.6	1.6	No
	PM	3.4	2.4	2.5	2.5	No	1.7	1.7	No
Thornton at northbound ramp	AM	4.4	3.1	2.8	2.8	No	1.9	1.9	No
	PM	5.1	3.5	2.7	2.6	No	1.9	1.8	No

Intersection	Peak Period[a]	Maximum 1-Hour 2008 Base Concentration (ppm)[g]	Maximum 8-Hour 2008 Base Concentration (ppm)[h]	Maximum 1-Hour 2015 Base Concentration (ppm)[b]	Maximum 1-Hour 2015 w/ Project Concentration (ppm)[c]	Significant 1-Hour Concentration Impact?[d]	Maximum 8-Hour 2015 Base Concentration (ppm)[e]	Maximum 8-Hour 2015 w/ Project Concentration (ppm)[f]	Significant 8-Hour Concentration Impact?[d]

Notes:

CALINE4 dispersion model output sheets and EMFAC2007 emissions factors are provided in Appendix G.

ppm = parts per million. N/A = this data is not available.

[a] Peak hour traffic volumes are based on the Traffic Impact Analysis prepared for the project by Dowling Associates Inc, September 2008.

[b] 2035 1-hour ambient background concentration (1.77 ppm) + 2035 base traffic CO 1-hour contribution.

[c] 2035 1-hour ambient background concentration (1.77 ppm) + 2035 with-project traffic CO 1-hour contribution.

[d] The State standard for the 1-hour average CO concentration is 20 ppm, and the 8-hour average concentration is 9.0 ppm.

[e] 2035 8-hour ambient background concentration (1.24 ppm) + 2035 base traffic CO 8-hour contribution.

[f] 2035 8-hour ambient background concentration (1.24 ppm) + 2035 with-project traffic CO 8-hour contribution.

[g] 2008 1-hour ambient background concentration (1.77 ppm) + 2008 base traffic CO 1-hour contribution.

[h] 2008 8-hour ambient background concentration (1.24 ppm) + 2008 base traffic CO 8-hour contribution.

Source: Compiled from data provided in Appendix G

Impact AIR-3: Increase in Greenhouse Gas Contaminant Emissions (Less than Significant with Mitigation)

Global climate change is caused by worldwide GHG emissions, and mitigating global climate change will require worldwide solutions. GHGs play a critical role in Earth's radiation budget by trapping infrared radiation emitted from Earth's surface, which could have otherwise escaped to space. Prominent GHGs contributing to this process include water vapor, CO_2, N_2O, CH_4, O_3, and certain hydro- and fluorocarbons. This phenomenon, known as the "greenhouse effect," keeps Earth's atmosphere near the surface warmer than it would be otherwise and allows for successful habitation by humans and other forms of life. Increases in these gases lead to more absorption of radiation and warm the lower atmosphere further, thereby increasing evaporation rates and temperatures near the surface. Emissions of GHGs in excess of natural ambient concentrations are thought to be responsible for the enhancement of the greenhouse effect and to contribute to what is termed "global warming," a trend of unnatural warming of the Earth's natural climate. Climate change is a global problem, and GHGs are global pollutants, unlike criteria air pollutants (such as ozone precursors) and TACs, which are pollutants of regional and local concern.

The proposed project's impact on GHG emissions during construction and operations is presented in Table 3.2-9. Because quantitative GHG guidelines, including thresholds, have not been developed by BAAQMD, these emissions are provided for information purposes only.

Table 3.2-9. Estimate of Project-Related Greenhouse Gas Emissions (pounds per day)

Emissions	CO_2e
California State-wide Average Daily Emissions (year 2004)	2,972,314,499
Project Emissions	
Maximum Temporary Construction-period Emissions	~~18,395~~24,382
Operations-period Emissions	
Opening Year 2015	(6,680)
Horizon Year 2035	3,860

Notes:

[a] EMFAC2007 emissions factors and calculation worksheets are provided in Appendix G.

Source: Compiled from data provided in Appendix G

Construction Impacts

The proposed project's worst-case GHG emissions that would occur during construction would be approximately ~~18,395~~24,382 CO_2 pounds per day. This amount represents approximately ~~0.0006~~0.0008% of the statewide total daily GHG emissions.

Existing ARB regulations (Title 13 of the CCR, Sections 2480 and 2485), which limit idling of diesel-fueled commercial motor vehicles, would help to limit GHG emissions associated with project-related construction vehicles. In addition, ARB's proposed Early Action Measures (pursuant to the California Global Warming Solutions Act of 2006) include other emission reduction measures for diesel trucks and diesel off-road equipment. ARB will review and adopt Early Action Measures by January 1, 2010, and equipment used for construction of the proposed project after 2010 could be subject to these requirements.

Operations Impacts

Changes in VMT related to the proposed project would result in direct and indirect emissions of GHG emissions. As provided in Table 3.2-9, project-related GHG emissions during opening year 2015 would be reduced by approximately 6,680 CO_2e pounds per day in comparison to the no-project condition. However, GHG emissions are expected to increase by approximately 3,860 CO_2e pounds per day during horizon year 2035 in comparison to the no-project condition. This amount represents approximately 0.0001% of the statewide total daily GHG emissions.

No federal, state, or regional air quality agency has adopted a methodology or quantitative threshold that can be applied to evaluate the significance of an individual project's contribution to GHG emissions, such as the thresholds that exist for criteria pollutants. The relative quantity of project-related GHG emissions during short-term construction and long-term operations is negligible in comparison to statewide and worldwide daily emissions. The proposed project's emissions, without considering other cumulative global emissions, would be insufficient to cause substantial climate change directly.

Emission of GHGs and the resulting climate change impacts represent a global cumulative impact, and growth in the region will contribute to this cumulative impact. The proposed project is anticipated to reduce VMT in 2015, when compared to the 2015 no project condition. This would result in a reduction of GHG emissions (a beneficial GHG impact). However, under 2035 conditions, there would be a slight increase in VMT in 2035, when compared to the 2035 no project conditions. Therefore, local area GHG emissions in 2035 would increase, contributing to this cumulative air quality impact.

Implementation of the following measure to reduce GHG emissions would reduce the proposed project's impact to a less-than-significant level. Therefore, the proposed project would not make a considerable contribution to cumulative air quality impacts related to GHGs.

Mitigation Measure AIR-2: Employ Measures to Reduce Project-Related Greenhouse Gas Emissions

ACTA will ensure the construction contractor employs the following measures to reduce GHG emissions.

- Use recycled, low-carbon, and otherwise climate-friendly building materials such as salvaged and recycled-content materials for hard surfaces, and non-plant landscaping materials.

- Minimize, reuse, and recycle construction-related waste.
- Minimize grading, earth-moving, and other energy-intensive construction practices.
- Landscape to preserve natural vegetation and maintain watershed integrity.
- Use alternative fuels in construction equipment and require construction equipment to use the best available technology to reduce emissions.
- Use energy-efficient low-sodium street lights.

Given the relatively small amount of GHG emissions that would be emitted from this proposed project during short-term construction, and implementation of prescribed mitigation measures, the proposed project would not conflict with the state's goals of reducing GHG emissions to 1990 levels by 2020 relative to construction emissions.

Impact AIR-4: Increase in Localized MSAT Emissions (Less than Significant)

Under the proposed project the projected AADT volumes at horizon year 2035 of 14,870 to 57,015 (Table 3.2-10) would be well below the 140,000 to 150,000 AADT criterion established by FHWA for projects considered to have higher potential for MSAT effects. As such, the proposed project is considered a project with low potential MSAT effects.

As discussed above, technical shortcomings of emissions and dispersion models and uncertain science with respect to health effects prevent meaningful or reliable estimates of MSAT emissions and effects of the proposed project. However, even though reliable methods do not exist to calculate the health impacts of MSATs at the project level, it is possible to assess qualitatively the levels of future MSAT emissions under the proposed project. Although a qualitative analysis cannot identify and measure health impacts from MSATs, it can give a basis for identifying and comparing the potential differences among MSAT emissions—if any—from the various alternatives. The qualitative assessment presented below is derived in part from a study conducted by FHWA entitled A Methodology for Evaluating Mobile Source Air Toxic Emissions Among Transportation Project Alternatives, found at <www.fhwa.dot.gov/environment/airtoxic/msatcompare/msatemissions.htm.>

Under both the proposed project and no project condition, the amount of MSATs emitted would be proportional to the VMT, assuming that other variables such as fleet mix are the same for each alternative. MSAT emissions would likely be lower than present levels in the design year as a result of EPA's national control programs that are projected to reduce MSAT emissions by 57 to 87% from 2000 to 2020. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the project vicinity would likely be lower in the future in virtually all locations.

Table 3.2-10. Estimate of Horizon Year 2035 Traffic Volumes

Street	Location	2035 AM Peak-Hour Volumes	2035 PM Peak-Hour Volumes	2035 AADT Volumes
Decoto	Cabrillo-Northbound Ramps	5,475	5,337	54,060
	Fremont-Brookmill	5,036	5,362	51,990
	Alvarado-Niles-Perry	3,656	3,527	35,915
	SW of Mission	1,999	2,074	20,365
Mission	SE of Appian-New Road	3,550	3,884	37,170
	NW of Niles Canyon	3,931	3,884	39,075
Alvarado-Niles	SE of New Road	2,503	2,371	24,370
Paseo Padre	SE of Decoto	5,273	5,076	51,745
	NW of Tamayo, SE of New Road	4,335	4,489	44,120
Fremont	SE of Paseo Padre	4,698	4,489	45,935
Isherwood	NE of Paseo Padre	1,562	1,412	14,870
New Roadway	SW of Mission	4,379	3,826	41,025
	SW of Alvarado-Niles	5,678	5,725	57,015
	NE of Paseo Padre	5,724	5,491	56,075
Minimum AADT Volume along Roadway Segment				14,870
Maximum AADT Volume along Roadway Segment				57,015

Notes: AM and PM traffic volume estimates taken from project traffic study (Dowling Associates, Inc. 2008). AADT estimate was calculated by multiplying the sum of AM and PM peak-hour volumes by 5.

Source: Compiled from data provided in Appendix G

Because of the specific characteristics of the proposed project (i.e., new connector roadways), there may be localized areas where VMT would increase, and other areas where VMT would decrease. Therefore, it is possible that localized increases and decreases in MSAT emissions may occur. The localized increases in MSAT emissions would likely be most pronounced along the new roadway sections that would be built. However, even if these increases do occur, they too will be substantially reduced in the future as a result of the implementation of EPA's vehicle and fuel regulations.

In sum, with or without development of the proposed project, in the design year MSAT emissions would be reduced in the immediate project alignment, relative to the no-project alternative, as a result of the reduced VMT associated with more direct routing, and EPA's MSAT reduction programs. In comparing project and no project conditions, MSAT levels could be higher in some locations than others, but current tools and science are not adequate to quantify them. However, on a regional basis, EPA's vehicle and fuel regulations, coupled with fleet turnover, will over time cause substantial reductions that, in almost all cases, will cause region-wide MSAT levels to be significantly lower than today.

This impact is considered less than significant. No mitigation is required.

Section 3.3
Biological Resources

Section 3.3
Biological Resources

3.3.1 Introduction

This section provides information on biological resources located in the project area. Biological resources include plants, wildlife, fish, habitat, waterways, and wetlands. A discussion of federal, state, and local laws, policies, and regulations that influence biological resources is also presented in this chapter. Impacts on biological resources that may result from project implementation are identified, and mitigation measures to avoid, minimize, and compensate for potential significant impacts on biological resources are described.

3.3.2 Setting

Methodology

ICF Jones & Stokes biologists conducted an assessment of biological resources in the study area, including a review of relevant literature and field surveys. The literature review included the following documents.

- California Department of Fish and Game Natural Diversity Database (CNDDB) 2008. Search for the Newark, San Leandro, Redwood Point, Palo Alto, Hayward, Mountain View, Niles, Milpitas and Dublin 7.5-minute quadrangles
- California Native Plant Society (CNPS) 2008. Inventory of Rare and Endangered Plants, online version 7-08, accessed June 20, 2008
- Jones & Stokes 2006. Environmental Constraints Analysis Route 84 East-West Connector SR 238 to I-880
- ICF Jones & Stokes file information
- ICF Jones & Stokes 2008. Preliminary Delineation of Wetlands and Other Waters for the East-West Connector Project
- California Department of Transportation 2002. Route 84 Realignment Project: Final Environmental Impact Statement and Section 4(f) Evaluation

- U.S. Fish and Wildlife Service (USFWS). Federal Endangered and Threatened Species List for U.S. Geological Survey (USGS) 7.5 Quads: Dublin, Niles Hayward and Newark. <http://www.fws.gov/sacramento/es/spp_list.htm>. June 18, 2008
- California Native Plant Society Inventory of Rare and Endangered Plants, online version 7-07d, accessed December 18, 2007

ICF Jones & Stokes biologists, including a wildlife biologist, fisheries biologist, and botanist visited the study area on October 9 and 10 and December 6 and 19, 2007; and on February 25, May 14, and July 2, 2008. The field surveys included a visual appraisal of biological resources throughout the entire project alignment. Field notes and photographs documented field observations. Vegetation was mapped in the field on aerial photographs and digitized on desktop geographic information systems (GIS) software. Vegetation mapping provided the basis for analyzing impacts on sensitive communities and wetlands. Habitat acreages presented in this report are based on GIS analysis.

Existing Conditions

This section discusses the existing conditions related to biological resources in the study area.

Study Area Description

The project alignment is located on the Newark 7.5-minute quadrangle in an unsurveyed section of Township 4 South, Range 1 West (formerly the Potrero de los Cerritos and Arroyo de la Alameda land grants). The geographic coordinates of the site are 37.57512° N, 122.01831° W.

The study area for biological resources includes approximately 33 acres along the 3-mile proposed alignment. For the purposes of this biological resources study, the study area is defined as all areas within the construction footprint, as well as immediately adjacent habitats that could support special-status species, including portions of wetlands that are not directly within the construction footprint. This is the area in which the proposed project could result in direct or indirect impacts on special-status species and sensitive natural communities. The majority of sensitive biological resources that could be affected by the proposed project fall within the undeveloped eastern portion of the alignment, between Mission Boulevard and Paseo Padre Parkway.

Biotic Communities

The majority of the study area consists of residential or commercial development, most of which is hardscape, including buildings, roads, parking lots, driveways, and sidewalks. Most of the native vegetation throughout the hardscape area has been replaced with urban landscaping and some nonnative annual grasslands.

The major aquatic resources in the study area include, from west to east: Crandall Creek, Alameda Creek Flood Control Channel, Old Alameda Creek, the Line M Channel, and two stormwater detention basins (called New Basin and Basin 2C). These major aquatic resources are discussed below.

The plant communities and wildlife habitats in the study area are described below, illustrated in Figure 3.3-1, and summarized in Table 3.3-1. The acreages presented are estimates determined by GIS analysis and represent the total acreage for each habitat type in the study area. The acreages have been described for both options under consideration for the Quarry Lakes Drive alignment.

Table 3.3-1. Habitat Acreages in the Study Area

	Quarry Lakes Drive Realignment Option 1 (acres)	**Quarry Lakes Drive Realignment Option 2 (acres)**
Urban landscaping	2.44	2.97
Nonnative annual grassland	21.86	20.76
Willow riparian woodland and scrub	~~2.26~~1.75	~~2.64~~1.75
Coyote brush scrub	0.24	0.24
Eucalyptus woodland	0.40	0.40
Herbaceous wetlands	0.84	0.84
Open water	5.06	5.06
Total Acreage	**~~33.10~~32.59**	**~~32.91~~32.02**

Plant Communities and Wildlife Habitats

Urban Landscaping

Urban landscaping around buildings and roads in the study area consists of shade and street trees, hedges and shrubs, and lawns and gardens. Most of these species are nonnative perennials, such as blue gum (*Eucalyptus globulus*) and Canary Island pine (*Pinus canariensis*), although some natives have also been planted, such as California redwood (*Sequoia sempervirens*). This vegetation type also includes ruderal (disturbance-adapted) species that occur in disturbed areas adjacent to the paved and landscaped areas. Within the study area, approximately 2.44 acres of urban landscaping were mapped for the Quarry Lakes Drive Option 1 and 2.97 acres for Option 2. Though urban landscaping has limited value for native wildlife, commensal species such as raccoons (*Procyon lotor*) and opossums (*Didelphis virginiana*) can be common. Street trees and other urban planting can also be used during the nesting season by several species of migratory birds, including common species such as Brewer's blackbird (*Euphagus cyanocephalus*), American goldfinch (*Carduelis tristis*), and mourning dove (*Zenaida macroura*).

Nonnative Annual Grassland

The eastern part of the project alignment is less developed and includes a number of fields dominated by nonnative annual grasses and forbs; many of these appear to be abandoned agricultural fields. These fields occur between the Alameda Creek Flood Control Channel and Mission Boulevard; specifically, they are located adjacent to Alameda Creek Flood Control Channel, north of the detention basin at the planned 11th Street extension, and along the Line M Channel. Within the study area, approximately 21.86 acres of nonnative annual grassland were mapped for Quarry Lakes Drive Option 1 and 20.76 acres for Option 2.

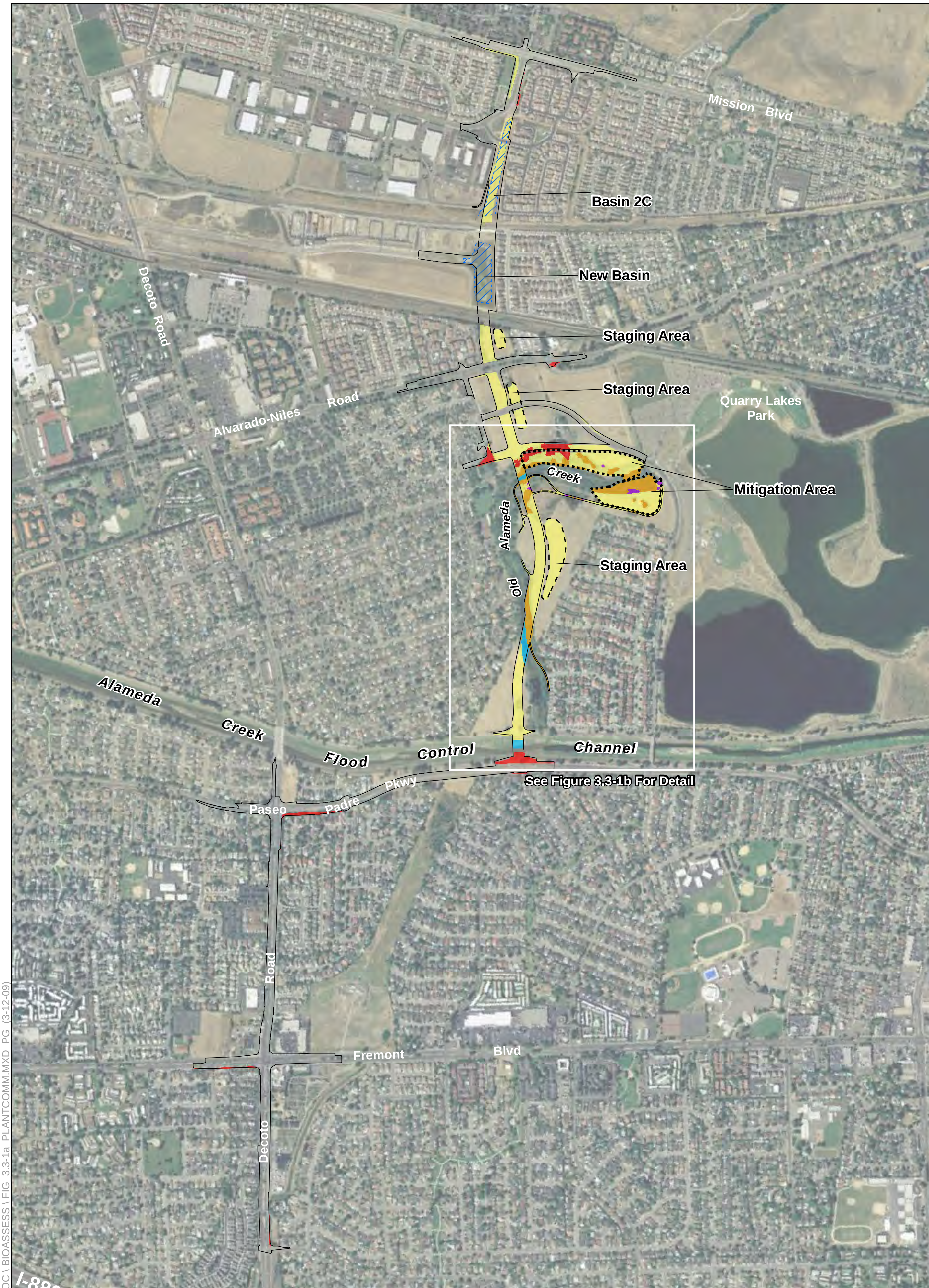
These nonnative annual grasslands are dominated by grass and forb species, with widespread invasion by mustard (*Hirschfeldia incana*, *Brassica nigra*) and wild radish (*Raphanus sativus*). Nonnative grass species include wild oats (*Avena fatua*), Mediterranean barley (*Hordeum marinum*), and soft chess (*Bromus hordeaceus*); other herbaceous weedy species include bull thistle (*Cirsium vulgare*), filaree (*Erodium cicutarium*, *Erodium botrys*), and English plantain (*Plantago major*).

Annual grasslands are used by many wildlife species for foraging and breeding. Reptiles that breed in annual grassland habitats include western fence lizards (*Sceloporus occidentalis*) and Pacific gopher snake (*Pituophis catenifer catenifer*). Grasslands provide foraging habitat for wide-ranging avian species such as red-tailed hawks (*Buteo jamaicesis*), turkey vultures (*Cathartes aura*), and American kestrels (*Falco sparverius*). Mammals typically found in this habitat include California vole (*Microtus californicus*), western harvest mouse (*Reithrodontomys megalotis*), and California ground squirrel (*Spermophilus beecheyi*) (Mayer and Laudenslayer 1988).

Coyote Brush Scrub

There is a small area, approximately 0.24 acre, of coyote brush scrub in the proposed staging area just southwest of Old Alameda Creek. This scrub is dominated by coyote brush (*Baccharis pilularis*) and also includes some small walnut trees and an unidentified ornamental species that presumably "escaped" from nearby developments. This area, like the nonnative annual grassland around it, is highly disturbed and appears to have been affected by recent agricultural activities, such as plowing and disking, along its edges.

Because the coyote brush scrub in the study area is highly disturbed and mixed with ornamental species, only a few wildlife species are likely to use this area. Wildlife species associated with coyote brush habitat include western scrub jay, northern mockingbird (*Mimus polyglottos*), house finch (*Carpodacus*



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ICF Jones & Stokes

Plant Community

- Coyote Brush Scrub
- Herbaceous Wetland
- Non-native Annual Grassland
- Willow Riparian and Woodland Scrub
- Urban Landscaping

- Project Limits
- Detention Basin
- Construction Staging Area
- Mitigation Area

Figure 3.3-1a
Existing Plant Communities and Habitats
ACTA East-West Connector Project

March 2009

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ICF Jones & Stokes

Plant Community

- Coyote Brush Scrub
- Herbaceous Wetland
- Non-native Annual Grassland
- Willow Riparian and Woodland Scrub
- Urban Landscaping

- Mitigation Area
- Construction Staging Area
- Project Limits

Figure 3.3-1b
Existing Plant Communities and Habitats
ACTA East-West Connector Project

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mexicanus), bushtits (*Psaltriparus minimus*), Brewer's blackbirds (*Euphagus cyanocephalus*), raccoon, opossum, striped skunk, western fence lizard, and gopher snake (*Pituophis melanoleucus*) (Mayer and Laudenslayer 1988).

Eucalyptus Woodland

A small area, approximately 0.40 acre, of eucalyptus woodland is located adjacent to the coyote brush scrub area, southwest of Old Alameda Creek. This woodland is entirely dominated by eucalyptus trees.

Eucalyptus trees are often used for nesting by common bird species such as northern mockingbirds, bushtits (*Psaltriparus minimus*), and American crow (*Corvus brachyrhyncos*). Some raptor species have been documented using eucalyptus trees, including red-tailed hawks, great horned owls (*Bubo virginianus*), and barn owls (*Tyto alba*). Similarly common wildlife can be found in eucalyptus groves, including raccoons and opossums.

Willow Riparian Woodland and Scrub

Willow riparian woodland and scrub is a woody riparian plant community that occurs at and above the ordinary high-water mark along Old Alameda Creek. This vegetation is well-developed and typically dense. The dominant canopy species are arroyo willow (*Salix lasiolepis*) and sandbar willow (*Salix exigua*). Other common canopy species include blue elderberry (*Sambucus mexicanus*), red willow (*Salix laevigata*), and northern California black walnut (*Juglans hindsii*). The understory is dominated by Himalaya blackberry (*Rubus armeniacus*). Where canopy openings occur, the understory consists of annual grassland, characterized by nonnative annual grasses in association with native and nonnative forbs. Within the study area, approximately ~~2.26~~<u>1.75</u> acres ~~(Quarry Lakes Drive Realignment Option 1) or 2.64 acres (Quarry Lakes Drive Realignment Option 2)~~ of willow scrub were mapped.

Because the vegetation is diverse and well-developed, riparian forest provides high-value habitat for wildlife. Riparian forest habitat provides food, water, and migration and dispersal corridors, as well as escape, nesting and thermal cover for many wildlife species (Zeiner et al. 1988). Willow riparian woodland and scrub habitats are important nesting, foraging, and resting habitat for numerous riparian-associated resident and migratory birds, such as black phoebe (*Sayornis nigricans*), western scrub jay (*Aphelocoma californica*), song sparrow (*Melospiza melodia*), and Bewick's wren (*Thryomanes bewickii*). Common amphibian and reptile species associated with riparian habitats include Pacific chorus frog (*Hyla regilla*), western toad (*Bufo boreas*), and coast garter snake (*Thamnophis elegans*). Mammals typically found in this habitat include raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), and mule deer (*Odocoileus hemionus*).

Herbaceous Wetlands

Herbaceous wetlands (also known as *freshwater emergent wetlands* or *marsh*) are present in Old Alameda Creek, Alameda Creek Flood Control Channel, and Line M Channel. These wetlands are dominated by emergent hydrophytes, but ruderal species are also present. The distribution of species is patchy and dominant species include hardstem bulrush (*Scirpus acutus*), cattails (*Typha angustifolia, T. latifolia*), swamp timothy (*Crypsis schoenoides*), common cocklebur (*Xanthium strumarium*), smartweed (*Polygonum amphibium, P. punctatum*), jointgrass (*Paspalum dilatatum*), and bentgrass (*Agrostis* sp.). Within the study area, approximately 0.84 acre of herbaceous wetlands was mapped, with no variation for the Quarry Lakes Drive realignment options.

For many wildlife species, herbaceous wetlands and aquatic channels provide valuable food, water, nesting, escape, and thermal cover; as well as migration and dispersal corridors. Common avian species associated with creek and herbaceous wetland habitats include black phoebe, Anna's hummingbird (*Calypte anna*), snowy egret (*Egretta thula*), and mallard (*Anas platyrhynchos*). Other species found in this habitat include western toad, California newt (*Taricha torosa*), raccoon, and striped skunk, as well as fish and invertebrates.

Aquatic Resources

The aquatic resources in the study area are described below and illustrated in Figure 3.3-2.The Line M Channel and detention basins are also illustrated in Figure 2-9.

Old Alameda Creek

Old Alameda Creek is a portion of the ancestral stream channel that no longer experiences stream flow except during periods of high rainfall. Old Alameda Creek provides drainage for a localized area and overflow drainage for the Quarry Lakes (outside the study area) via a 36-inch culvert. Additionally, a weir is present at junction with the Alameda Creek Flood Control Channel to provide floodwater retention during heavy storm events. Neither the 36-inch culvert to Quarry Lakes nor the weir to the flood control channel has been used historically. Old Alameda Creek has also been used for groundwater recharge using water from the Alameda Creek Flood Control Channel.

Vegetation along Old Alameda Creek consists of well-developed willow riparian woodland and scrub on the banks and herbaceous wetlands in the channel bottom. Nonnative annual grassland surrounds the banks of the creek for much of its length. Herbaceous wetlands are also present in some of the channels in the study area. Portions of the creek are littered with garbage and debris, including shopping carts and signs of apparent homeless encampment.

Figure 3.3-2
Existing Aquatic Resources
ACTA East-West Connector Project

ICF Jones & Stokes

March 2009

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Alameda Creek Flood Control Channel

The Alameda Creek Flood Control Channel is the major hydrologic feature in the study area. The trapezoid-shaped channel, which drains the entire study area, is characterized by a gentle gradient and variable dense herbaceous vegetation along the banks. Flowing water along the entire reach of the channelized stream was observed in the study area during fieldwork for the wetland delineation on October 9 and 10, 2007. Central California coast steelhead, a federally threatened species, have been observed in the Alameda Creek Flood Control Channel, and are discussed below in the Special-Status Fish Species section.

Crandall Creek

Crandall Creek is the second-most dominant hydrologic feature in the study area. It is a native stream that drains the southeastern corner of the study area and flows into Coyote Hills Slough outside the study area. Within the study area, it is routed underground and unvegetated. The aboveground portion of Crandall Creek is just outside the study area on both sides of Decoto Road. Standing water was observed along most of its reach in the study area during fieldwork for the wetland delineation on October 9 and 10, 2007.

Line M Channel

The Line M Channel is a flood control drainage system (open channel and pipeline) that replaced a natural drainage. It drains the hills north and west of the study area and flows into the Alameda Creek Flood Control Channel. An approximately 1,100–foot segment of open Line M Channel extends through the project alignment. Standing water was observed along its entire reach in the study area during fieldwork for the wetland delineation on October 9 and 10, 2007. Vegetation along the Line M Channel is predominately nonnative annual grassland.

The existing open Line M Channel is a linear aquatic habitat with degraded ecologic function. It lacks meander, has engineered side slopes, continuous gradient, and uniform grassy vegetation. The lack of natural channel form and riparian cover creates a channel that is hydraulically efficient and well suited for flood control.

Detention Basins

Basin 2C

The detention basin known as Basin 2C was constructed in 1999 in uplands adjacent to the Line M Channel to serve as a stormwater detention basin for the Park Ridge Phase II and III residential development project. This site also serves at mitigation for this project to compensate for the loss of 0.276 acre of seasonal wetland that was filled through implementation of the project. The source of water for the basin appears to be stormwater runoff from the adjacent residential areas. Should the basin fill, overflow would enter the Line M Channel via a lower section of the berm along the channel. The vegetation is dominated by grasses and annual and perennial forbs and is a mosaic of areas dominated by wetland (hydrophytic) species and areas dominated by upland species.

New Basin

The detention basin known as New Basin is located between Green Street and the BART tracks. It was constructed in 2006 to serve as stormwater detention for the KB Homes development just south of the recently constructed Green Street bridge. The basin was constructed in uplands on the site of a former iron works. In addition to receiving stormwater from adjacent developments, water is drained into the basin from the Line M Channel and is pumped back into the Line M Channel. It is surrounded by steep banks vegetated with nonnative annual grassland. During the October 9, 2007, field visit, the basin was dry and unvegetated. During subsequent field visits on December 19, 2007; February 25, 2008; and March 18, 2008, the basin was inundated with water more than 6 feet deep.

Potentially Jurisdictional Waters of the United States

ICF Jones & Stokes wetland specialists, including a botanist and soil scientist, conducted a wetland delineation for the project alignment on October 9 and 10, 2007. The routine on-site determination method described in the *U.S. Army Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and, where applicable, the methods identified in the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (U.S. Army Corps of Engineers 2006) were used to determine wetlands within the study area. Other waters of the United States were mapped and delineated in the field in accordance with U.S. Army Corps of Engineers (Corps) Regulatory Guidance Letter No. 05-05, dated December 7, 2005. A wetlands verification visit was conducted with Paula Gill, Corps, San Francisco District, on February 25, 2008. Additional field work was then undertaken to characterize the wetlands in the detention basins adjacent to the Line M Channel on March 18, 2008. The Corps confirmed their jurisdiction in a verification letter dated August 11, 2008. A summary of the results of the jurisdictional wetland delineation are presented below. The complete wetland delineation for the proposed project may be found in Appendix H.

A total of ~~10.14~~ 10.21acres of potentially jurisdictional wetlands of the United States and 3.22 acres of potentially jurisdictional other waters of the United States are located within the study area. All wetlands and other waters mapped within the study area are directly or indirectly hydrologically connected to the San Francisco Bay. The types of wetlands and other waters of the United States. within the project site are described below and summarized in Table 3.3-2.

~~**Table 3.3-2.** Summary of Jurisdictional Waters of the United States in the Study Area~~

Table 3.3-2. Summary of Potentially Jurisdictional Wetlands and Open Waters of the State and/or United States in the Study Area

Feature Name	Potential Jurisdiction		Area	
	State (RWQCB)	**Federal (Corps)**	**Acres**	**Linear Feet**
EMERGENT WETLANDS				
Alameda County Flood Control Channel	Yes	Yes	4.24	--
Old Alameda Creek Historic Channel	Yes	Yes	5.10	--
Subtotal Emergent Wetland			9.34	--
HERBACEOUS WETLANDS				
Basin 2C	Yes	Yes	0.87	--
Subtotal Herbaceous Wetlands			0.87	--
Total Wetlands			**10.21**	**--**
OPEN WATERS				
Alameda County Flood Control Channel	Yes	Yes	2.85	115
Crandall Creek	Yes	Yes	0.14	--
Line M Channel	Yes	Yes	0.23	1017
New Basin [1]	No	No	2.85	--
Total Open Waters			**6.07**	**1,132**
Total Wetlands and Open Waters			**16.28**	**1,132**

[1] New Basin is a detention basin that includes features that were determined not to be Corps jurisdictional waters of the United States. It has not yet been determined if the RWQCB considers it to be waters of the state, and this will be resolved during the permit process. For purposes of the Draft EIR analysis, it is considered not to be subject to the jurisdiction of the State.

Potentially Jurisdictional Waters of the State

Waters bodies within the State of California may also be considered jurisdictional wetlands and waters of the state. Under California State law, "waters of the state" means any surface water or groundwater, including saline waters, within the boundary of the state.[1] Therefore, state water quality laws apply to both surface and groundwater. The potential waters of the state are described and summarized in Table 3.3-2.

[1] California Water Code, section 13050(e).

A total of 10.21 acres of potentially jurisdictional wetlands of the state and 6.07 acres of potentially jurisdictional other waters of the state are located in the study area. Potentially jurisdictional wetlands of the state include all of the acres that are considered potentially jurisdictional wetlands and waters of the United States, as well as the 2.85 acres of wetlands identified in the New Basin (see discussion below). The types of wetlands and other waters of the state within the study area are described below and summarized in Table 3.3-2.

Wetlands

~~Seasonal~~ Emergent Wetlands

A 5.10-acre ~~seasonal herbaceous~~perennial emergent wetland is located in the historic channel of Old Alameda Creek. A paired set of representative data points was selected for this wetland, including one wetland point and one upland point. The vegetation is dominated by hydrophytes, and the hydrology appears to be ~~seasonal and intermittent~~perennial. The channel receives hydrologic inputs from precipitation, runoff, and a small area of localized drainage via Line N-12. At the time of the survey, one short section of the channel was inundated, but most of the channel was dry.

Because of the urban nature of the surrounding area, this wetland has the potential to provide significant water quality and wildlife habitat functions. Wildlife may use the wetland for nesting and foraging, and the channel provides a migration corridor through the area. The wetland supports water quality functions, trapping sediment and removing nutrients or toxicants, and the channel provides appreciable surface water storage. The wetland affords scenic value for local residents because it provides a natural open space in an otherwise highly developed landscape. However, because of the surrounding urban influence, the wetland has been adversely affected by trash dumping, unauthorized camping, and invasive exotic plants.

A 4.24-acre ~~seasonal~~ emergent wetland is also present along the Alameda Creek Flood Control Channel. The wetland was classified as ~~seasonal~~ emergent because the vegetated portion of the channel lies between the OHWM and the normal low-flow channel. The vegetation is dominated by hydrophytes, similar to that found in the historic channel of Old Alameda Creek. However, the hydrology is dependent primarily on seasonal flooding rather than rainfall. The wetland functions provided are similar to those listed above for the Alameda Creek Flood Control Channel, but this wetland also provides storage capacity for floodwater.

Herbaceous Wetlands

Seasonal herbaceous wetlands in the study area include those in Detention Basin 2C. Herbaceous wetlands within Basin 2C were determined to be jurisdictional waters of the state and United States, as this site supports 0.87 acre of wetlands and serves as wetland mitigation for prior residential development, as described above. This determination was verified by the Regional Water Quality Control Board (RWQCB) and the Corps.

Open~~Other~~ Waters

Perennial Drainages

The Alameda Creek Flood Control Channel, Crandall Creek, and the Line M Channel are all classified as perennial drainages. These drainages or "open waters" have been described above under Aquatic Resources.

~~Detention Basins~~ New Basin

~~Basin 2C and New Basin are the detention basins located within the study area. These resources have been described above under Aquatic Resources. Wetlands within Basin 2C were determined to be jurisdictional, as this site supports 0.8 acre of wetlands, and serves as wetland mitigation for prior residential development, as described above. New Basin was determined to support non-jurisdictional features.~~ New Basin is a 2.85-acre detention basin that includes features that were determined not to be jurisdictional waters of the United States but that could be subject to the jurisdiction of the state.

Sensitive Biological Resources

Regulatory Guidelines

Special-status species are plants and animals that are legally protected under the California Endangered Species Act (CESA), the federal Endangered Species Act (ESA), or other regulations, as well as species considered sufficiently rare by the scientific community to qualify for such listing. Special-status species are defined as:

- species listed or proposed for listing as threatened or endangered under the ESA (Title 50, Code of Federal Regulations [CFR], Section 17.12 for listed plants, 50 CFR 17.11 for listed animals, and various notices in the *Federal Register* for proposed species);
- species that are candidates for possible future listing as threatened or endangered under ESA (CFR 71:53756-53835, September 12, 2006);
- species that are listed or proposed for listing by the State of California as threatened or endangered under CESA (Title 14, CCR, Section 670.5);
- plants listed as rare under the California Native Plant Protection Act of 1977 (California Fish and Game Code, Section 1900, *et seq*.);
- plants considered by CNPS to be "rare, threatened, or endangered in California and elsewhere" (List 1B, 2, and 3) (List 4 species were included and evaluated in the impact analysis to determine whether they should be considered special-status species for the purposes of this Draft EIR) (California Native Plant Society 2008);
- species that meet the definition of rare or endangered under the CEQA Guidelines, Section 15380;

- animals fully protected in California (California Fish and Game Code, Section 3511 [birds], 4700 [mammals], and 5050 [reptiles and amphibians]); or
- animal species of special concern to DFG (California Department of Fish and Game 2006; Shuford and Gardali 2008 [birds]; Williams 1986 [mammals]; and Jennings and Hayes 1994 [amphibians and reptiles]).

Details about the special-status plants, wildlife, and fish species that have the potential to occur in the study area are provided below.

Special-Status Plant Species

Based on information from CNDDB (2008) and CNPS (2008), a total of 35 special status plant species were identified with the potential to occur in the study area (Table 3.3-3). Of these, 18 were eliminated from further consideration because the study area was outside their range or did not include any potentially suitable habitat. The study area was examined closely on December 19, 2007, to determine whether suitable microhabitats are present for the remaining 17 species. Based on this database search and site survey, two special-status plant species were determined to have a very slight potential to occur within in the study area. These are Congdon’s tarplant (*Centramadia parryi* ssp. *congdonii*), a CNPS List 1B species that could occur in nonnative annual grasslands, and slender-leaved pondweed (*Potamogeton filiformis*), a CNPS List 2 species that could occur in areas of standing water. Focused surveys for these plants were conducted by a ICF Jones & Stokes botanist on July 2, 2008, at which time both species would have been flowering and visible, if present. Neither of these species nor any other special-status species were identified during this survey. A list of the plants observed in the study area during the surveys is included in Table 3.3-4.

Table 3.3-3. Special-Status Plants with Potential to Occur in the Study Area

Common and Scientific Name	Status[a] Federal/State/ CNPS	California Distribution	Habitats	Blooming Period	Potential Occurrence in the Study Area
Astragalus tener var. *tener* Alkali milk-vetch	–/–/1B.2	Historically found in western San Joaquin Valley, San Francisco Bay area, and Monterey County. Likely extirpated from all historical occurrences except those in Merced, Solano, and Yolo Counties; below 200 feet.	Playas and grasslands with adobe clay soils and alkaline vernal pools.	March–June	Unlikely; no suitable habitat in study area
Atriplex depressa Brittlescale	–/–/1B.2	Western Central Valley and valleys in foothills on west side of Central Valley, below 660 feet.	Alkali grasslands, alkali meadows, alkali scrublands, chenopod scrublands, playas, valley and foothill grasslands; on alkaline or clay soils.	May–October	Unlikely; no suitable habitat in study area
Atriplex joaquiniana San Joaquin spearscale (saltbush)	–/–/1B.2	West margin of Central Valley from Glenn to Tulare Counties below 1,000 feet.	Alkali grasslands, alkali scrublands, alkali meadows, saltbush scrublands.	April–September	Unlikely; no suitable habitat in study area
Balsamorhiza macrolepis var. *macrolepis* Big-scale balsamroot	–/–/1B.2	San Francisco Bay area, Sierra Nevada foothills, Coast Ranges, eastern Cascade Range, and Sacramento Valley; below 4,600 feet.	Rocky annual grasslands and fields, foothill woodland hillsides; locally on serpentine soils.	March–June	Unlikely; no suitable habitat in study area
Centramadia parryi ssp. *congdonii* Congdon’s tarplant	–/–/1B.2	Eastern San Francisco Bay area, Salinas Valley, and Los Osos Valley; below 700 feet.	Lower slopes, flats, and swales in annual grasslands; locally on alkaline or saline soils.	June–November	Very Low; may be small areas of suitable habitat in nonnative annual grassland
Eryngium aristulatum var. *hooveri* Hoover’s button-celery	–/–/1B.1	South San Francisco Bay area, South Coast Ranges.	Vernal pools	July	Unlikely; no suitable habitat in study area
Fritillaria liliacea Fragrant fritillary	–/–/1B.2	Coast Ranges from Marin to San Benito Counties; below 1,350 feet.	Adobe soils of interior foothills, coastal prairie, coastal scrub, annual grassland, often on serpentinite.	February–April	Unlikely; no suitable habitat in study area

Common and Scientific Name	Status[a] Federal/State/ CNPS	California Distribution	Habitats	Blooming Period	Potential Occurrence in the Study Area
Helianthella castanea Diablo helianthella	–/–/1B.2	San Francisco Bay area; Alameda, Contra Costa, Marin[b], San Francisco[b], and San Mateo Counties; 80–3,800 feet.	At chaparral/oak woodland ecotone, often in partial shade, on rocky soils.	April–June	Unlikely; no suitable habitat in study area
Holocarpha macradenia Santa Cruz tarplant	T/E/1B.1	Coastal California from Marin County to San Luis Obispo County; 30–900 feet.	Coastal prairie, valley and foothill grasslands, on sandy, clay soils, often with nonnatives,	June–October	Unlikely; no suitable habitat in study area
Lasthenia conjugens Contra Costa goldfields	E/–/1B.1	Scattered occurrences in Coast Range valleys and southwest edge of Sacramento Valley; Alameda, Contra Costa, Mendocino, Napa, Santa Barbara[b], Santa Clara[b], and Solano Counties. Historically distributed through the north coast, southern Sacramento Valley, San Francisco Bay region, and south coast; below 700 feet.	Alkaline or saline vernal pools and swales.	March–June	Unlikely; no suitable habitat in study area
Monardella villosa spp. *globosa* Robust monardella	–/–/1B.2	North Coast Ranges and eastern San Francisco Bay area; Alameda; Contra Costa, Humboldt, Lake, Marin, Napa, San Mateo, and Sonoma Counties.	Oak woodland and grassy openings in chaparral.	June–July	Unlikely; no suitable habitat in study area
Navarretia prostrata Prostrate navarretia	–/–/1B.1	Alameda, Los Angeles, Merced, Monterey, Orange, Riverside, San Bernardino[b], San Diego, San Luis Obispo Counties.	Coastal scrub, meadows and seeps, valley and foothill grassland (alkaline), vernal pools	April–July	Unlikely; no suitable habitat in study area
Plagiobothrys glaber Hairless popcorn-flower	–/–/1A	Coastal valleys from Marin County to San Benito Counties.	Alkaline meadows, coastal salt marsh	April–May	Unlikely; no suitable habitat in study area
Potamogeton filiformis Slender-leaved pondweed	–/–/2.2	Scattered locations in California: Lassen, Merced, Mono, Placer, and Sierra Counties; Arizona, Nevada, Oregon, Washington.	Freshwater marsh, shallow emergent wetlands and freshwater lakes, drainage channels	May–July	Very low; may be small areas of suitable habitat in creek channels and herbaceous wetlands

Common and Scientific Name	Status[a] Federal/State/ CNPS	California Distribution	Habitats	Blooming Period	Potential Occurrence in the Study Area
Sanicula maritima Adobe sanicle	–/–/1B.1	Alameda[b], Monterey, San Francisco[b], and San Luis Obispo Counties.	Chaparral, coastal prairie, meadows and seeps, valley and foothill grassland on clay, serpentinite	February–May	Unlikely; no suitable habitat in study area
Trifolium depauperatum var. *hydrophilum* Saline clover	–/–/1B.2	Alameda, Colusa, Monterey, Napa, San Benito, Santa Clara, San Luis Obispo, San Mateo, Solano, Sonoma Counties; 300–900 feet.	Marshes and swamps, valley and foothill grassland (mesic, alkaline), vernal pools	April–June	Unlikely; no suitable habitat in study area
Tropidocarpum capparideum Caper-fruited tropidocarpum	–/–/1B.1	Historically known from the northwest San Joaquin Valley and adjacent Coast Range foothills; below 1,500 feet.	Grasslands in alkaline hills	March–April	Unlikely; no suitable habitat in study area

Notes:

[a] Status explanations:

Federal

E = listed as endangered under the federal Endangered Species Act.
T = listed as threatened under the federal Endangered Species Act.
– = no listing.

State

E = listed as endangered under the California Endangered Species Act.
T = listed as threatened under the California Endangered Species Act.
– = no listing.

California Native Plant Society (CNPS)

1A = List 1A species: presumed extinct in California.
1B = List 1B species: rare, threatened, or endangered in California and elsewhere.
2 = List 2 species: rare, threatened, or endangered in California but more common elsewhere.
3 = List 3 species: plants about which more information is needed to determine their status.
– = no listing.

[b] Populations uncertain or extirpated in the county.

Table 3.3-4. Plants Observed in the Study Area

Scientific Name	Common Name
Acer negundo	box elder
Agrostis sp.	bentgrass
Alisma plantago-aquatica	water plantain
Amaranthus sp.	Amaranth
Artemisia biennis	biennial wormwood
Artemisia douglasiana	mugwort
Arundo donax	giant reed
Aster subulatus	annual saltmarsh aster
Atriplex triangularis	fat hen
Avena fatua	wild oats
Baccharis pilularis	coyote brush
Beta vulgaris	common beet
Bidens frondosa	beggar-ticks
Bromus diandrus	ripgut brome
Bromus hordeaceus	soft chess
Callistemon sp.	bottlebrush tree
Chenopodium ambrodioides	Mexican tea
Cirsium vulgare	bull thistle
Conium maculatum	poison hemlock
Convolvulus arvensis	field bindweed
Conyza bonariensis	South American horseweed
Conyza canadensis	Canada horseweed
Cortaderia selloana	pampas grass
Cotoneaster pannosa	silverleaf cotoneaster
Crypsis schoenoides	swamp timothy
Cynodon dactylon	Bermudagrass
Cyperus eragrostis	umbrella sedge
Dittrichia graveolens	stinkweed
Eleocharis sp.	spikerush
Epilobium brachycarpum	panicled willow-herb
Epilobium ciliatum	hairy willow-herb
Eschscholzia californica	California poppy
Eucalyptus camaldulensis	red gum

Scientific Name	Common Name
Eucalyptus globulus	blue gum
Euphorbia lathyris	gopher plant
Euthamia occidentalis	western goldenrod
Gnaphalium luteo-album	weedy cudweed
Hedera helix	English ivy
Heliotropium curassavicum	salt heliotrope
Hirschfeldia incana	Mediterranean mustard
Hordeum marinum	Mediterranean barley
Juglans hindsii	Northern California black walnut
Kickxia elatine	sharp-leaved fluellin
Lactuca serriola	prickly lettuce
Lepidium latifolium	perennial peppercress
Lolium multiflorum	Italian ryegrass
Lotus corniculatus	bird's-foot trefoil
Lythrum hyssopifolium	hyssop loosestrife
Mahonia sp.	barberry
Malva sp.	cheeseweed
Melilotus alba	white sweet-clover
Nasturtium officinale	watercress
Nicotiana glauca	tree tobacco
Paspalum distichum	jointgrass
Phalaris aquatica	harding grass
Phalaris paradoxa	paradox canary grass
Phyla nodiflora	common frog-fruit
Picris echioiodes	bristly ox-tongue
Pinus canariensis	Canary Islands pine
Piptatherum miliaceum	smilo grass
Plantago major	English plantain
Polygonum amphibium	water smartweed
Polygonum lapathifolium	willow-weed
Polygonum punctatum	dotted smartweed
Polypogon monspeliensis	annual rabbit's-foot grass
Populus balsamifera subsp. trichocarpa	black cottonwood
Quercus sp.	oak

Scientific Name	Common Name
Raphanus sativus	wild radish
Rhamnus californica	California coffeeberry
Rorippa curvisiliqua	curve-pod yellowcress
Rosa californica	California wild rose
Rubus armeniacus	Himalaya blackberry
Rubus ursinus	California blackberry
Rumex conglomeratus	whorled dock
Rumex crispus	curley dock
Salix exigua	narrow-leaved willow
Salix laevigata	red willow
Salix lasiolepis	arroyo willow
Sambucus mexicanus	blue elderberry
Scirpus acutus	hardstem bulrush
Sequoia sempervirens	California redwood
Silybum marianum	milk thistle
Solanum americanum	black nightshade
Tragopogon sp.	salsify
Trifolium hirtum	rose clover
Typha angustifolia	narrow-leaved cattail
Typha latifolia	broad-leaved cattail
Verbascum thapsus	common mullein
Vicia sativa	common vetch
Xanthium strumarium	common cocklebur

Special-Status Wildlife Species

Based on information from CNDDB (2008), the species list obtained from the USFWS (2008), and previously prepared environmental documents, 40 special-status wildlife species were identified as having the potential to occur in the study area (Table 3.3-5). Field survey information, species distribution, and suitable habitat information were used to determine which species could occur in the study area. Of the 40 species identified, 26~~7~~ were eliminated from further consideration because habitat for these species is not present in the study area and/or the study area is located outside of the species' known range. The ~~13~~ 14 species with the potential to occur in the study area are discussed below.

Table 3.3-5. Special-Status Wildlife and Fish Species with Potential to Occur in the Study Area

Common and Scientific Name	Status[a] Federal/ State	California Distribution	Habitats	Occurrence in the Study Area[b]
INVERTEBRATES				
Longhorn fairy shrimp *Branchinecta longiantenna*	E/–	Eastern margin of central Coast Ranges from Contra Costa County to San Luis Obispo County; disjunct population in Madera County	Small, clear pools in sandstone rock outcrops of clear to moderately turbid clay- or grass-bottomed pools	No habitat present in study area—no vernal pools
Conservancy fairy shrimp *Branchinecta conservatio*	E/–	Disjunct occurrences in Solano, Merced, Tehama, Ventura, Butte, and Glenn Counties	Large, deep vernal pools in annual grasslands	No habitat present in study area—no vernal pools
Vernal pool fairy shrimp *Branchinecta lynchi*	T/–	Central Valley, central and south Coast Ranges from Tehama County to Santa Barbara County. Isolated populations also in Riverside County	Common in vernal pools; also found in sandstone rock outcrop pools	No habitat present in study area—no vernal pools
Bay checkerspot butterfly *Euphydryas editha bayensis*	T/–	Vicinity of San Francisco Bay including San Francisco peninsula in San Mateo Co., and mountains near San Jose, Santa Clara County	Native grasslands on outcrops of serpentine soil; California plantain and owl's clover are host plants	No habitat present in study area—no serpentine soil
AMPHIBIANS AND REPTILES				
California tiger salamander *Ambystoma californiense*	T/~~SS~~C	Central Valley, including Sierra Nevada foothills, up to approximately 1,000 feet, and coastal region from Butte County south to Santa Barbara County	Small ponds, lakes, or vernal pools in grass-lands and oak woodlands for larvae; rodent burrows, rock crevices, or fallen logs for cover for adults and for summer dormancy	Moderate—suitable habitat in and adjacent to study area; species occurrence record within 5 miles of project vicinity ~~No habitat present in study area~~
California red-legged frog *Rana aurora draytoni*	T/SSC	Found along the coast and coastal mountain ranges of California from Marin County to San Diego County and in the Sierra Nevada from Tehama County to Fresno County	Permanent and semipermanent aquatic habitats, such as creeks and cold-water ponds, with emergent and submergent vegetation. May aestivate in rodent burrows or cracks during dry periods	Low—Suitable aquatic and upland habitat in and adjacent to study area-but habitat is isolated from other natural habitat ~~is~~ in region

Common and Scientific Name	Status[a] Federal/ State	California Distribution	Habitats	Occurrence in the Study Area[b]
Western pond turtle *Clemmys marmorata*	–/SSC	The range of the northwestern subspecies extends from Oregon border of Del Norte and Siskiyou Counties south along coast to San Francisco Bay, inland through Sacramento Valley, and on the western slope of Sierra Nevada; the southwestern subspecies occurs along the central coast of California east to the Sierra Nevada and along the southern California coast inland to the Mojave and Sonora Deserts; the subspecies' range overlaps through the Delta and Central Valley to Tulare County	Woodlands, grasslands, and open forests; occupies ponds, marshes, rivers, streams, and irrigation canals with muddy or rocky bottoms and with watercress, cattails, water lilies, or other aquatic vegetation	Moderate—suitable habitat in and adjacent to study area; species occurrence record within 5 miles of project vicinity
Alameda whipsnake *Masticophis lateralis euryxanthus*	T/T	Restricted to Alameda and Contra Costa Counties	Valleys, foothills, and low mountains associated with northern coastal scrub or chaparral habitat; requires rock outcrops for cover and foraging	No habitat present in study area
BIRDS				
California brown pelican *Pelecanus occidentalis californicus*	E/E	Present along the entire coastline, but does not breed north of Monterey County; extremely rare inland	Typically in littoral ocean zones, just outside the surf line; nests on offshore islands	No habitat present in study area
Northern harrier *Circus cyaneus*	–/SSC	Occurs throughout lowland California. Has been recorded in fall at high elevations	Grasslands, meadows, marshes, and seasonal and agricultural wetlands	Low—may breed or forage in or adjacent to the study area, though nesting potential is low due to absence of marsh habitat
Golden eagle *Aquila chrysaetos*	–/SSC, FP	Foothills and mountains throughout California. Uncommon nonbreeding visitor to lowlands such as the Central Valley	Nest on cliffs and escarpments or in tall trees overlooking open country. Forages in annual grasslands, chaparral, and oak woodlands with plentiful medium and large-sized mammals	No suitable nesting habitat present

Common and Scientific Name	Status[a] Federal/ State	California Distribution	Habitats	Occurrence in the Study Area[b]
Sharp-shinned hawk *Accipiter striatus*	–/SSC	Permanent resident in the Sierra Nevada, Cascade, Klamath, and north Coast Ranges at mid elevations and along the coast in Marin, San Francisco, San Mateo, Santa Cruz, and Monterey Counties. Winters over the rest of the state except at very high elevations	Dense canopy ponderosa pine or mixed-conifer forest and riparian habitats	Low—unlikely to nest in or adjacent to the study area due to proximity to development
Cooper's hawk *Accipiter cooperii*	–/SSC	Throughout California except high altitudes in the Sierra Nevada. Winters in the Central Valley, southeastern desert regions, and plains east of the Cascade Range	Nests in a wide variety of habitat types, from riparian woodlands and digger pine-oak woodlands through mixed conifer forests	Low—unlikely to nest in or adjacent to the study area due to proximity to development
White-tailed kite *Elanus leucurus*	–/FP	Lowland areas west of Sierra Nevada from the head of the Sacramento Valley south, including coastal valleys and foothills to western San Diego County	Low foothills or valley areas with valley or live oaks, riparian areas, and marshes near open grasslands	Moderate—may nest or forage in or adjacent to the study area
California clapper rail *Rallus longirostris obsoletus*	E/E	Marshes around the San Francisco Bay and east through the Delta to Suisun Marsh	Restricted to salt marshes and tidal sloughs; usually associated with heavy growth of pickle-weed; feeds on mollusks removed from the mud in sloughs	No habitat present in study area
California black rail *Laterallus jamaicensis coturniculus*	–/T	Permanent resident in the San Francisco Bay and east-ward through the Delta into Sacramento and San Joaquin Counties; small populations in Marin, Santa Cruz, San Luis Obispo, Orange, Riverside, and Imperial Counties	Tidal salt marshes associated with heavy growth of pickleweed; also occurs in brackish marshes or freshwater marshes at low elevations	No habitat present in study area
Western snowy plover (coastal populations) *Charadrius alexandrinus nivosus* (nesting)	T/SSC	Population defined as those birds that nest adjacent to or near tidal waters, including all nests along the mainland coast, peninsulas, offshore islands, and adjacent bays and estuaries. Twenty breeding sites are known in California from Del Norte to Diego County	Coastal beaches above the normal high tide limit in flat, open areas with sandy or saline substrates; vegetation and driftwood are usually sparse or absent	No habitat present in study area

Common and Scientific Name	Status[a] Federal/ State	California Distribution	Habitats	Occurrence in the Study Area[b]
Black skimmer *Rynchops niger* (nesting colony)	–/SSC	Common summer resident at the Salton Sea; colony of permanent residents on the south end of San Diego Bay	Nests on gravel bars and sandy beaches; forages in shallow, calm waters	No habitat present in study area
California least tern *Sterna antillarum (=albifrons) browni* (nesting colony)	E/E	Nests on beaches along the San Francisco Bay and along the southern California coast from southern San Luis Obispo County south to San Diego County	Nests on sandy, upper ocean beaches, and occasionally uses mudflats; forages on adjacent surf line, estuaries, or the open ocean	No habitat present in study area
Western burrowing owl *Athene cunicularia hypugaea*	–/SSC	Lowlands throughout California, including the Central Valley, northeastern plateau, southeastern deserts, and coastal areas. Rare along south coast	Level, open, dry, heavily grazed or low stature grassland or desert vegetation with available burrows	Low—marginal grassland habitat present but limited mammal burrows in study area; no known nest or overwinter occurrences in study area
Short-eared owl *Asio flammeus*	–/SSC	Permanent resident along the coast from Del Norte County to Monterey County although very rare in summer north of San Francisco Bay, in the Sierra Nevada north of Nevada County, in the plains east of the Cascades, and in Mono County; small, isolated populations	Freshwater and salt marshes, lowland meadows, and irrigated alfalfa fields; needs dense tules or tall grass for nesting and daytime roosts	No habitat present in study area
California horned lark *Eremophila alpestris actia*	–/SSC	Found throughout much of the state, less common in mountainous areas of the north coast and in coniferous or chaparral habitats	Common to abundant resident in a variety of open habitats, usually where large trees and shrubs are absent. Grasslands and deserts to dwarf shrub habitats above tree line	Low—marginal grassland habitat present for foraging and nesting
Bank swallow *Riparia riparia*	–/T	Occurs along the Sacramento River from Tahama County to Sacramento County, along the Feather and lower American Rivers, in the Owens Valley; and in the plains east of the Cascade Range in Modoc, Lassen, and northern Siskiyou Counties. Small populations near the coast from San Francisco County to Monterey County	Nests in bluffs or banks, usually adjacent to water, where the soil consists of sand or sandy loam	Low—nesting bank swallows previously observed in study area though habitat quality is limited due to water levels.

Common and Scientific Name	Status[a] Federal/ State	California Distribution	Habitats	Occurrence in the Study Area[b]
Saltmarsh common yellowthroat *Geothlypis trichas sinuosa*	–/SSC	Found only in the San Francisco Bay Area in Marin, Napa, Sonoma, Solano, San Francisco, San Mateo, Santa Clara, and Alameda Counties	Breeds in fresh and brackish marsh associated with and close to Bay wetlands. Freshwater marshes are used in summer and salt or brackish marshes in fall and winter; requires tall grasses, tules, and willow thickets for nesting and cover	No habitat present in study area
Tricolored blackbird *Agelaius tricolor*	–/SSC	Permanent resident in the Central Valley from Butte County to Kern County. Breeds at scattered coastal locations from Marin County south to San Diego County; and at scattered locations in Lake, Sonoma, and Solano Counties. Rare nester in Siskiyou, Modoc, and Lassen Counties	Nests in dense colonies in emergent marsh vegetation, such as tules and cattails, or upland sites with blackberries, nettles, thistles, and grainfields. Habitat must be large enough to support 50 pairs. Probably requires water at or near the nesting colony	No breeding habitat present in study area
Yellow warbler *Dendroica petechia brewsteri*	–/SSC	Nests over all of California except the Central Valley, the Mojave Desert region, and high altitudes in the Sierra Nevada. Winters along the Colorado River and in parts of Imperial and Riverside Counties	Nests in riparian areas dominated by willows, cottonwoods, sycamores, or alders or in mature chaparral; may also use oaks, conifers, and urban areas near stream courses	Low– marginal breeding habitat present in study area
Alameda (South Bay) song sparrow *Melospiza melodia pusillula*	–/SSC	Found only in marshes along the southern portion of the San Francisco Bay	Brackish marshes associated with pickleweed; may nest in tall vegetation or among the pickleweed	No habitat present in study area
MAMMALS				
Salt marsh vagrant (wandering) shrew *Sorex vagrans halicoetes*	–/SSC	Restricted to southern and northwestern San Francisco Bay	Midelevation salt marsh habitats with dense growths of pickleweed; requires driftwood and other objects for nesting cover	No habitat present in study area
Hoary bat *Lasiurus cinereus*	–/SSC	Scattered throughout much of California, although distribution is patchy in southeastern deserts.	Generally roosts in dense foliage of medium to large trees, hidden from above.	Low—marginal habitat in study area

Common and Scientific Name	Status[a] Federal/ State	California Distribution	Habitats	Occurrence in the Study Area[b]
Pallid bat *Antrozous pallidus*	–/SSC	Occurs throughout California except the high Sierra from Shasta to Kern County and the northwest coast, primarily at lower and mid elevations	Occurs in a variety of habitats from desert to coniferous forest. Most closely associated with oak, yellow pine, redwood, and giant sequoia habitats in northern California and oak woodland, grassland, and desert scrub in southern California. Relies heavily on trees for roosts.	Low—marginal habitat in study area
Greater western mastiff bat *Eumops perotis californicus*	–/SSC	Occurs along the western Sierra primarily at low to mid elevations and widely distributed throughout the southern coast ranges. Recent surveys have detected the species north to the Oregon border	Found in a wide variety of habitats from desert scrub to montane conifer. Roosts and breeds in deep, narrow rock crevices, but may also use crevices in trees, buildings, and tunnels	No habitat present in study area
Salt marsh harvest mouse *Reithrodontomys raviventris*	E/E, FP	San Francisco, San Pablo, and Suisun Bays; the Delta	Salt marshes with a dense plant cover of pickle-weed and fat hen; adjacent to an upland site	No habitat present in study area
San Francisco dusky-footed woodrat *Neotoma fuscipes annectens*	–/SSC	West side of Mount Diablo to coast and San Francisco Bay	Present in chaparral habitat and in forest habitats with a moderate understory	Moderate—habitat present in study area; no known occurrences in study area
San Joaquin kit fox *Vulpes macrotis mutica*	E/T	Principally occurs in the San Joaquin Valley and adjacent open foothills to the west; recent records from 17 counties extending from Kern County north to Contra Costa County	Saltbush scrub, grassland, oak, savanna, and freshwater scrub	No habitat present in study area
American badger *Taxidea taxus*	–/SSC	Throughout California, except for the humid coastal forests of northwestern California in Del Norte County and the northwestern portion of Humboldt County	Requires sufficient food, friable soils, and relatively open uncultivated ground. Preferred habitat includes grasslands, savannas, and mountain meadows near timberline.	No habitat present in study area

Common and Scientific Name	Status[a] Federal/ State	California Distribution	Habitats	Occurrence in the Study Area[b]
FISH				
Green sturgeon *Acipenser medirostris*	T/–	San Pablo Bay, Delta and Sacramento, Klamath and Trinity Rivers (Moyle 2002)	Spawn in large river systems with well-oxygenated water, with temperatures from 8.0 to 14°C	No habitat present in study area
Delta smelt *Hypomesus transpacificus*		Primarily in the Sacramento–San Joaquin Estuary, but has been found as far upstream as the mouth of the American River on the Sacramento River and Mossdale on the San Joaquin River; range extends downstream to San Pablo Bay	Occurs in estuary habitat in the Delta where fresh and brackish water mix in the salinity range of 2–7 parts per thousand. (Moyle 2002.)	No habitat present in study area
Central California coast coho salmon *Oncorhynchus kisutch*	E/E	Includes naturally spawned populations from Punta Gorda in northern California south to and including the San Lorenzo River in central California, as well as populations in tributaries to San Francisco Bay, excluding the Sacramento-San Joaquin River system	Occur in coastal streams with water temperatures < 15°C. Need cool, clear water with instream cover. Spawn in tributaries to large rivers or streams directly connected to the ocean (Moyle 2002).	No habitat present in study area
Central Valley steelhead *Oncorhynchus mykiss*	T/–	Sacramento River and tributary Central Valley rivers	Occurs in well-oxygenated, cool, riverine habitat with water temperatures from 7.8 to 18°C (Moyle 2002). Habitat types are riffles, runs, and pools.	Outside of range
Sacramento River winter-run Chinook salmon *Oncorhynchus tshawytscha*	E/E	Mainstem Sacramento River below Keswick Dam (Moyle 2002)	Occurs in well-oxygenated, cool, riverine habitat with water temperatures from 8.0 to 12.5°C. Habitat types are riffles, runs, and pools. (Moyle 2002.)	Outside of range
Central Valley spring-run Chinook salmon *Oncorhynchus tshawytscha*	T/T	Upper Sacramento River and Feather River	Has the same general habitat requirements as winter-run Chinook salmon. Coldwater pools are needed for holding adults (Moyle 2002).	Outside of range

Common and Scientific Name	Status[a] Federal/ State	California Distribution	Habitats	Occurrence in the Study Area[b]
Central California coast steelhead *Oncorhynchus mykiss*	T/–	Russian River to Soquel Creek, Santa Cruz Co.	Cold, clear water with clean gravel of appropriate size for spawning. Most spawning occurs in headwater streams. Steelhead migrate to the ocean to feed and grow until sexually mature.	High—steelhead observed in study area

[a] Status explanations:

Federal

E = listed as endangered under the federal Endangered Species Act.
T = listed as threatened under the federal Endangered Species Act.
C = species for which USFWS has on file sufficient information on biological vulnerability and threat(s) to support issuance of a proposed rule to list, but issuance of the proposed rule is precluded.
– = no listing.

State

E = listed as endangered under the California Endangered Species Act.
T = listed as threatened under the California Endangered Species Act.
FP = fully protected under the California Fish and Game Code.
SSC = species of special concern in California.
C = candidate for state listing.
– = no listing.

[b] The determinations of the potential for each species to occur is generally based on the following criteria:

Low: The project alignment is within the species range and suitable habitat for the species occurs in the project vicinity, but was not identified in the study area.
Moderate: The project site is within the species range and suitable habitat for the species is present at the project site; however there are no records for the species in the project vicinity.
High: The project site is within the species range and suitable habitat for the species is present at the project site, and there are one or more records of the species in the project vicinity or the species was observed at the project site or in the project vicinity.

California Tiger Salamander

The California tiger salamander (*Ambystoma californiense*) is federally listed as threatened (69 FR 47212–47248, August 4, 2004). Final designation of critical habitat occurred on August 23, 2005 (70 FR 49380-49458). California tiger salamander (CTS) is also a candidate species for state listing (February 5, 2009). The species is endemic to the San Joaquin–Sacramento River valleys, bordering foothills, and coastal valleys of central California (Barry and Shaffer 1994). The species' range is from Sonoma County and the Colusa-Yolo County line south to Santa Barbara County in the Coast Ranges and from southern Sacramento County south to Tulare County in the Central Valley (Jennings and Hayes 1994).

California tiger salamander is a lowland species restricted to grasslands and low foothill regions where its breeding habitat (temporary ponds or pools, slower portions of streams, and some permanent waters) occurs (Stebbins 2003). Adult California tiger salamanders move from subterranean burrow sites to breeding pools during November through February after warm winter and spring rains (Jennings and Hayes 1994). California tiger salamander eggs hatch in 10 to 14 days and larvae generally metamorphose in three to six months (68 FR 28647, May 23, 2003). This species also requires dry-season refuge sites in uplands in the vicinity of breeding sites. Dry-season refuge sites include ground squirrel burrows, other rodent burrows, or crevices in the soil (Loredo et al. 1996).

There are three CNDDB records for California tiger salamander within a 5--mile radius of the study area (California Department of Fish and Game Natural Diversity Database 2008). Within the study area, marginal aquatic habitat exists in Old Alameda Creek and Basin 2C for California tiger salamander. The remnant portion of Alameda Creek serves as a seasonal holding pond. The upland habitat surrounding the creek is marginal for CTS. At Basin 2C, the grasslands along the railroad and Line M Channel northwest of the detention basins could provide enough refugia for a population of CTS. No ground squirrel burrows were observed at either site, but CTS can take advantage of other forms of cover including rubble piles, logs, and other debris. CTS can also use housing and industrial structures (Murphy pers. comm. 2009a).

In the remainder of the study area, grasslands adjacent to the creek may be disked annually and agricultural fields look too groomed to contain refugia (Murphy pers. comm. 2009a). However, without protocol-level surveys, absence of CTS cannot be confirmed. Protocol-level surveys take 2 years and could not be completed in time for the results to be included in this document. Rather than defer those surveys until after the document has gone through the public review process, CTS was assumed present on site and mitigation was included accordingly to offset any impacts on the species.

California Red-Legged Frog

California red-legged frog (*Rana aurora draytonii*) (CRLF) is a federal threatened species and California species of special concern. The species is known or expected to occur in association with its preferred habitat, permanent water (including marshes, streams, lakes, and ponds) often with densely vegetated shorelines (Stebbins 2003). Although CRLF typically remain near streams or ponds, marked and radio-tagged frogs have been observed to move more than 2 miles through terrestrial upland habitats as they move between aquatic features, often as the result of breeding pools drying up at the onset of summer. These movements are typically made during wet weather and at night (U.S. Fish and Wildlife Service 2002). CRLF may also use terrestrial habitat near aquatic features (e.g., stream banks) as temporary refugia from predators or during inclement habitat conditions (e.g., high water).

CRLF have the potential to occur in or near creeks, drainages, and upland areas in the study area, including Old Alameda Creek, the Alameda Creek Flood Control Channel, and the Line M Channel. However, the majority of the surrounding area is heavily urbanized and may not provide a sufficient dispersal corridor for the species.

No CRLF were found during visual and dip-netting surveys conducted in 1993 by Engineering-Science, Inc. In 1996, CRLF became listed as threatened by USFWS; in 1997, USFWS adopted guidelines for site assessments and field surveys for the species. These guidelines require that a habitat assessment be conducted to evaluate the habitat and, thus, determine the likelihood that CRLF occur in the study area. Parsons Harland Bartholomew & Associates conducted a habitat assessment according to these new guidelines in October 1998, in support of environmental review for a previous version of the proposed project partially located along a similar alignment. This habitat assessment confirmed that Old Alameda Creek appeared to provide potentially suitable habitat for CRLF; but it is a remnant segment almost completely surrounded by existing urban development and therefore was determined not suitable habitat.

In May 1999, while environmental review for the previous version of the project was still underway, an adult CRLF was observed by accredited herpetologist Mark Jennings in a dirt-lined flood canal 0.2 miles southwest of the Mission Boulevard/Appian Way intersection. That frog was collected and relocated (California Natural Diversity Database 2008). Until the 1999 sighting, the nearest known locality of the species was in Garin Dry Creek below Jordan Dam, approximately 1.2 miles north of the study area, and outside of the zone of urbanization.

As a result of the 1999 sighting, a new site assessment and surveys for CRLF were conducted in 2001. No frogs were observed during the June 7 and 19, 2001, surveys; and no tadpoles were observed on July 16, 2001. In a letter dated January 15, 2002, USFWS states that the project alignment for the new roadway segment (formerly “the proposed realignment of SR 84 along historic Alameda Creek”) is not likely to adversely affect CRLF. The most recent surveys in the study area were reconnaissance-level surveys conducted by ICF Jones & Stokes biologists in December 2007, specifically for the current proposed project, and no CRLF were observed.

The Lead Agency, ACTA, submitted a letter to USFWS in 2008 requesting concurrence with their 2002 determination, and USFWS requested protocol level surveys be conducted to confirm the determination. ~~ACTA is planning to conduct these surveys January through August of 2009.~~ Protocol surveys require four rounds of daytime and nighttime surveys that are at least 2 weeks apart, including a late summer or early fall survey, to allow the surveyors the opportunity to see frogs in many different life stages. ACTA began conducting these surveys in February 2009, and no CRLF or egg masses were observed at that time (Murphy pers. comm. 2009b).

Western Pond Turtle

Western pond turtle (*Clemmys marmorata*), a California species of special concern, prefers permanent or nearly-permanent waters of ponds, lakes, marshes, rivers, streams, and irrigation ditches that have a rocky or muddy bottom and emergent vegetation (Stebbins 2003). The species occurs in a wide range of both permanent and intermittent aquatic environments (Jennings et al. 1992). Western pond turtles spend a considerable amount of time basking on rocks, logs, emergent vegetation, mud or sand banks, or human-generated debris. Western pond turtles move to upland areas up to several hundred meters from watercourses to deposit eggs and overwinter (Jennings and Hayes 1994).

There is potential for western pond turtle to inhabit aquatic and riparian habitats of Old Alameda Creek, Alameda Creek Flood Control Channel, and Line M Channel. There are two CNDDB (2008) records for western pond turtle in Alameda Creek Flood Control Channel within a 5-mile radius of the study area; one approximately .3 mile southwest of the Mission Boulevard crossing in Quarry Lakes Regional Park, and another upstream, approximately 5 miles to the east of the study area. No sign of the species was observed during December 2007 reconnaissance-level wildlife surveys.

Northern Harrier

Northern harrier (*Circus cyaneus*) is designated as a state species of special concern by DFG. Northern harriers use tall grasses and forbs in wetlands and field borders for cover (Zeiner et al. 1990). They roost on the ground in shrubby vegetation, often near a marsh edge (Brown and Amadon 1968). The species' breeding season is between April and September, with peak activity in June and July.

Northern harriers have been observed breeding and nesting within 5 miles of the study area, in and around the marshes to the southwest (California Natural Diversity Database 2008). Though there is potential for northern harriers to forage and breed in the nonnative grassland within and near the study area, the possibility of nesting is unlikely since they generally prefer nesting near marsh habitat. No sign of the species was observed during December 2007 reconnaissance-level wildlife surveys.

Sharp-Shinned Hawk

Sharp-shinned hawk (*Accipiter striatus*) is a California species of special concern. This species is a migrant and winter resident throughout most of California. Sharp-shinned hawks nest in ponderosa pine, black oak, riparian deciduous, mixed conifer, and Jeffrey pine habitats. They breed between April 1 and September 1 (Zeiner et al. 1990a).

There is one record of a nesting sharp-shinned hawk, approximately 4 miles north of the study area near Walpert Ridge (California Natural Diversity Database 2008). The potential for sharp-shinned hawk to nest in the riparian habitat of Old Alameda Creek is low because of the proximity to development and human activity. No sign of the species was observed during December 2007 reconnaissance-level wildlife surveys.

Cooper's Hawk

Cooper's hawk (*Accipiter cooperii*), a California species of special concern, is a year-round resident throughout much of California, except in the high Sierra Nevada. Cooper's hawks nest in riparian, deciduous, conifer, and mixed woodlands (Garrett and Dunn 1981), but will also nest in urban areas and seem to tolerate human disturbance near the nest (Palmer 1988). The species' breeding season is between March 1 and August 1.

There are three recent records for nesting Cooper's hawks, 3 to 4 miles east of the study area (California Natural Diversity Database 2008). In the study area, the potential for Cooper's hawk to use the riparian habitat of Old Alameda Creek for nesting is low because of the proximity to development and human activity. No sign of the species was observed during December 2007 reconnaissance-level wildlife surveys.

White-Tailed Kite

White-tailed kite (*Elanus leucurus*) is fully protected under the California Fish and Game Code. White-tailed kite occurs in coastal and valley lowlands in California (Zeiner et al. 1990a). This species generally inhabits low-elevation grassland, savannah, oak woodland, wetland, agricultural, and riparian habitats. Nest trees range from small, isolated shrubs and trees to trees in relatively large stands (Dunk 1995). White-tailed kites make nests of loosely piled sticks and twigs, lined with grass and straw, near the top of dense oaks, willows, and other tree stands. The breeding season lasts from February through October and peaks between May and August (Zeiner et al. 1990a).

There are three CNDDB (2008) records for nesting white-tailed kites approximately 3 miles southwest of the study area. This species may nest in suitable shrubs or in the willow riparian woodland and scrub habitats of the study area. No sign of the species was observed during December 2007 reconnaissance-level wildlife surveys.

Western Burrowing Owl

Western burrowing owl (*Athene cunicularia hypugaea*), a California species of special concern, requires habitat with three basic attributes: open, well-drained terrain; short, sparse vegetation; and underground burrows or burrow facsimiles. Burrowing owls occupy grasslands, deserts, sagebrush scrub, agricultural areas (including pastures and untilled margins of cropland), earthen levees and berms, coastal uplands, and urban vacant lots, as well as the margins of airports, golf courses, and roads (Haug et al. 1993). The breeding season of western burrowing owls extends from March through August (Zeiner et al. 1990a).

Within a 5-mile radius, there are six CNDDB records (2008) for western burrowing owls; the closest being approximately 3 miles to the southeast of the study area, near Lake Elizabeth. In the study area, there is potential for western burrowing owls to nest in fallow agricultural lands as well as in annual grassland habitat, although the likelihood is low because of a very limited number of mammal burrows scattered around the annual grasslands in the study area. No sign of the species was observed during any of the wildlife surveys. ~~December 2007 reconnaissance-level wildlife surveys~~.

California Horned Lark

California horned lark (*Eremophila alpestris actia*) is a California species of special concern. This species inhabits a variety of open habitats, usually where large trees and shrubs are absent. Range-wide, California horned larks breed in level or gently sloping shortgrass prairie, montane meadows, “bald” hills, open coastal plains, fallow grain fields, and alkali flats (Grinnell and Miller 1944). California horned lark constructs nests on the ground, often in sparsely vegetated areas. Breeding season is typically from March through July, with a peak in activity in May.

There is one recorded observation of a California horned lark, exhibiting breeding behavior, within a 10-mile radius of the study area (California Natural Diversity Database 2008). Potential for this species to use the study area for nesting is low since the grassland habitat present for foraging and nesting is of marginal quality. No sign of the species was observed during December 2007 reconnaissance-level wildlife surveys.

Bank Swallow

Bank swallow (*Riparia riparia*) is a state-threatened neotropical migrant. In California, this species breeds primarily in riparian forests dominated by willows (*Salix spp.*) and Fremont cottonwood (*Populus fremontii*) (Zeiner et al. 1990a). Bank swallows are predominantly colonial breeders, digging horizontal nests into vertical faces of banks and bluffs with fine-textured or sandy soils (Zeiner et al. 1990a). Nesting colonies are ephemeral, which affects the distribution as sites become inactive and habitat conditions change (Garrison 1998).

During surveys performed for the original Natural Environmental Study (Engineering-Science1995), a bank swallow nesting colony site was observed adjacent to the historic Proposed Parkway Alternative Crossing of the Alameda County Flood Control Channel (California Department of Transportation 2002). The site consisted of a few nesting holes located in a low, unstable portion of bank, subject to inundation from storm flows. A follow-up survey in 1998 confirmed that there were no nesting swallows within 500 feet of ground-disturbing activities associated with construction (California Department of Transportation 2002). There is limited potential for swallows to nest along Alameda Creek Flood Control Channel or Old Alameda Creek, although the likelihood of bank swallows nesting in the area is very low. No sign of the species was observed during December 2007 reconnaissance-level wildlife surveys.

Yellow Warbler

Yellow warbler (*Dendroica petechia*) is designated as a state species of special concern. This species typically nests in dense riparian habitats dominated by willows and other riparian species, including, alders, cottonwoods, and sycamores (Dunn and Garrett 1997). Breeding distribution includes most of California except the Central Valley, the Mojave Desert region, and high altitudes and the eastern side of the Sierra Nevada. Yellow warblers generally nest from April through late July.

There is one CNDDB record within 10 miles of the study area, of a male yellow warbler exhibiting breeding behavior (California Natural Diversity Database 2008). There is suitable nesting habitat in the riparian zone of Old Alameda Creek. No sign of the species was observed during December 2007 reconnaissance-level wildlife surveys.

Hoary Bat

Hoary bat (*Lasiurus cinereus*) is a California species of special concern. Habitats suitable for breeding include all woodlands and forests with medium to large trees, and dense foliage (Zeiner et al. 1990b). They reproduce in late spring or early summer, often producing two offspring at a time.

There is one CNDDB record (2008) for hoary bat approximately 6 miles to the northwest of the study area. There is potential for hoary bats to roost and forage in the riparian habitat associated with Old Alameda Creek. No sign of the species was observed during December 2007 reconnaissance-level wildlife surveys.

Pallid Bat

Pallid bat (*Antrozous pallidus*) is a California species of special concern. Pallid bat is found in a variety of habitats including desert, brushy terrain, coniferous forest, and non-coniferous woodlands. In Central and Northern California, the species is associated with oak, ponderosa pine, redwood, and giant sequoia habitats. Daytime roost sites include rock outcrops, mines, caves, hollow trees, buildings, and bridges. Night roosts are commonly under bridges but are also in cave and mines (The Wildlife Society 1996). Hibernation may occur during late November through March. Pallid bats breed in late October and November in Central California (Orr 1954), and one or two young are born in May or June (The Wildlife Society 1996).

There are three CNDDB records for pallid bat within a 5 to 10 mile radius of the study area (California Natural Diversity Database 2008). There is potential for pallid bats to roost and forage in the riparian habitat associated with Old Alameda Creek. No sign of the species was observed during December 2007 reconnaissance-level wildlife surveys.

San Francisco Dusky-Footed Woodrat

San Francisco dusky-footed woodrat (*Neotoma fuscipes*) is a California species of special concern. The subspecies' range is from the west side of Mount Diablo to the coast, including San Francisco Bay. Habitats occupied by woodrats include chaparral and conifer or hardwood forests with a moderate understory (Peeters 2004). Dusky-footed woodrats have a complex social structure, which can make them particularly vulnerable to disturbance. They build large lodges of sticks, leaves, bark, and other debris, up to 8 feet high and 8 feet in diameter; often on the ground against a tree or shrub (Whitaker 1996). Dusky-footed woodrats breed from December to September, with a peak in mid-spring (Zeiner et al. 1990b).

There are no CNDDB records for San Francisco dusky-footed woodrat within a 5-mile radius of the study area, and no sign of the species was observed during December 2007 reconnaissance-level wildlife surveys.

Special-Status Fish Species

Based on the species list obtained from USFWS (2008) and previously prepared environmental documents, seven special-status fish species were identified as having the potential to occur in the study area (Table 3.3-5). Field survey information, species distribution, and suitable habitat information were used to determine which species could occur in the study area. Of the seven species identified, six were eliminated from further consideration because habitat for these species is not present in the study area or the study area is located outside of the species' known range. Only one special-status fish species, Central California Coast steelhead, occurs in the study area.

Central California Coast Steelhead

Central California coast steelhead (*Oncorhynchus mykiss*) was listed as federally threatened by National Marine Fisheries Service (NMFS) on August 18, 1997 (62 FR 43937) and this status was reaffirmed on January 5, 2006 (71 FR 834). There is no state status for this species. The central California coast steelhead distinct population segment (DPS) includes populations from the Russian River in Sonoma County south to Soquel Creek in Santa Cruz County. Alameda Creek is not designated as critical habitat for steelhead.

Central California coast steelhead generally migrate from salt water to fresh water between December and April, with most migration occurring from January through March. Migration timing is determined by winter storms that provide sufficient flows to permit upstream migration. The preferred migration temperatures for steelhead range between 7.8 and 11.1ºC (46 and 52ºF) (National Marine Fisheries Service 2000). Spawning generally begins when trout reach spawning areas.

During spawning, the female digs a redd (gravel nest), into which the eggs are deposited and then fertilized by the male. Steelhead prefer substrate no larger than 10 centimeters (4 inches) in diameter (Bjornn and Reiser 1991). Steelhead spawn in cool, well-oxygenated water (Hampton 1988). Optimal water temperatures for spawning and incubation range between 3.9 and 11ºC (39 and 52ºF) (Myrick and Cech 2001). Incubation lasts from 1.5 to 4 months, depending on water temperature (Moyle 2002).

Instream and overhead cover, in the form of undercut banks, downed trees, and overhanging tree branches, is important for juvenile rearing. The addition of cover increases spatial complexity and may increase productivity. Fine-textured instream woody material provides the hydraulic diversity necessary for selection of suitable velocities, access to drifting food, and escape refugia from predatory fish (Raleigh et al. 1984).

Juvenile steelhead feed on a variety of aquatic and terrestrial insects and other small invertebrates. They may rear for 1 to 2 years in their natal streams. Steelhead smolts (1 to 2 year olds) emigrate from March to May. Ocean rearing lasts 2 to 3 years.

Central California coast steelhead have been observed in the study area in the Alameda Creek Flood Control Channel. Steelhead have been observed in 1998 and 1999 below the BART weir located approximately 1.8 miles upstream in

Fremont (Gunther et al 2000: 15). In 2006, a video camera was installed at the BART weir for fisheries research purposes. Approximately 10 steelhead were observed, with six captured and released upstream of the weir (Asbury and Gunther 2006). Although steelhead have been observed in the broader vicinity of the study area, steelhead habitat in the study area itself and immediately surrounding areas is poor. The Alameda Creek Flood Control Channel is a wide, flat channel, with riprapped banks and terrestrial vegetation along the edges, and no riparian vegetation is present. Hanson Environmental Inc. (2002) conducted an instream habitat typing survey in Alameda Creek and found that the section of the flood control channel below the BART weir has no steelhead spawning or rearing habitat. However, this section of the Old Alameda Creek Flood Control Channel, which includes the study area, could be used by steelhead as a migratory pathway, which would end at the BART weir, upstream of the project alignment. Old Alameda Creek holds some runoff water from surrounding housing developments, but is a dead-end channel at both ends, and thus provides no fish habitat.

Sensitive Communities

One sensitive community, willow riparian woodland and scrub, occurs along Old Alameda Creek in the project alignment. Willow riparian woodland and scrub is a riparian plant community dominated by willows and other riparian tree and shrub species. It is considered sensitive because it is of conservation concern as a riparian plant community, and because it provides important habitat for many native and special-status species. Some of the wildlife species that may rely on willow riparian woodland and scrub for some or all of their life history needs include western pond turtle, sharp-shinned hawk, song sparrow, and yellow warbler.

Regulatory Setting

Federal Regulations

Federal Endangered Species Act

The ESA protects fish and wildlife species and their habitats that have been identified by USFWS or the NMFS as threatened or endangered. *Endangered* refers to species, subspecies, or distinct population segments that are in danger of extinction through all or a significant portion of their range; *threatened* refers to species, subspecies, or distinct population segments that are likely to become endangered in the near future.

USFWS and NMFS administer the ESA. In general, NMFS is responsible for protection of ESA-listed marine species and anadromous fish, whereas listed, proposed, and candidate wildlife and plant species and commercial fish species are under USFWS jurisdiction. *Take* of listed species can be authorized through either the Section 7 consultation process for actions by federal agencies or the

Section 10 permit process for actions by nonfederal agencies. Federal agency actions include activities that are:

- on federal land,
- conducted by a federal agency,
- funded by a federal agency, or
- authorized by a federal agency (including issuance of federal permits and licenses).

Under Section 7, the federal agency conducting, funding, or permitting an action (the federal lead agency) must consult USFWS or NMFS, as appropriate, to ensure that the proposed action will not jeopardize endangered or threatened species or destroy or adversely modify designated critical habitat. If a proposed project "may affect" a listed species or designated critical habitat, the lead agency is required to prepare a biological assessment evaluating the nature and severity of the expected effect. In response, USFWS issues a biological opinion with a determination that the proposed action either:

- may jeopardize the continued existence of one or more listed species (jeopardy finding) or result in the destruction or adverse modification of critical habitat (adverse modification finding); or
- will not jeopardize the continued existence of any listed species (no jeopardy finding) or result in adverse modification of critical habitat (no adverse modification finding).

The biological opinion issued by USFWS may stipulate discretionary "reasonable and prudent" conservation measures. If the project would not jeopardize a listed species, USFWS issues an incidental take statement to authorize the proposed activity.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (16 U.S. Government Code [USC] 703) enacts the provisions of treaties between the United States, Great Britain, Mexico, Japan, and the Soviet Union and authorizes the U.S. Secretary of the Interior to protect and regulate the taking of migratory birds. It establishes seasons and bag limits for hunted species and protects migratory birds, their occupied nests, and their eggs (16 USC 703; 50 CFR 10, 21). Most actions that result in taking or in permanent or temporary possession of a protected species constitute violations of the MBTA. Examples of permitted actions that do not violate the MBTA are the possession of a hunting license to pursue specific game birds, legitimate research activities, collection for display in zoological gardens, bird-banding, and other similar activities. USFWS is responsible for overseeing compliance with the MBTA, and the U.S. Department of Agriculture's Animal Damage Control Officer makes recommendations on related animal protection issues.

Clean Water Act

The federal Clean Water Act (CWA) was enacted as an amendment to the federal Water Pollution Control Act of 1972, which outlined the basic structure for regulating discharges of pollutants to waters of the United States. The CWA serves as the primary federal law protecting the quality of the nation's surface waters, including lakes, rivers, and coastal wetlands. The following discussion gives background information as relevant to biological resources; additional discussion of the CWA relative to hydrology and water quality can be found in the Initial Study.

Waters of the United States are areas subject to federal jurisdiction pursuant to Section 404 of the CWA. *Waters of the United States* are typically divided into two types: *wetlands* and *other waters of the United States*.

Wetlands are "areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR § 328.3[b], 40 CFR § 230.3). To be considered subject to federal jurisdiction, a wetland must normally support hydrophytic vegetation, hydric soils, and wetland hydrology (Environmental Laboratory 1987).

Other waters of the United States are seasonal or perennial water bodies, including lakes, stream channels, drainages, ponds, and other surface water features, that exhibit an OHWM but lack positive indicators for the three wetland parameters (33 CFR 328.4).

Permits for Fill Placement in Waters and Wetlands (Section 404)

CWA Section 404 regulates the discharge of dredged and fill materials into waters of the United States. Applicants must obtain a permit from the Corps for all discharges of dredged or fill material into waters of the United States, including wetlands, before proceeding with a proposed activity. The Corps may issue either an individual permit evaluated on a case-by-case basis or a general permit evaluated at a program level for a series of related activities. General permits are preauthorized and are issued to cover multiple instances of similar activities expected to cause only minimal adverse environmental effects. Nationwide permits (NWP) are a type of general permit issued to cover particular fill activities. Each NWP specifies particular conditions that must be met for the NWP to apply to a particular project.

Water Quality Certification (Section 401)

Under CWA Section 401, applicants for a federal license or permit to conduct activities that may result in the discharge of a pollutant into waters of the United

States must obtain certification from the state in which the discharge would originate or, if appropriate, from the interstate water pollution control agency with jurisdiction over affected waters at the point where the discharge would originate. Therefore, all projects that have a federal component and may affect state water quality (including projects that require federal agency approval, such as issuance of a Section 404 permit) must also comply with CWA Section 401.

California Statutes and Regulations

Porter-Cologne Water Quality Control Act

Under the Porter-Cologne Water Quality Control Act (Porter-Cologne Act), the Regional Water Quality Control Board (RWQCB) regulates the “discharge of waste” to “waters of the state.” All parties proposing to discharge waste that could affect waters of the state must file a report of waste discharge with the local RWQCB, which will then respond by issuing waste discharge requirements (WDRs) in a public hearing, or by waiving them (with or without conditions). The terms “discharge of waste” and “waters of the state” are broadly defined in the Porter-Cologne Act, such that discharges of waste include fill, any material resulting from human activity, or any other “discharge” that may directly or indirectly impact “waters of the state.”

The RWQCBs designate beneficial uses and establish Water Quality Objectives (WQOs) for the state’s waters through development of water quality control plans (basin plans) under the Porter-Cologne Act, CWA, and general provisions of California Water Code Section 13000. The WQOs include both quantitative and narrative targets that may differ depending on the specific beneficial uses being protected. Any activity that results or may result in a discharge that directly or indirectly affects waters of the state or the beneficial uses of those waters are subject to WDRs.

California Fish and Game Code—Wildlife Protection

The California Fish and Game Code provides protection from take for a variety of species, referred to as *fully protected species*. Section 5050 lists protected amphibians and reptiles. Section 3515 prohibits take of fully protected fish species. Eggs and nests of all birds are protected under Section 3503, nesting birds (including raptors and passerines) under Sections 3503.5 and 3513, birds of prey under Section 3503.5, and fully protected birds under Section 3511. Migratory non-game birds are protected under Section 3800. Mammals are protected under Section 4700. The California Fish and Game Code defines *take* as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” Except for take related to scientific research, all take of fully protected species is prohibited.

The white-tailed kite is the only fully protected species with the potential to occur in the project vicinity.

Fish and Game Code—Streambed Alteration Agreements

The California Department of Fish and Game (DFG) has jurisdiction over wetland resources associated with rivers, streams, and lakes under California Fish and Game Code Section 1602. DFG has the authority to regulate all work under the jurisdiction of California that would substantially divert, obstruct, or change the natural flow of a river, stream, or lake; substantially change the bed, channel, or bank of a river, stream, or lake; or use material from a streambed.

In practice, DFG marks its jurisdictional limit at the top of the stream or lake bank, or the outer edge of the riparian vegetation, where present, and sometimes extends its jurisdiction to the edge of the 100-year floodplain. Because riparian habitats do not always support wetland hydrology or hydric soils, wetland boundaries, as defined by CWA Section 404, sometimes include only portions of the riparian habitat adjacent to a river, stream, or lake. Therefore, jurisdictional boundaries under Section 1600 may encompass a greater area than those regulated under CWA Section 404.

DFG enters into a streambed alteration agreement with an applicant and can request conditions to ensure that no net loss of wetland values or acreage will be incurred. The streambed or lakebed alteration agreement is not a permit but, rather, a mutual agreement between DFG and the applicant.

Fish and Game Code—Bird and Raptor Protections

Section 3503 of the California Fish and Game Code prohibits the killing of birds or the destruction of bird nests. Section 3503.5 prohibits the killing of raptor species and the destruction of raptor nests.

Local

City of Fremont General Plan

The proposed project would be located partially within the City of Fremont, under the planning guidance of the City of Fremont General Plan. The Natural Resources Chapter of the general plan includes a biological resources section that defines overall goals, objectives, and specific policies to guide the development of the city in accordance with the unique biological resources present throughout the area. The following policies from the general plan are applicable to the proposed project.

- **Policy NR 1.1.1:** Whenever feasible, natural and semi-natural wetlands, including riparian corridors, vernal pools and their wildlife habitat shall be preserved or impacts minimized.
- **Policy NR 1.2.1:** Through inter-agency cooperation and planning, maximize the biological values of publicly owned lands, consistent with other public purposes (recreation, flood control, groundwater recharge, etc.).

- **Policy NR 2.2.2:** Minimize impacts of development in uplands adjacent to or associated with seasonal and other wetlands.

City of Fremont Tree Preservation Ordinance

The City of Fremont Tree Preservation Ordinance requires that a permit be obtained for the removal of any tree with a diameter at breast height (dbh) (trunk diameter measured at 4.5 feet above the ground) of 18 inches or larger, 10 inches or larger if native to Fremont, or 6 inches if on undeveloped or vacant land. The City also requires a permit, regardless of the tree size, if the tree is subject to a permit as required in a previous development approval or if the tree is located: within any non-single-family home lot in Fremont, within any single-family home lot larger than 10,000 square feet, or within the front yard of any single-family home lot 10,000 square feet or less. (A side yard facing a street on a corner lot is regulated as a front yard.)

A list of trees considered native to Fremont is available on the City website. Commercial-type nut- and fruit-bearing trees, with the exception of European olive (*Olea europaea*) and black walnut (*Juglans hindsii*), are exempt from protection under this Ordinance. All trees that could be affected by the proposed project within the City of Fremont are expected to occur on undeveloped or vacant land, except possibly landscaping trees that are planted along existing streets that would be widened during project implementation.

Tree removal would require an arborist report that provides details on size and health of trees within the project alignment. A removal permit requires replacement at a 1:1 ratio with a 24-inch-box-sized replacement tree of a species of the same type and size as the removed tree.

City of Union City General Plan

The proposed project is located partially within the City of Union City, under the planning guidance of the City of Union City General Plan. The Natural and Historic Resources Element of the General Plan includes a biological resources section that defines overall goals, objectives, and specific policies to guide the development of the City in accordance with the unique biological resources present throughout the area. The following policies from the General Plan are applicable to the proposed project.

- **Policy NHR-A.1.3:** On sites that have the potential to contain critical or sensitive habitats, or special-status species, or are within 100 feet of such areas, the City shall require the project applicant to survey the site by a qualified biologist at the proper time of year. A report of the findings of this survey shall be submitted to the City as part of the application process. Appropriate mitigation measures will be incorporated into the project as necessary to protect the resources.
- **Policy NHR-A.1.4:** On sites with the potential to contain wetland resources, the City shall require that a wetland delineation be prepared using the

protocol defined by the Corps. The applicant shall submit a report on the findings of this survey to the City as part of the application process. Appropriate mitigation measures will be incorporated into the project as necessary to protect the resources.

- **Policy NHR-A.1.15:** The City shall commit to preservation of significant natural resources including wetlands, bay shores, plant, animal, and fish habitats.

City of Union City Tree Protection Ordinance

Union City has a Tree Protection Ordinance which protects trees with a circumference of 35 inches or greater, or 70 feet or greater if multi-trunk, if located on residential property; 12 inches or greater if located on a vacant lot, undeveloped property, or commercial, office, or industrial developed property; 12 inches or greater if removal relates to any transaction for which zoning or subdivision approval is required; or any tree required to be planted by the terms of a zoning approval or a subdivision approval.

Tree removal would require an arborist report that provides details on size and health of trees within the project alignment. A removal permit requires replacement with 15-gallon container replacement trees at a ratio to be determined on a project-specific basis.

3.3.3 Impact Analysis

This impact analysis describes the methods used to determine the impacts of the proposed project, identifies the thresholds used to conclude whether an impact would be significant, and identifies measures to mitigate (i.e., avoid, minimize, rectify, reduce, eliminate, or compensate for) significant impacts where required.

Methodology

Impacts on biological resources were analyzed through a combination of quantitative and qualitative techniques, incorporating professional judgment in light of the nature of the proposed activities and current conservation practices.

The analysis focuses on the potential to adversely impact sensitive resources. Impacts on special-status species include direct disturbance, injury, and mortality, as well as indirect effects through habitat loss and degradation. Adverse impacts were identified as either temporary (short-term) or permanent (long-term). Temporary impacts could result from construction noise, runoff, staging, and other construction activities. Permanent effects could result from continuous operation of the new road.

For the purpose of this analysis, sensitive habitats include sensitive natural communities, as defined by Holland (1986) and CNDDB (2007). More common or widespread habitats would also be affected by the project, such as nonnative annual grassland; such impacts must be extensive to be considered significant. To determine the level of impact on all communities and habitats, the estimated amounts of total ground disturbance were calculated and are displayed in Table 3.3-1 (see above). Impacts on sensitive habitats also include the disturbance or removal of large, old, or historically important trees.

Significance Criteria

For this analysis, an impact pertaining to biological resources was considered significant under CEQA if it would result in any of the following environmental effects, which are based on professional practice and State CEQA Guidelines Appendix G (14 CCR 15000 et seq.).

- 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 DFG or USFWS.
- Substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by DFG or USFWS.
- Substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
- Substantial interference 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.
- Conflict with any adopted Habitat Conservation Plan, Natural Community Conservation Plan or local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

Impacts on biological resources can be direct, resulting from the permanent removal of habitat, or indirect, resulting from changes in land use adjacent to natural habitats (e.g., increased light, noise, vibration, and urban runoff, interruption of wildlife movement corridors, etc.). Both of these types of impacts and their levels of significance are discussed in this section. The project alignment is not located within habitat conservation plan or natural community conservation plan areas. Therefore, there would not be a potential conflict with such conservation plans.

Project Impacts and Mitigation Measures

The impacts of the proposed project on biological resources are discussed below. As described in Chapter 2, Project Description, there are two options for the Quarry Lakes Drive alignment. As appropriate, differences in impacts on biological resources for these two options are noted in the text below.

The project alignment along the existing roadway (Decoto Road and Paseo Padre Parkway) is highly developed. Project components would be implemented within existing roadway corridors, with the exception of small increases in right-of-way in areas that would need further expansion outside of the existing roadway alignment. However, these areas are developed in nature and support urban land uses. Therefore, implementation of the proposed project would not infringe on any areas of natural environment that may support sensitive wildlife or vegetative species. Therefore, these impacts are not further discussed in this section.

Existing Roadway (Decoto Road and Paseo Padre Parkway)

Impact BIO-1: Degradation of Water Quality in Crandall Creek from Construction Activities Associated with the Roadway Widening (Less than Significant with Mitigation)

Within the existing roadway alignment, Crandall Creek, a channelized stormwater feature, is located approximately 500 feet north of Cabrillo Court. The creek flows through a culvert beneath Decoto Road. The proposed project would widen the existing roadway right-of-way at this location by up to 10 feet, but would not modify Crandall Creek. The improvements associated with widening Decoto Road would not extend outside the existing roadway, so there would be no direct impacts on the creek. However, construction activities adjacent to the creek could result in indirect adverse effects on water quality.

This impact is considered significant. The following mitigation measure, identified in Section 3.7, Hydrology and Water Quality, would reduce this impact to a less-than-significant level.

Mitigation Measure HWQ-1: Comply with National Pollutant Discharge Elimination System Requirements and Develop and Implement a Stormwater Pollution Prevention Plan

ACTA will comply with the requirements of the ACCWP SWQMP, Alameda County's NPDES General Construction Permit, and Caltrans NPDES permit where applicable before the onset of any construction activities. Compliance and coverage with the SWQMP and NPDES General Construction Permit will require controls of pollutant discharges that use BMPs and technology to reduce erosion and sediments to meet water quality standards. BMPs may consist of a wide variety of measures taken to reduce pollutants in stormwater and other non-point-source runoff. Measures range from source control, such as reduced surface disturbance, to the treatment of polluted runoff, such as detention basins.

A Stormwater Pollution Prevention Plan (SWPPP) will be developed by a qualified engineer or erosion control specialist in accordance with the San Francisco Bay RWQCB requirements for NPDES compliance and implemented prior to the issuance of any grading permit before construction. Additionally, local requirements by the City planning or public works departments will also be incorporated. The SWPPP will be kept on site during construction activity and will be made available upon request to representatives of the San Francisco Bay RWQCB.

The SWPPP will include BMPs for the proposed project and may include the following practices.

- Install falsework and netting at bridge construction sites to keep bridge debris and construction materials from falling into the Alameda Creek Flood Control Channel and Old Alameda Creek during construction activities.
- Erosion control measures will be installed adjacent to suitable aquatic habitat to prevent soil from eroding or falling into these areas. Natural/biodegradable erosion control measures (i.e., straw wattles and hay bales) will be used. Plastic monofilament netting (erosion control matting) will not be allowed because salamanders and frogs can become caught in this type of erosion control material.
- Contain soil and filter runoff from disturbed areas by berms, vegetated filters, silt fencing, straw wattle, plastic sheeting, catch basins, or other means necessary to prevent the escape of sediment from the disturbed area.
- Use a dry detention basin (which is typically dry except after a major rainstorm, when it will temporarily fill with stormwater), designed to decrease runoff during storm events, prevent flooding, and allow for off-peak discharge. Basin features will include maintenance schedules for the periodic removal of sediments, excessive vegetation, and debris that may clog basin inlets and outlets.
- Cover, or apply nontoxic soil stabilizers to, inactive construction areas (previously graded areas inactive for 10 days or more) that could contribute sediment to waterways.
- Enclose and cover exposed stockpiles of dirt or other loose, granular construction materials that could contribute sediment to waterways.
- Ensure that no earth or organic material will be deposited or placed where it may be directly carried into a stream, marsh, slough, lagoon, or body of standing water.
- Ensure that grass or other vegetative cover will be established on the construction site as soon as possible after disturbance.
- Locate staging areas at least 50 feet away from any drainages.

- Prohibit the following types of materials from being rinsed or washed into the streets, shoulder areas, or gutters: concrete; solvents and adhesives; thinners; paints; fuels; sawdust; dirt; gasoline; asphalt and concrete saw slurry; heavily chlorinated water.

ACTA, in coordination with the city planning or public works departments, will select a combination of BMPs to minimize runoff flows and remove contaminants from stormwater discharges. The final selection of BMPs will be subject to approval by the RWQCB. ACTA will verify that a Notice of Intent has been filed with the State Water Board and that a SWPPP has been developed before allowing construction to begin. ACTA will perform inspections of the construction area, to verify that the BMPs specified in the SWPPP are properly implemented and maintained. ACTA will notify contractors immediately if there is a noncompliance issue and will require compliance. If necessary, ACTA will require that additional BMPs be designed and implemented if those originally constructed do not achieve the identified performance standard.

New Roadway (Paseo Padre Parkway to Mission Blvd)

Impact BIO-2: Loss of or Disturbance to Special-Status Plants (Less than Significant)

Construction activities along the new roadway segment could result in the disturbance or loss of special-status plants. Two special-status plants, Congdon's tarplant and slender-leaved pondweed, have been identified as having the potential to occur in the study area, but were not observed during floristic surveys conducted during the spring and summer, when both would be flowering. Therefore, this impact is considered less than significant. No mitigation is required.

Impact BIO-3: Loss of or Disturbance to Western Burrowing Owls or their Nesting and Foraging Habitat (Less than Significant)

While any patch of annual grassland in an urban area in the Bay Area region would be considered potential habitat for western burrowing owl, no owls have been observed along the project alignment during the nesting or wintering period. Further, there are no nesting owls or owl colonies in the project vicinity that could be foraging in the annual grasslands along the project alignment, including the area along Old Alameda Creek. Impacts on nesting, wintering, or foraging western burrowing owls would be less than significant. No mitigation would be required.

Impact BIO-4: Loss of or Disturbance to California Red-Legged Frogs, California Tiger Salamanders, Western Pond Turtles, and their Habitat (Less than Significant with Mitigation)

The CRLF, CTS and western pond turtle could occur in the aquatic habitats that would be affected by construction of the new roadway segment. These aquatic habitats include Alameda Creek Flood Control Channel, Old Alameda Creek, Line M Channel, and all other wetland features identified above.

As described under Sensitive Biological Resources, Special Status Wildlife Species, neither the CRLF, CTS, ~~n~~or the western pond turtle were observed during site assessments~~surveys~~. Protocol breeding season surveys ~~Several surveys and studies~~ were conducted for the CRLF. To date, no CRLF have been observed in the study area,~~,~~ and the potential for the CRLF to occur remains extremely low. Although the proposed project is not expected to adversely affect the CRLF or CTS, preconstruction surveys would ensure that individuals would not be affected during construction and that this impact is less than significant.

Although not observed during the reconnaissance field visit, Western pond turtles could be in the study area during construction. Excavation of channel banks or disturbance of adjacent habitat where nesting could occur could result in the loss of individuals or nests. Because western pond turtles do not begin to reproduce until several years into their adult life and nests are rarely successful as they compete with predators (skunks, raccoons, etc.), the loss of even one nest can be devastating to the local population. Therefore, the potential for loss of individuals or nests is considered a significant impact.

In conclusion, there would be a potential impact on ~~California red-legged frog~~CRLF, CTS, western pond turtles, and their habitat. This impact is considered significant. Implementation of the following mitigation measures would reduce this impact to a less-than-significant level.

Mitigation Measure BIO-1: Provide Construction Worker with Awareness Training for Special-Status Species and Sensitive Habitats in the Construction Area

ACTA will ensure that all construction personnel receive worker awareness training provided by a qualified wildlife biologist experienced in training non-specialists to ensure that they can recognize CRLF, CTS, western pond turtle, and other aquatic and riparian wildlife, and that they understand where sensitive resource areas are within the construction zone so that they could minimize their impact on all sensitive habitats.

Mitigation Measure BIO-2: Conduct Preconstruction Surveys and, If Necessary, Implement Measures to Protect California Red-Legged Frog, California Tiger Salamander, and Western Pond Turtle

Prior to the start of construction activities, ACTA will retain a qualified biologist to conduct preconstruction surveys for CRLF, CTS, and western pond turtle in all suitable habitats in the study area. Surveys will take place no more than 72 hours prior to the onset of site preparation and construction, and will review the suitable habitat for individuals and nests. If the species is observed during preconstruction surveys, the biologist will remain on site during initial ground-disturbing activities to monitor individuals and ensure ~~that~~ CRLF, CTS and western pond turtles are not affected by construction activities. Whenever possible, the biologist will work with construction crews to avoid impacts on individuals. If necessary, individual turtles, CRLF, and CTS will be relocated by a DFG approved biologist, in accordance with DFG specifications.

If construction activities occur from May through July, there is the possibility of affecting active western pond turtle nests. If preconstruction surveys identify active nests, the biologist will establish visual no-disturbance buffer zones around each nest using temporary orange construction fencing. The demarcation will be permeable to allow young turtles to move away from the nest following hatching. The radius of the buffer zone and the duration of exclusion will be determined in consultation with DFG. The buffer zones and fencing will remain in place until the young have left the nest, as determined by a qualified biologist.

Mitigation Measure HWQ-1: Comply with National Pollutant Discharge Elimination System Requirements and Develop and Implement a Stormwater Pollution Prevention Plan

Impact BIO-5: Potential Loss of Nesting Migratory Birds, including Raptors, or Loss of their Nests or Eggs (Less than Significant with Mitigation)

Construction activities would require the use of heavy equipment, which could cause disturbance to birds and raptors nesting and foraging in the area. General human presence, activity, and noise during project construction may also disturb nesting and foraging. All natural and landscaped areas provide suitable nesting habitat for migratory birds. If occupied nests are present on, or adjacent, to the construction area, construction activities could result in the abandonment of nests, the death of nestlings, or the destruction of eggs in active nests. Because the death of nestlings or destruction of eggs would violate these acts, this impact is considered significant. Implementation of the following mitigation measure would reduce this impact to a less-than-significant level.

Mitigation Measure BIO-3: Conduct Site Preparation and Construction Activities between September 1 and ~~March 14~~ January 31 to Avoid the Typical Nesting Period of Migratory Birds, and Implement Preconstruction Surveys and Protective Measures if Necessary

Site preparation and initial ground disturbance that require vegetation removal will occur between September 1 and ~~March 14~~ January 31, outside the migratory bird nesting period (~~March 15~~ February 1 through August 31). Additionally, any demolition of structures will occur outside of the typical nesting period to avoid loss of birds that nest on structures (e.g., phoebes, swallows). If vegetation removal occurs outside the nesting period, no preconstruction survey will be required.

If construction activities must occur between ~~March 16~~ February 1 and August 31 during the nesting period, ACTA will retain a qualified wildlife biologist to conduct a survey for nesting raptors and migratory birds that may nest in any available habitats that will be removed during construction. Surveys will take place no more than 48 hours prior to vegetation removal and will cover all suitable raptor and migratory bird nesting habitat that will be affected directly or any adjacent areas where nesting birds may be affected by construction noise or human presence. This includes areas potentially used by ground-nesting migratory bird species.

The potential habitats to be surveyed will be determined by the qualified biologist during the survey. If an active nest is discovered, the biologist will establish a no-disturbance buffer zone around the nest tree (or, for ground-nesting species, the nest itself). This no-disturbance zone will be marked with some visual markers (flagging or fencing) that are easily identified by the construction crew, and will not draw attention to the nesting bird. Buffers will remain in place as long as the nest is active or young remain in the area and are dependent on the adults. No construction activity of any type will be permitted within buffer zones. In general, the minimum buffer zone widths will be 300 feet for white-tailed kite and raptors, and 250 feet for migratory birds. Based on discussion with DFG, buffer widths may be modified, depending on the proximity of activities to the nest(s) and whether the nest(s) will have a direct line of sight to construction activities, existing disturbance levels at the nest(s), local topography and vegetation, the nature of proposed activities, and the species potentially affected.

Impact BIO-6: Disturbance to Anadromous Steelhead and their Habitat from Construction Activities at Alameda Creek Flood Control Channel (Less than Significant with Mitigation)

The Alameda Creek Flood Control Channel is a potential migratory path for anadromous steelhead, including the Central California coast steelhead (listed as federally threatened species). Bridge construction and general construction activities in the study area could cause disturbance to anadromous steelhead and contaminants to enter steelhead habitat.

Bridge construction includes driving 144 concrete piles with a diesel hammer over 18 days. Bridge construction activities could disrupt the migratory pathway for anadromous steelhead moving through the Alameda Creek Flood Control Channel, and noise generated by pile driving and other construction activities could adversely affect the fish and other aquatic organisms. The potential impacts of underwater noise on fish depend on a number of biological characteristics (e.g., fish size, hearing sensitivity, behavior) and the physical characteristics of the sound (e.g., frequency, intensity, duration) to which fish are exposed. Potential effects include behavioral effects, physiological stress, physical injury (including hearing loss), and mortality.

Sound levels sufficient to cause potential injury to fish would be limited to the immediate project alignment and, at any given time, the area immediately surrounding the pile that is being driven. Once pile driving is underway, individual fish approaching the project alignment from upstream or downstream are likely to detect the sounds and avoid the immediate project alignment. Opportunities to avoid peak sound levels would also occur during periods when pile driving ceases (e.g., re-positioning of equipment) and at night when pile driving would be suspended.

Construction activities can increase the erosion process and cause excessive sediment quantities to be deposited in or near stream channels, which can degrade aquatic habitats. Sediments can smother developing fish eggs, degrade spawning habitat, and decrease food production. Fine sediments can also increase turbidity. Increased turbidity can increase fish mortality; reduce feeding opportunities for fish, including anadromous species; and cause fish to avoid biologically important habitat.

Although such an event is unlikely, refueling, operation, and storage of construction equipment and materials could result in accidental spills of pollutants, such as concrete, sealants, oil, and paint, into the river. Pollutants entering the river would cause mortality to, and reduced growth of the egg, larval, and juvenile life stages of fish. Furthermore, these pollutants could adversely affect the movement of steelhead.

This impact is considered significant. The following mitigation measures would reduce this impact to a less than significant level.

Mitigation Measure BIO-4: Conduct In-Water Construction Activities in Alameda Creek Flood Control Channel between May 1 and October 1 to Avoid Special-Status Fish Spawning and Migration Seasons

In-channel construction, including riverbank and channel bed construction below the OHWM, will be limited to the summer low-precipitation period (May 1 to October 1~~5~~) to reduce the likelihood of adverse impacts on rearing juvenile steelhead and on adult fish spawning and migration, unless otherwise approved by appropriate resource agencies. Central California coast adult steelhead typically migrate upstream during winter storms primarily between December and March (Gunther et al. 2000), which is outside of the construction season. Due to the severely altered nature of the Alameda Creek Flood Control Channel (absence of riparian vegetation and riffle/pool sequences), the reach is not expected to support rearing steelhead (Gunther et al. 2000). Therefore, neither adult nor juvenile fish are expected to be present during the construction season. DFG may extend the time limits of in-channel construction and require a fisheries biologist to perform a preconstruction survey to ensure that no steelhead are present in the study area.

Mitigation Measure BIO-5: Provide an Alternate Migration Corridor through the Alameda Flood Control Channel if Surface Flow Is Present during Construction

If in-channel construction occurs when surface flow is present, in-water construction activities will include installing diversion structures in the flood control channel around the new footing excavations to provide a migratory route through the channel. Cofferdams will affect no more of the stream channel than is necessary to support completion of the construction activity. Flow will be diverted the minimum distance necessary to isolate construction area. Water will be released or pumped downstream at an appropriate rate to maintain downstream flows at all times.

Immediately upon completion of in-channel work, diversion structures, and other in-channel structures will be removed in a manner that minimizes disturbance to downstream flows and water quality.

Mitigation Measure BIO-6: Implement Channel Protection Measures during Construction

The following measures will be implemented to decrease impacts on the Alameda Creek Flood Control Channel and associated habitat.

- All bridge construction work will be performed from the bank where practicable.
- The duration and extent of in-water activities will be limited to the maximum extent practicable.
- Any falsework or other construction equipment will be removed from the channel.
- The minimum amount of wood, sediment and gravel, and other natural debris necessary will be removed to maintain and protect bridge function, ensure suitable fish passage conditions, and minimize disturbance of the streambed.

Mitigation Measure HWQ-3: Implement Additional Water Quality Protection Measures to Reduce Sediment in Surface Waters during Construction

If construction occurs when flows are present in on-site surface waters (Alameda Creek Flood Control Channel, Old Alameda Creek, Line M Channel, and other drainages), the contractor will implement measures to protect surface water quality consistent with the water quality treatment methods included in Figure 3.7-4. These measures may include flow diversions, impoundments (e.g., diversion structures), or other methods to avoid the direct exposure of surface water to sediment created as part of construction activity. As a performance standard, the measures will maintain basin plan standards for turbidity. If ambient turbidity is greater than 50 NTUs, then project construction will not exceed 10% over the ambient conditions.

Where the proposed project has potential to result in elevated turbidity, monitoring will be performed at least twice daily at upstream and downstream locations to determine whether the standards outlined above have been met. In the event that they are not being met, the turbidity-generating activities will cease until turbidity is within the identified limits, and construction methods or turbidity control measures will be modified to ensure that turbidity limits continue to be met.

Impact BIO-7: Loss of Disturbed or Non-Sensitive Habitats (Less than Significant)

The ~~final~~ realignment configuration for Quarry Lakes Drive includes two options that are currently under consideration (refer to Figure 2-7 in Chapter 2). Construction activities and the final road structure would disturb approximately 22.8 acres and 21.7 acres of nonnative annual grassland under Options 1 and 2, respectively. In addition, Option 1 would remove 2.44 acres of urban landscaping and Option 2 would remove 2.97 acres of urban landscaping. Additionally, the bicycle/pedestrian trail (constructed as part of the proposed project) and three infiltration basins (constructed as part of Mitigation Measure HWQ-5) would result in the permanent loss of up to 2.5 acres (depending on final design) of nonnative grassland. The wetlands mitigation plan (constructed adjacent to Old Alameda Creek, as part of Mitigation Measure BIO-7) would result in the permanent loss of approximately 6.4 acres of nonnative grassland, 0.21 acre of coyote brush scrub, and 0.48 acre of urban landscaping to open water, wetland, and willow riparian woodland and scrub habitat.

In summary, up to 30 acres of nonnative grassland, 3.5 acres of urban landscaping, and 0.5 acre of coyote brush scrub could be lost. These acreages are preliminary and will be finalized during the final design process, when the project alignment for Quarry Lakes Drive and the mitigation plans are finalized. They represent the portion of the total habitat type that would be affected by the proposed project. These types of disturbed areas and non-sensitive habitats are relatively common throughout the region and do not provide significant wildlife habitat value. This impact is considered less than significant. No mitigation would be required.

Impact BIO-8: Degradation of Water Quality in Aquatic Resources from Construction Activities (Less than Significant with Mitigation)

General construction activities in or near aquatic resources (including Crandall Creek, Alameda Creek Flood Control Channel, Old Alameda Creek, and Line M Channel) could increase erosion processes, thereby increasing the potential for releasing sediment and other water quality constituents into aquatic resources. Fine sediments can increase turbidity. Increased turbidity can degrade aquatic habitat and increase mortality of aquatic organisms. Although such an event is unlikely, refueling, operation, and storage of construction equipment and materials could result in accidental spills of pollutants, such as concrete, sealants, oil, and paint, into the river.

This impact is considered significant. Implementation of a SWPPP as part of the NPDES permit, as discussed under Section 3.7, Hydrology and Water Quality, as well as the following mitigation measure, would reduce this impact to a less-than-significant level.

Mitigation Measure HWQ-3: Implement Additional Water Quality Protection Measures to Reduce Sediment in Surface Waters during Construction

Impact BIO-9: Permanent Loss and Temporary Disturbance of a Sensitive Community—Willow Riparian Woodland and Scrub (Less than Significant with Mitigation)

The one sensitive plant community in the study area is willow riparian woodland and scrub along Old Alameda Creek. Construction activities—including new roadway construction, bicycle/pedestrian trail, the infiltration basin overflow pipelines (constructed as part of Mitigation Measure HWQ-5 and shown in Figure 3.7-4), and the wetlands mitigation plan (constructed as part of Mitigation Measure BIO-7 and shown in Figure 3.3-3)—would result in temporary and permanent impacts on this sensitive community. Acreage estimates of permanent and temporary impacts are provided in Table 3.3-6 and below based on preliminary design drawings of the project alignment, and the draft wetlands mitigation plan.

Construction activities would result in temporary disturbance to ~~an undetermined amount~~approximately 2.2 acres of willow riparian woodland and scrub, assuming a 30-foot construction corridor on either side of the new roadway alignment and bicycle/pedestrian trail. An additional 3.2 acres would be disturbed through implementation of the wetlands mitigation plan (which creates open water, wetlands, and riparian habitat). Willow riparian woodland and scrub habitat temporarily disturbed, as part of roadway construction activities and through implementation of the wetlands mitigation plan, would be replaced at a ratio of 1:1 (for temporary loss).

The new roadway and bicycle/pedestrian trail ~~bridges~~ would result in permanent loss of approximately 1.7 acres ~~2.0 acres (Quarry Lakes Drive Option 1) and 2.4 acres (Quarry Lakes Drive Option 2)~~ of willow riparian woodland and scrub, including the removal of riparian trees and shrubs. The permanent loss of willow riparian woodland and scrub habitat as part of roadway construction activities would be replaced at a ratio of 2:1 (for permanent loss).

~~**Table 3.3-6.** Preliminary Wetland Mitigation Planning Area Habitat Acreages~~

N

0 250 500

Feet

1:3,200

ICF Jones & Stokes

Draft Mitigation Plan

- Open Water
- Wetlands
- Willow Riparian and Woodland Scrub
- Riparian Vegetation Restoration
- Project Limits

Note: Refer to Table 3.3-6 for mitigation acreages and linear feet of aquatic features, riparian habitat and wetlands.

Figure 3.3-3
Draft Wetlands Mitigation Plan and Riparian Vegetation Restoration
ACTA East-West Connector Project

March 2009

Q:\PROJECTS\TYLIN\00703_07\MAPDOC\BIOASSESS\FIG_3.3-3_MITRIPARIAN.MXD PG (3-16-09)

Table 3.3-6. Impacts and Mitigation for Aquatic Features, Riparian Habitat, and Wetlands in the Study Area

Habitat Type	Impacts				Mitigation Calculations							Mitigation Requirements (See Figure 3.3-3)		
					Mitigation Ratio		Calculated Mitigation					Wetland Mitigation Plan		Riparian Vegetation Restoration
	Stream Length (linear feet)	Permanent (acres)[1]	Temporary from WMP (acres)[2]	Other Temporary (acres)[3]	Permanent	Temporary	Stream Length (linear feet)	Permanent (acres)[1]	Temporary from WMP (acres)[2]	Other Temporary (acres)[3]	Subtotal Required Mitigation (acres)	(linear feet)	(acres)	(acres)
Willow Riparian/ Woodland Scrub	-	1.7[a]	3.2	2.2	2:1	1:1	-	3.5	3.2	2.2	8.9[e]	-	6.7	2.3
Wetlands	-	1.2[b]	0.0	0.4	2:1	1:1	-	2.3	0	0.4	2.7[f]	-	2.7	0.0
Open Waters	1132[d]	0.4[c]	0.0	0.0	1:1	-	1132	0.4	0	0	0.4[g]	1075	0.9	0.0
Subtotals	1132	3.3	3.2	2.6	-	-	1132	6.2	3.2	2.6	12.0	1075	10.3	2.3
Total Extent of Mitigation												**1075[h]**	**12.6[i]**	

Notes:

The numbers in this table are based on the proposed project footprint, most recent vegetation mapping (Figure 3.3-1), and GIS calculations in March 2009.

1 Permanent impacts and mitigation for constructing the new roadway, bicycle/pedestrian trail, and infiltration basin overflow pipelines/outfalls.

2 Temporary impacts and mitigation for implementing the Wetland Mitigation Plan (WMP).

3 Temporary impacts and mitigation for the 30 foot disturbance area on both sides of the new roadway and bicycle/pedestrian trail.

a Acreage of willow riparian/woodland scrub that would be permanently impacted by construction of the new roadway, bicycle/pedestrian trail, and infiltration basin overflow pipelines. Includes habitat associated with Old Alameda Creek (OAC) and the Alameda Creek Flood Control Channel (ACFCC.

b Acreage of wetlands that would be permanently impacted by construction of the new roadway, bicycle/pedestrian trail, and infiltration basin overflow outfalls. Includes habitat associated with Basin 2C (0.87 acre~~s~~), OAC (0.07 acre~~s~~), and ACFCC (0.22 acre~~s~~) for a total of 1.16 (1.2) acres.

c Acreage of open waters that would be permanently impacted by construction of the new roadway and bicycle/pedestrian trail. Includes habitat associated with Line M (0.23) and ACFCC (0.07) for a total of 0.35 (0.4) acre~~s~~.

d Total linear feet of open waters (Line M) that would be permanently impacted by the project.

e Total mitigation required for permanent and temporary impacts to willow riparian/woodland scrub is 8.9 acres [1.7 acres x 2 (2:1 ratio) = 3.5 acres] + [3.2 acres x 1 (1:1 ratio) = 3.2 acres] + [2.2 acres x 1 (1:1 ratio) = 2.2 acres]. The WMP includes 6.7 acres of mitigation (3.5 acres + 3.2 acres), and an additional 2.3 acres are mitigated through riparian vegetation along OAC (replacement in kind of vegetation disturbed during construction).

f Total mitigation required for permanent and temporary impacts to wetlands is 2.7 acres [1.2 acres x 2 (2:1 ratio) = 2.3 acres] + [0.4 acres x 1 (1:1 ratio) = 0.4 acre~~s~~].

g Total mitigation required for permanent and temporary impacts to open waters 0.4 acres [0.4 acre~~s~~ x 1 (1:1 ratio)]. The WMP includes 0.9 acre~~s~~ of mitigation, which is 0.5 acre~~s~~ beyond calculated required mitigation.

h The total aquatic linear feet impacted and calculated for mitigation is approximately 1,100 feet. When calculated using GIS, the impacted area is 1,132 feet, and the mitigation area is 1,075 feet. The slight difference is compensated by the 0.5 acre~~s~~ extra provided in the WMP (see footnote "g" above).

k The total mitigation acreage proposed by the project is 12.6 acres (10.3 acres WMP + 2.3 acres Riparian Vegetation Restoration), which is 0.6 acre~~s~~ beyond calculated required mitigation.

These acreages represent the portion of the total habitat type that would be affected by the proposed project. ~~Installing the outfall structures for the Line M Channel in Old Alameda Creek may also disturb a small amount (less than 0.1 acre) of willow riparian woodland and scrub.~~ These impacts would cause degradation of sensitive plant communities and may disrupt natural wildlife movement corridors. Because of its scarcity in the study area, its biological importance, and its sensitivity to disturbance, any impacts on riparian habitat, including willow riparian woodland and scrub, are considered significant. Impacts would be reduced to a less-than-significant level by implementing the following mitigation measures.

Mitigation Measure BIO-7: Prepare and Implement a Wetlands Mitigation Plan that Includes the Creation of New Wetlands, ~~and~~Waters of the United States and State, and Replacement and Enhancement of Willow Riparian Woodland and Scrub ~~to Replace Permanent Loss~~

A plan for wetlands mitigation ~~plan~~ adjacent to and including Old Alameda Creek will be developed by qualified wetland botanists, wildlife biologists, hydrologists, engineers, and restoration ecologists.

The wetlands mitigation plan will include the creation and enhancement of wetlands, riparian vegetation, and linear aquatic features along Old Alameda Creek that will ensure no net loss of wetlands or waters of the United States or ~~State~~ state and will provide mitigation for loss of riparian vegetation as a result of the proposed project. Impacts on wetlands or waters and required compensation will be developed based on the wetland delineation prepared for the proposed project (Appendix H) and in consultation with the Corps and RWQCB. ACTA will retain a qualified biologist to survey and flag willow riparian woodland and scrub that will be permanently affected by construction of the proposed project, and the mitigation plan will include replacement and enhancement of existing willow riparian woodland and scrub along Old Alameda Creek to ensure no net loss of willow riparian woodland and scrub.

The wetlands mitigation ~~site~~ plan will evolve throughout the project planning so that a self-sustaining mosaic of vegetation communities will replace those affected through project implementation. Ongoing planning efforts will include further input from ICF Jones & Stokes biologists and restoration planners, and consultation with ACTA as further project details are defined. In order to meet the objectives of the mitigation planning process and establish the proposed wetland mitigation site at Old Alameda Creek, the proposed project will~~would~~ include:

- diverting water from Line M Channel to increase flow to Old Alameda Creek;
- creating an enhanced open channel segment of the Line M Channel drainage alignment to extend to the continuous linear aquatic habitat of Old Alameda Creek;
- grading new channel banks and regrading creek banks to create benches for additional waters, wetlands, and vegetation; and

- planting native wetland and riparian vegetation.

A ~~conceptual~~draft wetlands mitigation plan for the wetlands mitigation site is shown in Figure 3.3-3. Mitigation acreages for affected habitats and linear feet for linear aquatic features are ~~included~~ shown in Table 3.3-6. The specifics of the plan and the acreages will evolve over time as project details are finalized.

Because the plan is conceptual and will require coordination and approval from the Corps and RWQCB, specific information on the anticipated amount of excavation required to implement the plan is not ~~yet available~~finalized, but, based on the draft wetlands mitigation plan, it is estimated to be 230,000 cubic yards of material . -Thus, there would be secondary i~~I~~mpacts from implementation of this mitigation, including ~~some~~ loss of nonnative grasslands and riparian vegetation~~, would occur~~ and increased air emissions. Construction-related impacts have been addressed in this and other sections of the Draft EIR. ~~However, it is anticipated that~~ C~~c~~ompensation for impacts on biological resources ~~are~~is included in this wetlands mitigation plan. ~~from the wetlands mitigation site would be incorporated into the mitigation plan~~.

The wetlands mitigation plan includes creating a~~-new~~ approximately 1,100--foot linear aquatic feature (open channel) adjacent ~~to~~ and connect~~ed~~ing to the existing segment of Old Alameda Creek to provide 1:1 compensation for the loss of linear aquatic features (from culverting Line M Channel). The new open channel would begin~~s~~ on the south side of the new roadway at the outfall for the Line M Channel diversion pipeline, extends along the east side of Old Alameda Creek, and connects with Old Alameda Creek at its upstream end near the Line N-12 outfall. The new secondary channel will convey flow from the Line M Channel diversion pipeline into Old Alameda Creek.

The wetlands mitigation plan includes creating 2.7~~5~~ acres of wetlands within the new secondary channel ~~an din~~and in the upstream end of Old Alameda Creek to provide 2:1 compensation for the loss of wetlands and waters of the United States and waters of the State~~s~~ (from placing fill in Basin 2C, Old Alameda Creek, and Alameda Creek Flood Control Channel).

The wetlands mitigation plan includes creation of 6.~~6~~7 acres of willow riparian woodland and scrub to replace (2:1 compensation) loss of this sensitive habitat (from construction of the new roadway and bicycle/pedestrian~~recreation~~ trail). An additional ~~xx~~2.3 acres of willow riparian woodland and scrub would be restored (1:1 compensation) in areas temporarily disturbed by construction activities.

The wetlands mitigation plan will be supported by flow from the Line M Channel diversion pipeline, as well as from Line N-12, which currently enters Old Alameda Creek at its southernmost point near Quarry Lakes Drive. The Line M Channel diversion pipeline will discharge into a concrete dissipation structure located at the upstream end of the new secondary channel.

ACTA will be responsible for implementation of the wetlands mitigation plan, including construction and maintenance of the wetlands mitigation site until it is established based on permitting criteria. Post-construction maintenance responsibilities will be the subject of future agreements between and amongst ACTA, the cities of Fremont and Union City, and the Alameda County Flood Control and Water Conservation District. Once established, the mitigation site will be self-sustaining.

Mitigation Measure BIO-8: Protect~~Identify~~ Willow Riparian Woodland and Scrub Habitat~~Temporarily Affected and Install Protective Fencing~~ during Project Construction

ACTA will retain a qualified biologist to survey and flag the limits of construction in areas that support willow riparian woodland and scrub. ~~that could be temporarily impacted by project construction. All such riparian vegetation~~ The construction contractor will be required to protect~~ed~~ these areas from~~by~~ encroachment and damage during project construction by installing temporary construction fencing. Fencing will be bright-colored and highly visible. Fencing will be installed under the supervision of a qualified biologist to prevent damage to riparian vegetation during installation. The fencing will protect all potentially affected wetlands and a minimum 20-foot buffer zone. Where appropriate and feasible, the buffer zone will be expanded up to 100 feet. Fencing will be installed before any site preparation or construction work begins and will remain in place for the duration of construction. Construction personnel will be prohibited from entering fenced areas (the exclusion zone) for the duration of project construction. Essential vehicle operation on existing roads will be permitted, but all other construction activities, vehicle operation, material and equipment storage, and other surface-disturbing activities will be prohibited within the exclusion zone.

Impact BIO-10: Potential Introduction or Spread of Noxious Weeds into a Sensitive Plant Community (Less than Significant with Mitigation)

Construction activities in Old Alameda Creek and the Alameda Creek Flood Control Channel could introduce noxious weeds or result in their spread into a sensitive community that is not currently infested (willow riparian woodland and scrub). This could degrade habitat for common native and special-status plant and wildlife species. Plant parts or seeds of noxious weeds may be dispersed via construction equipment or personnel if appropriate measures are not implemented. The introduction or spread of noxious weeds could result in the long-term degradation of the on-site riparian willow scrub. This is considered a significant indirect impact. Implementation of the following mitigation measure would reduce this impact to a less-than-significant level.

Mitigation Measure BIO-9: Implement Measures to Avoid or Minimize the Dispersal of Noxious Weeds into Sensitive Riparian Areas during Construction

To avoid or minimize the introduction or spread of noxious weeds into sensitive riparian areas, ACTA will incorporate the following measures into the construction BMPs.

- If erosion control is needed along the banks of Old Alameda Creek or the Alameda Creek Flood Control Channel, only certified weed-free erosion-control materials will be used.
- Construction supervisors and managers will be educated about noxious weed identification and the importance of controlling and preventing their spread.
- Equipment that enters the construction area adjacent to Old Alameda Creek and the Alameda Creek Flood Control Channel will be cleaned at designated wash stations before entering the project alignment. Equipment traveling between the staging area and the riparian construction area will be cleaned once at the start of the project and only subsequently if the equipment leaves the area and returns.

Impact BIO-11: Loss of Wetlands and Other Waters of the United States and of the State (Less than Significant with Mitigation)

Construction activities associated with the new roadway, the wetlands mitigation plan (Mitigation Measure BIO-7), and the outfalls from the infiltration basin pipelines (Mitigation Measure HWQ-5) would result in temporary and permanent impacts on wetlands and other waters that are under the jurisdiction of the United States and of the state. Permanent impacts would result from permanent removal of habitat and wetland features and replacement with the project's physical structures, such as roadways, bridges, and retaining walls. Acreage estimates of permanent jurisdictional wetlands and waters impacts are provided in Table 3.3-6 and below based on preliminary design drawings of the project alignment, ~~a aand on~~ the project wetland delineation (ICF Jones & Stokes 2008), and the draft wetlands mitigation plan (described in Mitigation Measure BIO-7).

- Line M Channel. The new roadway segment between Mission Boulevard and Alvarado-Niles Road would permanently remove 0.23 acre (1,100 linear aquatic feet) of the Line M Channel that currently extends along the north side of the project alignment. The proposed project would replace the open culvert with a pipeline that would extend beneath the new roadway on the north side.
- Detention Basin 2C. The new roadway segment between Mission Boulevard and Alvarado-Niles Road would require the removal of Detention Basin 2C, resulting in permanent impacts on 0.87 ~~0.80~~ acre of wetlands or waters of the United States and state.
- New Basin. The new roadway segment between Mission Boulevard and Alvarado-Niles Road would require the removal of the New Basin, which is

approximately 2.85 acres. The New Basin is not a water of the Unites States, but the state may claim jurisdiction over this feature. This aspect of the project may result in 2.85 acres of permanent impacts on waters of the state.

- Old Alameda Creek. The new roadway segment between Alvarado-Niles Road and Paseo Padre Parkway includes bridge crossings of Old Alameda Creek at two locations. At Location 1 just east of Paseo Padre Parkway, the bridge would be a four-span structure with the span lengths of between 110 and 150 feet. The bridge would have end abutments and intermediate pier walls supported on pile foundations. For the purposes of analysis, it is estimated that there would be 42 piles up to 60 feet long and 1 to 3 feet in diameter. At Location 2 east of Location 1, the bridge would be a single span structure supported by abutments on pile foundations at both ends. An estimated 0.07 acre of wetlands under federal and state jurisdiction would be permanently affected by these bridges. The proposed project would also result in temporary impacts at this location resulting from construction access. An additional 216 square feet (0.005 acre) would be lost from the ~~The~~ three outfall structures for infiltration basin overflow pipelines.

- Alameda Creek Flood Control Channel. The proposed project would construct a bridge to cross the Alameda Creek Flood Control Channel from Paseo Padre Parkway. The crossing would be a seven-span bridge supported by six bents and two abutments on pile foundations. For the purposes of analysis, it is estimated that each bent would have 24 concrete piles and each pile would be 40 feet long and 1 to 3 feet in diameter. An estimated 0.22 acre of wetlands under federal and state jurisdiction and 0.15 acre of other waters of the United States and ~~State~~ state would be permanently affected. The proposed project would also result in temporary impacts at this location resulting from construction access.

In total, there would be a permanent loss of approximately 1.54 ~~1.47~~ acres of wetlands or other waters of the United States. If jurisdiction is taken by the state over the New Basin, an additional 2.85 acres of waters of the state would be permanently affected. This is considered a significant impact. Implementation of the mitigation measures below would reduce this impact to a less-than-significant level.

The proposed project could also result in temporary impacts on jurisdictional wetlands and waters as a result of encroachment during construction, including staging and access, and mitigation implementation. Construction specifications developed later in the project design process will allow the calculation of temporary acreages for wetlands so affected. In addition, final planning for the wetland mitigation site will provide specific locations for implementation actions to support the creation of the mitigation site. At that time, temporary acreages would be calculated. These acreages would then be mitigated for, in addition to the permanent impact acreages that have been identified, through the design of the mitigation site for the proposed project. Implementation of the mitigation measures described below would reduce this impact to a less-than-significant level.

Mitigation Measure BIO-7: Prepare and Implement a Wetlands Mitigation Plan that Includes the Creation of New Wetlands, ~~and~~ Waters of the United States and State, and Replacement and Enhancement of Willow Riparian Woodland and Scrub ~~to Replace Permanent Loss~~

Mitigation Measure BIO-10: Identify Wetlands and Other Waters Temporarily Affected and Install Protective Fencing during Construction

ACTA will retain a qualified biologist to survey and flag wetlands that could be temporarily affected by project construction. All wetlands will be protected from encroachment and damage during construction by installing temporary construction fencing. Fencing will be bright-colored and highly visible. Fencing will be installed under the supervision of a qualified biologist to prevent damage to wetlands during installation. The fencing will protect all potentially affected wetlands and a minimum 20-foot buffer zone. Where appropriate and feasible, the buffer zone will be expanded up to 100 feet. Fencing will be installed before any site preparation or construction work begins and will remain in place for the duration of construction. Construction personnel will be prohibited from entering fenced areas (the exclusion zone) for the duration of project construction. Essential vehicle operation on existing roads will be permitted, but all other construction activities, vehicle operation, material and equipment storage, and other surface-disturbing activities will be prohibited within the exclusion zone.

Impact BIO-12: Change in Steelhead Migratory Habitat Resulting from Installation of New Bridge at Alameda Creek Flood Control Channel (Less than Significant)

Steelhead migratory habitat could change as a result of the installation of new bents in the Alameda Creek Flood Control Channel. New structures could cause changes to channel morphology and hydraulics.

Channel morphology describes the linear, aerial, and volumetric features of a channel, including depth, length, width, and the shape or configuration of the channel (e.g., the characteristics of secondary channels, riffles, runs, pools, backwaters, and sloughs). Channel morphology, along with flow, affects stream hydraulics, which refers to a stream's depth, surface elevation, velocity, and turbulence. Together, channel morphology and hydraulics influence the conditions that support fish migration and movement. Channel morphology and hydraulics have a major effect on cover and water temperature.

Adult steelhead migration could be blocked if water velocities preclude upstream movement. The Alameda Creek Flood Control Channel is very wide in the study area and velocities are not likely to increase throughout the reach. The Hydrology and Hydraulic Study Report (WRECO 2008) shows that velocity changes of less than 0.20 feet/second upstream and downstream of the proposed bridge site would occur as a result of the bridge piers. Therefore, velocities would not change significantly and would not affect steelhead migration (Appendix I, "Draft Hydrology and Hydraulics Study Report"). Therefore, this impact is considered less than significant. No mitigation would be required.

Impact BIO-13: Loss of or Disturbance to Protected Trees (Less than Significant with Mitigation)

The proposed project would remove trees that qualify for protection by the City of Fremont Tree Preservation Ordinance and by the Union City Tree Protection Ordinance. Additionally, project construction could disturb trees that qualify for protection but are not planned for removal. Construction activities, including the use of heavy equipment and vehicles, stockpiling of excavated materials, and tree removal, could inadvertently damage trees designated for preservation or protection. These activities can damage root systems by:

- directly cutting or injuring roots,
- compacting the soil and reducing the tree's ability to take up water, or
- compromising the tree's structural integrity.

In addition, injuries to limbs or trunk can alter the tree's ability to transport water and nutrients, or compromise its structural integrity. All of these impacts can decrease a tree's chances of survival.

Removal of or damage to trees protected under the City of Fremont or City of Union City tree ordinances and designated for preservation in the project alignment would be considered a significant indirect impact. The following mitigation measures would reduce this impact to a less-than-significant level.

Mitigation Measure BIO-11: Prepare an Arborist Report and Develop and Implement a Landscaping Plan that Includes Compensation for Loss of Protected Trees

ACTA will retain a qualified arborist to prepare an arborist report detailing the size and health of trees that fall within the project alignment and could be removed by the proposed project. The report will identify trees protected under the City of Fremont Tree Preservation Ordinance and the City of Union City Tree Protection Ordinance. ACTA will hire a qualified landscape architect to prepare a landscape plan that includes adequate compensation or replacement for the loss of protected trees. The City of Fremont Tree Preservation Ordinance requires a 1:1 replacement ratio with a 24-inch-box-sized replacement tree of a species of the same type and size as the removed tree. The Union City Tree Protection Ordinance requires replacement trees in a 15-gallon container at a ratio to be determined by the City of Union City staff.

The landscaping plan for the project alignment will specifically identify the locations where replacement trees are to be planted. The replacement trees will be located on site to the extent feasible, based on space considerations. The plan will be subject to review and approval by the Cities of Fremont and Union City for areas within their jurisdiction.

Newly planted trees will be monitored by ACTA at least once a year for 3 years. Each year, any trees that do not survive will be replaced. Any trees planted as remediation for failed plantings will then be monitored for a period of 3 years in the same manner.

Mitigation Measure BIO-12: Install Temporary Fencing around Remaining Protected Trees

Trees that are identified as "protected trees" in the arborist report and that will remain during project construction will be protected from damage during construction by installing temporary fencing. If possible, fencing will be located immediately outside each tree's drip line. Fencing will keep construction equipment away from trees and prevent unnecessary damage to or loss of heritage trees in the project alignment. Like newly planted trees, any protected trees that are retained and are located adjacent to construction activities will be monitored by ACTA at least once a year for 3 years. Each year, any trees that do not survive will be replaced. Any trees planted as remediation for failed plantings will then be monitored for a period of 3 years in the same manner.

Section 3.4

Cultural Resources

Section 3.4
Cultural Resources

3.4.1 Introduction

This section describes the affected environment and regulatory setting for cultural resources in the project area. It also describes the impacts on cultural resources that may result from implementation of the proposed project, and mitigation measures that would reduce these impacts.

This section summarizes information presented in the Cultural Resources Inventory and Evaluation of the East-West Connector Project, Alameda County, California (hereafter referred to as the Cultural Resources Report) (ICF Jones & Stokes 2008). This report is provided as Appendix J of this Draft EIR.

3.4.2 Setting

Sources of Information

The key sources of data and information used in the preparation of this section are listed below.

- Cultural Resources Inventory and Evaluation of the East-West Connector Project, Alameda County, California (ICF Jones & Stokes 2008)
- Historic Property Survey Report and Finding of No Effect, Route 84 Realignment Project (Basin Research Associates 1995)
- Historic Architectural Survey Report, Route 84 Realignment Project Alternatives, Route 84 Realignment Project (Ward Hill 1994)
- Archaeological Survey Report, Route 84 Realignment Project Alternatives in Hayward, Union City and Fremont (Basin Research Associates 1994)

Existing Conditions

This section discusses the existing conditions related to cultural resources in the study area, presents regulations pertinent to project impacts, and describes the physical setting in the study area. The study area for cultural resources is defined by the limits of the proposed project's construction footprint, although for historical resources, the entirety of each property affected by project construction and right-of-way expansion is also considered.

The existing conditions discussion is based on a literature review and pedestrian surveys, as fully described in the Cultural Resources Report (Appendix J). Literature review entailed a records search (encompassing the study area and the area within a 1-mile radius) at the Northwest Information Center of the California Historical Resources Information System, and a review of two architectural history-related reports prepared in 1994 and 1995 for the SR 84 Realignment Project, which present prior survey results of the project alignment. Separate pedestrian surveys were conducted by ICF Jones & Stokes archaeologists and architectural historians, who faxed and mailed project information to the Native American Heritage Commission (NAHC) and local Native American groups in order to expedite consultation. As of the time of publication, no replies from these groups had been received.

This existing conditions description focuses on resources known to exist or potentially present within the study area. For a full description of the ethnographic and historical background of the study area, refer to Appendix J.

Archaeological Resources

There are no known archaeological resources in the study area. The records search indicated no previously recorded archaeological resources within the project alignment or the 1-mile radius. Similarly, the pedestrian survey identified no archaeological resources. Based on the negative results of the records search, the negative results of the archaeological survey, and the project alignment's highly disturbed nature, there is a low potential for the presence of archaeological resources within the project alignment. The site survey also gave no indication that human remains would be present in the project alignment.

Archaeological resources usually lie beneath the ground surface and, despite the lack of evidence that archaeological resources exist in the study area, the total absence of such resources cannot be determined. The potential does exist for previously undiscovered archaeological resources to exist within the area.

Historic Resources

There are several structures in the study area that are 50 years old or older (i.e., predating 1958), which is generally the age threshold for reviewing buildings for historical significance. One property adjacent to the project alignment appears to be eligible for inclusion in the National Register of Historic Places (NRHP) and California Register of Historical Resources (CRHR) (see definition below under Regulatory Setting), but is not currently listed in either register. This property is called the Peterson Farm and is discussed below.

Existing Roadway (Decoto Road)

Eight remaining residences located along the existing roadway segment of the project alignment along Decoto Road and two remaining Fremont Boulevard residences west of the Decoto Road intersection appear to predate 1958, having been constructed between the 1910s and the 1940s (dates are approximate).[1] In conjunction with the environmental review for a previous version of this project, which proposed various road alignments similar or identical to the alignment now proposed, all 10 of these Decoto Road and Fremont Boulevard properties were investigated for their eligibility for the NRHP and CRHR, in addition to several other residences that have since been demolished. All 10 properties were determined not to meet any of the criteria for listing in either the national or state register (Ward Hill 1994), a conclusion that was confirmed when ICF Jones & Stokes architectural historians conducted surveys in 2008. An updated historic architecture survey conducted in conjunction with the proposed project confirmed that conditions had not changed such that would change this determination, and concurred with the finding of ineligibility. One of these older Decoto Road residences and one of the older Fremont Boulevard residences are boarded up. Therefore, none of these residences located in the existing roadway segment of the project alignment are considered significant historic resources.

One of the Decoto Road residences—the one-story Queen Anne cottage located at 3781 Decoto Road—is being preserved as part of a 16-unit multi-family residential project being reviewed and processed by the City of Fremont. Although the Ward Hill report and the Cultural Resources Report in Appendix J concluded that this residence was ineligible for listing in the NRHP, the City of Fremont project intends to preserve the residence for the purposes of community character. This residence is not listed in the Fremont Register of Historic Resources (Fremont Register).

New Roadway (Paseo Padre Parkway to Mission Boulevard)

Two residences, the Peterson farmhouse and the Silva farmhouse, are located in the undeveloped corridor near Old Alameda Creek and predate 1958. The Peterson farmhouse is located at 35261 Alvarado-Niles Road just southeast of the existing Quarry Lakes Drive alignment (Figure 2-3 in Chapter 2). Dating from 1884, the four-building farm features the original Queen Anne farmhouse, along with a carport, a water tower, and a barn adjacent to the farmhouse. This property has been identified as eligible for the NRHP and CRHR because of the uniqueness of the farmhouse. The Architectural Inventory/Evaluation form filed for the property in 1994 states, “although the integrity of the Peterson house has been somewhat compromised because of later additions and deterioration resulting from deferred maintenance, the house overall retains much of its original exterior ornament and form, in addition to its historic interior plan and finishes.” (See 1994 Architectural Inventory/Evaluation for the Peterson Farm,

[1] A listing of these properties is provided as Appendix A of the Cultural Resources Report (Appendix I of this EIR).

included in Appendix B of the Cultural Resources Report) Figure 3.4-1 shows photos of the Peterson farmhouse, and additional photos are presented in Appendix B of the Cultural Resources Report (Appendix J of this EIR).

The Peterson Farm was determined in 1995 to be eligible for listing in the ~~NHRP~~ NRHP under criterion A and C as a rare surviving example of an 1880s farm complex with an outstanding Queen Anne-style farmhouse. Despite several changes noted on the property that were determined to have occurred since the prior surveys (1992–1994), the updated surveys of the property concluded that the majority of the character-defining features remain, and in the Cultural Resources Report, ICF Jones & Stokes architectural historians confirmed the prior evaluation of the Peterson Farm's eligibility for the NRHP. ICF Jones & Stokes also determined that the property is eligible for listing on the CRHR because, as a rare, intact example of an 1880s Queen Anne farmhouse, it is "associated with events that have made a significant contribution to the broad patterns of local or regional history" (criterion 1), and it "embodies the distinctive characteristics of a type, period, region, or method of construction" (criterion 3). Therefore, the Peterson Farm is a significant historical resource.

The Silva farmhouse is located at 35075 Alvarado-Niles Road, northwest of the Peterson farmhouse. This property was concluded to be ineligible for listing in the NRHP in the Ward Hill Report, a conclusion that that was confirmed by updated surveys by ICF Jones & Stokes. Photos of the Silva farmhouse are shown in Appendix A of the Cultural Resources Report (Appendix J of this EIR).

The Silva Farm includes a bungalow-style house built in approximately 1925, and features an adjacent barn. The Architectural Inventory/Evaluation form filed for the property in 1994 states, "although this bungalow has good integrity, it is a typical farmhouse from the 1920s and 1930s still common in much of the Fremont/Union City area." The barn was cited as having lost its original integrity as a result of "a number of insensitive alterations, and the deterioration of the exterior walls and roof," and since then the roof of the barn has further deteriorated. (See 1994 Architectural Inventory/Evaluation for the Silva Farm, included in Appendix A of the Cultural Resources Report, Appendix J of this EIR.) The Silva Farm was determined ineligible for listing in the NRHP, a conclusion supported by the updated survey by ICF Jones & Stokes. The property was also determined ineligible for listing in the CRHR. Therefore, the Silva Farm is not considered a significant historical resource.

Regulatory Setting

Federal

Although the proposed project is not itself a federal action and does not entail federal funding, federal agencies will need to use this Draft EIR for permitting purposes; therefore, certain federal regulations do apply.


Peterson farmhouse from Quarry Lakes Drive, facing west


Peterson farmhouse from driveway, facing south

00703.07 Visual Impact (7-08)

Figure 3.4-1
Photos of Peterson Farmhouse
ACTA East-West Connector Project

National Register of Historic Places

The National Park Service, a division of the U.S. Department of the Interior, administers the NRHP, the official list of the historic places in America that are deemed worthy of preservation. The NRHP was authorized by the National Historic Preservation Act of 1966, and now contains approximately 80,000 listings (National Parks Service 2008). A property is deemed NRHP-eligible if it:

- is associated with events that have made a contribution to the broad pattern of our history;
- is associated with the lives of people significant in our past;
- embodies the distinct characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- has yielded, or is likely to yield, information important in prehistory or history. (36 CFR 60.4.)

National Historic Preservation Act, Section 106

Section 106 requires federal agencies to take into account the effect of their undertakings on historic properties. If federal agencies (i.e., the U.S. Army Corps of Engineers) have to issue permits for the proposed project, then they will be required to comply with Section 106 of the NHPA.

The Section 106 process (as detailed in implementing regulations at 36 CFR 800) entails assessment of properties in the vicinity of the site for their eligibility for inclusion in the NRHP, identification of impacts on these properties, and consultation with the State Historic Preservation Officer (SHPO) and any other consulting or concerned parties to resolve adverse effects.

Section 106 defines historic properties as any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the NRHP (36 CFR 800.16[1]).

State

California Register of Historical Resources

The CRHR, administered by the State Office of Preservation, is the state equivalent to the NRHR. It serves as a list of California’s significant historical and archaeological resources, and is used by agencies, private groups, and citizens to indicate the resources deserved of protection. The CRHR is defined in PRC Section 5024.1 (California Office of Historic Preservation 2006).

A cultural resource is defined as eligible for the CRHR if it meets one or more 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 to our past;
- it embodies the distinctive characteristics of a type, period, region, or method of construction; represents the work of an important creative individual; or possesses high artistic values; or
- it has yielded, or may be likely to yield, information important to prehistory or history.

California Environmental Quality Act

CEQA requires assessment of impacts on cultural resources, and contains guidance on the identification of resources and analysis of impacts. Cultural resource are generally defined in the State CEQA Guidelines as buildings, sites, structures, objects, or districts, each of which may have historical, architectural, archaeological, cultural, or scientific significance (PRC 5024.1). CEQA states that if a proposed project would result in an effect that may cause a substantial adverse change in the significance of a historic resource, alternative plans or mitigation measures must be considered; however, only those impacts on "significant" historical resources need to be addressed (14 CCR 15064.5). The CEQA statutes define a significant cultural resource as "a resource listed or eligible for listing on the California Register of Historical Resources" PRC 5024.1; 14 CCR 15064.5), which is defined above.

An archaeological resource is considered a significant cultural resource if meets the criteria for CRHR listing or if it is deemed a "unique archaeological resource." A unique archaeological resource is one that meets one or more of the following criteria:

- it is associated with an event or person of recognized significance in California or American history or of recognized scientific importance in prehistory;
- it can provide information that is of demonstrable public interest and is useful in addressing scientifically consequential and reasonable research questions; or
- it has a special or particular quality such as oldest, best example, largest, or last surviving example of its kind (PRC 21083.2).

CEQA requires identification of known resources and requires analysis of the project's potential to have a substantial adverse change in the significance of the resources, with "substantial change" further defined as "the physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historic resource would be materially impaired."

California Health and Safety Code

The disturbance of human remains without authority of law is considered a felony (California Health and Safety Code Section 7052), and if human remains are Native American in origin, they are within the jurisdiction of the NAHC (California Health and Safety Code Section 7052.5c, California PRC Section 5097.98). When human remains are discovered in any location other than a dedicated cemetery, California Health and Safety Code (Section 7050.5, PRC Section 5097.98), prohibits further disturbance of the site and requires review by the respective county coroner. If the remains are determined to be of Native American origin, the NAHC is contacted and the descendents of the deceased are consulted as to the proper means of treating or disposing of the remains with appropriate dignity.

Local

Fremont General Plan

The Fremont General Plan establishes a land use overlay designation called “Historic Sites, Buildings and Districts Overlay” (Fremont Historic Overlay), which is placed on areas within the City’s jurisdiction that are known to include historic or archaeological resources and that thereby enrich the area’s identity. The project alignment is not within the Fremont Historic Overlay.

Fremont Historic Resources Ordinance

Article 19.1 of the Fremont Zoning Code (Fremont Municipal Code, Title VIII Ch. 2) is the city’s Historic Resources Ordinance, which has a comprehensive program for identifying and protecting historic resources within their jurisdiction, and for guiding development to maintain appropriate settings for historic resources. The project alignment does not contain and is not adjacent to any buildings, properties, or landmarks listed in the Fremont Register.

Union City General Plan

The Union City General Plan discusses the presence of important cultural resources within the City and announces the importance of those resources to the City’s character and heritage. The General Plan identifies the maintenance of the City’s historic resources inventory—the Union City Cultural Resources Survey—and establishes a Landmark and Historic Preservation Overlay Zone. These provide similar planning functions as those of the City of Fremont. The project alignment does not contain and is not adjacent to any features on the Union City Cultural Resources Survey, and the Landmark and Historic Preservation Overlay Zone does not apply to the study area.

Union City Zoning Ordinance

The Union City Zoning Ordinance (Title 18 of the Municipal Code) defines and the City's Landmark and Historic Preservation Overlay Zone and sets forth use and development restrictions within that zone. This overlay does not apply to the project alignment.

3.4.3 Impact Analysis

This section describes the impact analysis relating to cultural resources for the proposed project. It describes the methods used to determine the impacts of the proposed project and lists the thresholds used to conclude whether an impact would be significant. Measures to mitigate (i.e., avoid, minimize, rectify, reduce, eliminate, or compensate for) significant impacts accompany each impact discussion.

Methodology

Impacts on cultural resources for the proposed project were determined qualitatively. The geographic project construction footprint and methods of construction were reviewed in terms of their proximity to and physical impact on known cultural resources occurring in the project alignment, as well as their potential to have a physical impact on resources that may be present beneath the surface but that remain undiscovered. The methodology for determining existing and potentially occurring cultural resources, including field surveys and literature research, is described above under Existing Conditions.

Analysis of impacts considers such construction impacts as structural demolition and disturbance during grading work, and such operational impacts as increased proximity of the proposed expanded and new roadway features to known cultural resources, resulting in noise or character degradation that could affect the integrity of a site as a cultural resource.

Significance Criteria

For this analysis, an impact pertaining to cultural resources was considered significant under CEQA if it would result in any of the following environmental effects, which are based on professional practice and State CEQA Guidelines Appendix G (14 CCR 15000 *et seq*.). A significant impact is identified if the proposed project would:

- cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of the State CEQA Guidelines;
- cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 of the State CEQA Guidelines; or

- disturb any human remains, including those interred outside of formal cemeteries.

The definitions of historical resources and archaeological resources, as stated in Section 15064.5 of the State CEQA Guidelines, are given above under Regulatory Setting.

Project Impacts and Mitigation Measures

Existing Roadway (Decoto Road and Paseo Padre Parkway)

It was determined that there would be no impact on archaeological resources or historic resources from project operation along the existing roadway. Project operation would entail traffic moving over the roadway on a permanent basis, and occasional maintenance of the road and underground utilities on an ongoing basis. Project operation would not entail additional earthwork and therefore would have no potential to uncover or disturb previously undiscovered cultural resources. Although there are several residences dating from the 1910s to the 1940s located along Decoto Road and Fremont Boulevard, these properties have been identified by architectural historians as ineligible for inclusion on the NRHP and CRHP and, therefore, are not considered significant historic resources. These issues are not addressed further.

Impact CUL-1: Construction Impacts on Archaeological Resources from Roadway Widening (Less than Significant with Mitigation)

Construction work associated with widening the existing roadway (Decoto Road and Paseo Padre Parkway) would occur primarily within the existing right-of-way with minimal encroachment outside the right-of-way into previously disturbed areas. It could include excavation for utilities relocation and installation. Excavation would extend into previously undisturbed earth. The probability of previously undiscovered subsurface archaeological resources existing in this portion of the project alignment is low, but the absence of such resources cannot be confirmed. There is a chance that project excavation could encounter significant archaeological resources, including Native American human remains.

This impact is considered significant. The following mitigation measure would reduce this impact to a less-than- significant level.

Mitigation Measure CUL-1: Conduct Earthwork Monitoring by Qualified Archaeologist during Construction and Implement Management Measures if Resources are Discovered

ACTA will retain a qualified consulting archaeologist to monitor ground-disturbing activities in all trenching work for utilities installation. The grading plans for the proposed project will contain a note stating that all grading, excavation, or other ground-disturbing activities will be monitored by the consulting archaeologist. The consulting archaeologist will meet with the grading and/or excavation contractor prior to any grading or excavation to discuss the grading plan and explain the monitoring procedures to be followed if cultural resources are encountered. The consulting archaeologist will be present on site when initial ground-disturbing activities begin, and will monitor all grading, trenching, or other ground disturbance until the grading and trenching reach sterile sandstone or conglomerate strata (where it is assumed that no buried deposits would be present).

In the event cultural resources are encountered during project earthwork, the consulting archaeologist will be empowered to temporarily redirect, divert, or halt project activity to allow recovery of potentially significant cultural resources. The resource's significance will be determined by the archaeologist and, if the resource is deemed significant, it will be photographed at the site and mapped, before being collected or otherwise addressed in a manner deemed appropriate by the consulting archaeologist (e.g., resource avoidance, data recovery excavations, and so on). The consulting archaeologist will ensure that all significant cultural resources uncovered on the site are analyzed, collected, catalogued, and curated with the Northwest Information Center of the California Historical Resources Information System or other appropriate scientific institution, as deemed appropriate. At the completion of the project monitoring, the consulting archaeologist will prepare a report of findings, even if negative, and submit the report to ACTA and the Northwest Information Center. If cultural resources are not discovered by grading and excavation monitoring, this mitigation measure is not required.

If human remains are uncovered during project earthwork, work will cease and the Alameda County Coroner will be contact. If the remains are determined to be Native America in origin, the County Coroner will notify NAHC, which will determine and notify the most likely descendent, and coordinate the appropriate management of the remains. If human remains are not discovered by grading and excavation monitoring, this mitigation measure is not required.

Impact CUL-2: Construction Impacts on Historic Resources from Roadway Widening (Less than Significant)

The project does not propose to demolish, alter, or otherwise substantially affect any structures located along Decoto Road, Paseo Padre Parkway, or Fremont Boulevard. Project impacts would be limited to minimal right-of-way widening along the two roads, which would entail minor acquisition of roadway frontage of certain properties along Decoto Road and Fremont Boulevard. Right-of-way acquisition would includes slivers of road frontage from seven residential properties along Decoto Road (addresses, from west to east, are 4440, 4194, 4170, 4092, 3881, 3871, and 3853), and two residential properties along Fremont Boulevard (addresses, from north to south, are 34840 and 34826). As part of this right-of-way acquisition, the proposed project may potentially result in minimal relocation of front yard fencing and removal of vegetation on the properties, but none of the project-related right-of-way or fence adjustments would diminish the integrity of these properties. Furthermore, none of these properties are considered significant historical resources. Therefore, widening Decoto Road and its intersection with Fremont Boulevard would have a less-than-significant impact on cultural resources.

Although architectural historians have determined the one-story Queen Anne cottage at 3781 Decoto Road to be ineligible for inclusion in the NRHR and CRHR, the residence is intended for preservation as part of a City of Fremont multi-family residential project. This property is not listed in the Fremont Register, although it seems plausible that the City may add it to the list in the future. The multi-family residential project at this location is not a part of the proposed project. The City of Fremont has indicated that the right-of-way necessary to construct the proposed project would be provided as part of that multi-family residential project; therefore, the proposed project would have no impact on that property.

This impact is considered less than significant. No mitigation is required.

Impact CUL-3: Operational Impacts on Historic Resources from Roadway Widening (Less than Significant)

Project operation would entail automobile traffic and occasional roadway and utilities maintenance on a road that would be slightly wider than the current alignment. Traffic would be slightly closer to the non-historically-significant residences located along Decoto Road and Fremont Boulevard, including the residence at 3781 Decoto Road being preserved as part of a City of Fremont multi-family residential project. This reduction in proximity would have no effect on the residences' physical integrity, nor would it significantly affect the character of the older homes themselves or in the surrounding area.

This impact is considered less than significant. No mitigation is required.

New Roadway (Paseo Padre Parkway to Mission Boulevard)

Impact CUL-4: Construction Impacts on Archaeological Resources from New Roadway (Less than Significant with Mitigation)

The new roadway is proposed within a semi-developed area that contains open fields, waters, stormwater detention basins adjacent to residential development, and existing infrastructure. Construction would include clearing and grading for the new roadway, pile installation for bridges and grade separation structures, excavation for the grade separation, utilities installment within the roadway. In addition, the wetlands mitigation site would likely be constructed along Old Alameda Creek. Parts of the new roadway would be constructed below the existing grade. The portion between Paseo Padre Parkway and Alvarado-Niles Road would be a low-profile roadway slightly below grade, and the portion between Alvarado-Niles Road and Mission Boulevard would include a grade separation below the BART and UPRR tracks. Additional excavation may be conducted for utilities placement. The probability of previously undiscovered subsurface archaeological resources existing in this portion of the project alignment is low, but the absence of such resources cannot be confirmed. There is a chance that project grading and excavation could encounter significant archaeological resources, including Native American human remains.

This impact is considered significant. Implementation of the following mitigation measure would reduce this impact to a less-than-significant level.

Mitigation Measure CUL-1: Conduct Earthwork Monitoring by Qualified Archaeologist during Construction and Implement Management Measures if Resources are Discovered

Impact CUL-5: Change to Historic Resources from New Roadway (Less than Significant)

The new roadway segment between Paseo Padre Parkway and Alvarado-Niles Road and the Quarry Lakes Drive realignment would be located adjacent to one significant historic resource—the Peterson Farm. This property is eligible for listing on the NRHR and CRHR, although it is not currently listed in either register or on the ~~Fremont Register~~Union City Cultural Resources Survey.

The new roadway segment, extending between Paseo Padre Parkway and Alvarado-Niles Road, would be constructed approximately 500 feet west of the edge of the Peterson Farm. No structural change would take place within the historic boundary of the Peterson Farm as a result of project implementation. The new roadway would be slightly below grade and would be screened with landscaping.

Quarry Lakes Drive, which currently provides access to the Peterson Farm, would be realigned southwest of the farmhouse as part of the proposed project (Figures 2-7a and 2-7b in Chapter 2). The roadway's edge would be approximately 60 feet south of the barn and approximately 200 feet south of the farmhouse. This would entail removal of some vegetation surrounding the Peterson Farm and provision of a new access driveway to the property, but would entail no physical modification of any on-site structures. The view of the roadway from the farmhouse would be changed from the front yard to the backyard, which could be considered an adverse change if there were clear views of Old Alameda Creek. Most views are already obscured by existing vegetation and structures, and the roadway would be further from the house than its current location. The realignment of Quarry Lakes Drive does not constitute a substantial adverse change to the property's character-defining features that would compromise the home's value as a historical resource nor does it affect its eligibility for listing in the NRHP or CRHR.

Project operation would entail vehicular, bicycle, and pedestrian traffic and occasional roadway and utilities maintenance crews on the new roadway. Traffic along Quarry Lakes Drive would be similar to traffic along the existing facility. Project operation would not compromise the Peterson Farm's value as a historical resource nor affect its eligibility for listing in the NRHP or CRHR.

This impact is considered less than significant. No mitigation is required

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Section 3.5

Geology, Soils, and Seismicity

Section 3.5
Geology, Soils, and Seismicity

3.5.1 Introduction

This section describes the affected environment and regulatory setting for geology, soils, and seismicity in the project area. It also describes the impacts on geology and soils and related to seismicity that would result from implementation of the proposed project, and mitigation measures that would reduce these impacts.

Additional information on geology and soils is included in the Geologic and Seismic Report, East West Connector Between I-880 and Mission Boulevard (SR 238) (Parikh Consultants, Inc. 2008) (Appendix K).

3.5.2 Setting

Sources of Information

The key sources of data and information used in the preparation of this geology, soils, and seismicity section are briefly described below.

- Geologic & Seismic Report, East West Connector Between I-880 and Mission Boulevard (SR 238) (Parikh Consultants, Inc. 2008)
- City of Fremont General Plan (City of Fremont 1991)
- 2002 Union City General Plan Policy Document (City of Union City 2002)

Existing Conditions

This section addresses the regional and project alignment geology and topography. Quaternary sediments and geologic hazards pertaining to the project alignment are emphasized.

Regional Geology

The project alignment is in Alameda County, which is located on the East Bay of the San Francisco Bay Plain. Alameda County is located at the northern end of the Diablo Range of Central California. It is bounded on the north by Contra Costa County. San Francisco Bay forms the western boundary, the San Joaquin Valley borders Alameda County on the east, and an arbitrary line from the Bay into the Diablo Range forms the southern boundary.

Geologic Units

General geologic features pertaining to the project alignment were evaluated by reference to the Quaternary Geology of Alameda County and Surrounding Areas, California (Helley and Graymer 1997). Based on this map, a number of different geologic units are present along the proposed alignment, and are shown in Figure 3.5-1. The project alignment subsoils mainly consist of Basin Deposits (Qhb; Holocene), Natural Levee Deposits (Qhl; Holocene), and Alluvial Fan and Fluvial Deposits (Qhaf; Holocene) in the northern portion of the project alignment. The subsoil consists of Natural Levee Deposits (Qhl; Holocene) at the intersection of Paseo Padre Parkway and Decoto Road, and Alluvial Terrace Deposits (Qhfp; Holocene) toward the south of Decoto Road. Natural Levee Deposits (Qhl; Holocene) are observed on most of the banks of the Old Alameda Creek and Alameda Creek Flood Control Channel. A description of the main geologic units is provided below.

- **Qhb:** Basin Deposits (Holocene)—Very fine silty clay to clay deposits occupying flat-floored basins at the distal edge of alluvial fans adjacent to the bay mud (Qhbm).
- **Qhl:** Natural Levee Deposits (Holocene)—Loose, moderately to well-sorted sandy or clayey silt grading to sandy or silty clay. These deposits are porous and permeable and provide conduits for transport of groundwater. Levee deposits border stream channels, generally on both banks, and slope away to more flat floodplain and basins.
- **Qhfp:** Alluvial Terrace Deposits (Holocene)—Deposits are generally less than 1 meter thick and consist of rounded gravel and historic artifacts in a clayey silt matrix. In several areas these terraces have been used for landfills.
- **Qhaf:** Alluvial Fan Deposits (Holocene)—Alluvial Fan Deposits are brown or tan medium dense to dense gravelly sand or sandy gravel that generally grade upward to sandy to silty clay. The alluvial fan is confined to narrow valley floors.

Subsurface Conditions

Based on existing soils and geologic literature pertaining to the project alignment, the subsoil is predominantly clay underlain by sand and gravel material north of the Alameda Creek Flood Control Channel. To the south, subsoils are similar in formation. The subsoils consist of natural levee deposits composed of clayey silt to sandy/silty clay material. Verification of subsurface soil conditions would be undertaken during the planning, specification, and estimation phase of the proposed project.

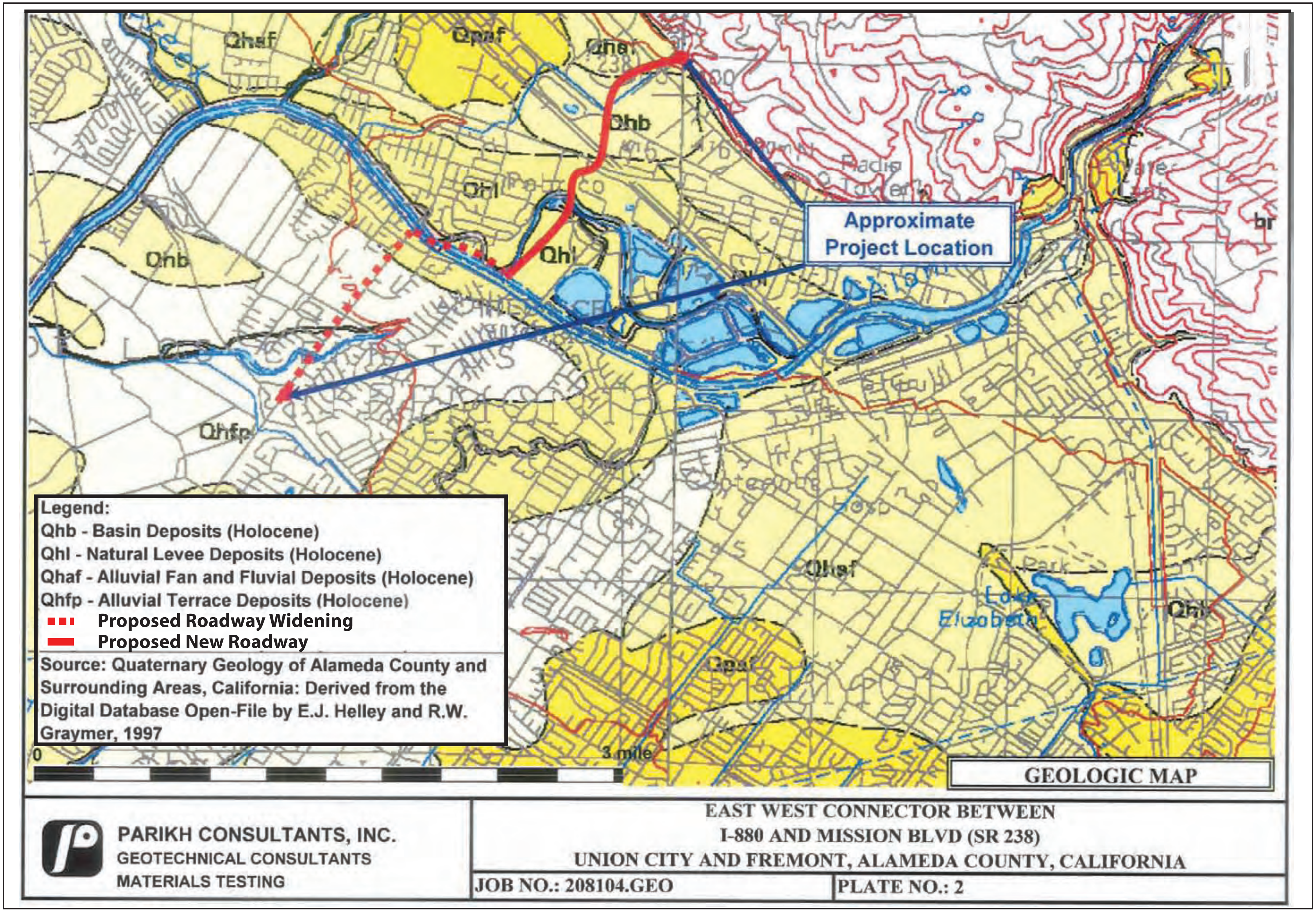

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Figure 3.5-1
Geologic Map of Project Area
ACTA East-West Connector Project

Seismicity

The project alignment is located in a seismically active part of northern California. Many faults exist in the San Francisco Bay Area. Major earthquakes have occurred in the vicinity of the project alignment in the past and can be expected to occur again in the near future. The Working Group on California Earthquake Probabilities estimated that there is a 62% probability of at least one magnitude 6.7 or greater earthquake to occur on one of the major faults within the San Francisco Bay region before 2030 (Working Group on California Earthquake Probabilities 1999). These faults are capable of producing earthquakes and may cause strong ground shaking at the project alignment.

Figure 3.5-2 displays active faults, including the Hayward Fault, Calaveras-Pacines-San Benito Fault, and San Andreas Fault, which are in the project vicinity. A major earthquake on these faults could produce strong ground shaking throughout the project alignment. Maximum credible earthquake magnitudes for these faults have been determined, were researched on the California Seismic Hazard Map (Mualchin 1996), and are summarized in Table 3.5-1. These maximum credible earthquake magnitudes represent the largest earthquakes that could occur on the given fault based on the current understanding of the regional tectonic structure.

Table 3.5-1. Regional Faults and Distance to Project Area

Fault	Distance to Fault from Center of Project Area (Mile)	Maximum Credible Earthquake
Hayward (Strike-Slip)	1.6	7.5
Calaveras-Pacines-Benito (Strike-Slip)	8.3	7.5
San Andreas (Strike-Slip)	16.5	8.0
Source: Mualchin 1996.		

Seismic Hazards

Potential seismic hazards that may arise in the project alignment include ground shaking, surface fault rupture, and liquefaction.

Based on available geological and seismic data, the possibility of the project alignment to experience strong ground shaking may be considered moderate to high. In order to assess fault locations in relation to the project alignment, the Alquist-Priolo Special Studies Zones Maps for the Niles Quadrangle and Newark Quadrangle (The California Conservation 2000) were reviewed. Based on these publications, there are no active faults that pass through the project alignment. Therefore, the potential for fault rupture is considered relatively low.

Liquefaction is a phenomenon in which saturated cohesionless soils are subject to a temporary but total loss of shear strength under the reversing, cyclic shear stresses associated with earthquake shaking. Submerged cohesionless sands and silts of low relative density are the types of soils that are usually susceptible to liquefaction. Clays are generally not susceptible to liquefaction. The Preliminary Maps of Quaternary Deposits and Liquefaction Susceptibility database was reviewed for the project alignment to determine liquefaction potential within the project alignment (Knudsen et al. 2000). Figure 3.5-3 shows the liquefaction potential for the project alignment and immediate vicinity.

Liquefaction susceptibility along the proposed alignment is considered moderate to very high. Specifically, the liquefaction susceptibility between Paseo Padre Parkway and Alvarado-Niles Road is mapped as high to very high. However, no boring data is available within this roadway segment. During the final design phase of the proposed project, additional investigation would be undertaken to verify the liquefaction potential of this area. For the purposes of this CEQA document, the liquefaction potential of this portion of the project alignment is considered high to very high.

Boring information relevant to the project alignment is available for the area between the two UPRR tracks, based on existing information and four additional borings undertaken for the project geotechnical study. This area is generally underlain by firm to very stiff lean clays overlying dense to very dense sands. Throughout this portion of the project alignment, the liquefaction potential along the project alignment is generally low to moderate. However, additional investigation would also be undertaken in the final design phase of the proposed project to verify liquefaction potential.

Two potential ground failure types associated with liquefaction in the region are lateral spreading and differential settlement (Association of Bay Area Governments 2001). Lateral spreading involves a layer of ground at the surface being carried on an underlying layer of liquefied material over a gently sloping surface toward a river channel or other open face. Lateral spreading is common in the region and poses a moderate to significant hazard (Association of Bay Area Governments 2001).

Another common hazard in the region is differential settlement (also called ground settlement and, in extreme cases, ground collapse) as soil compacts and consolidates after the ground shaking ceases. Differential settlement occurs when the layers that liquefy are not of uniform thickness, a common problem when the liquefaction occurs in artificial fills. Settlement can range from 1% to 5%, depending on the cohesiveness of the sediments (Tokimatsu and Seed 1984).

Erosion and Sedimentation

The project alignment was evaluated for erosion and sedimentation potential based on the National Cooperative Soil Survey Map (Natural Resources Conservation Service 2008). The underlying native soil units and characteristics are summarized in Table 3.5-2.

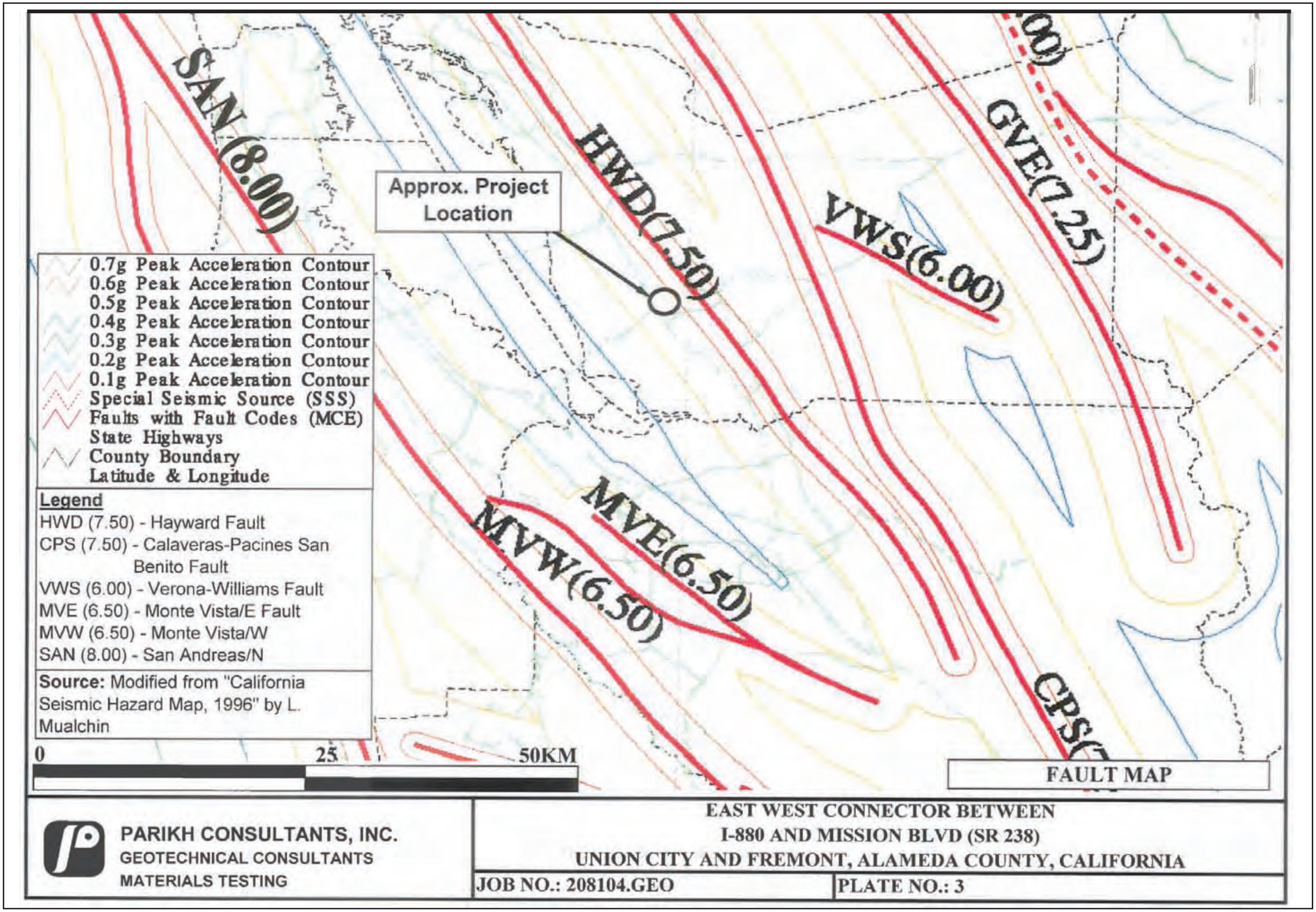

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Figure 3.5-2
Active Faults in Project Vicinity
ACTA East-West Connector Project

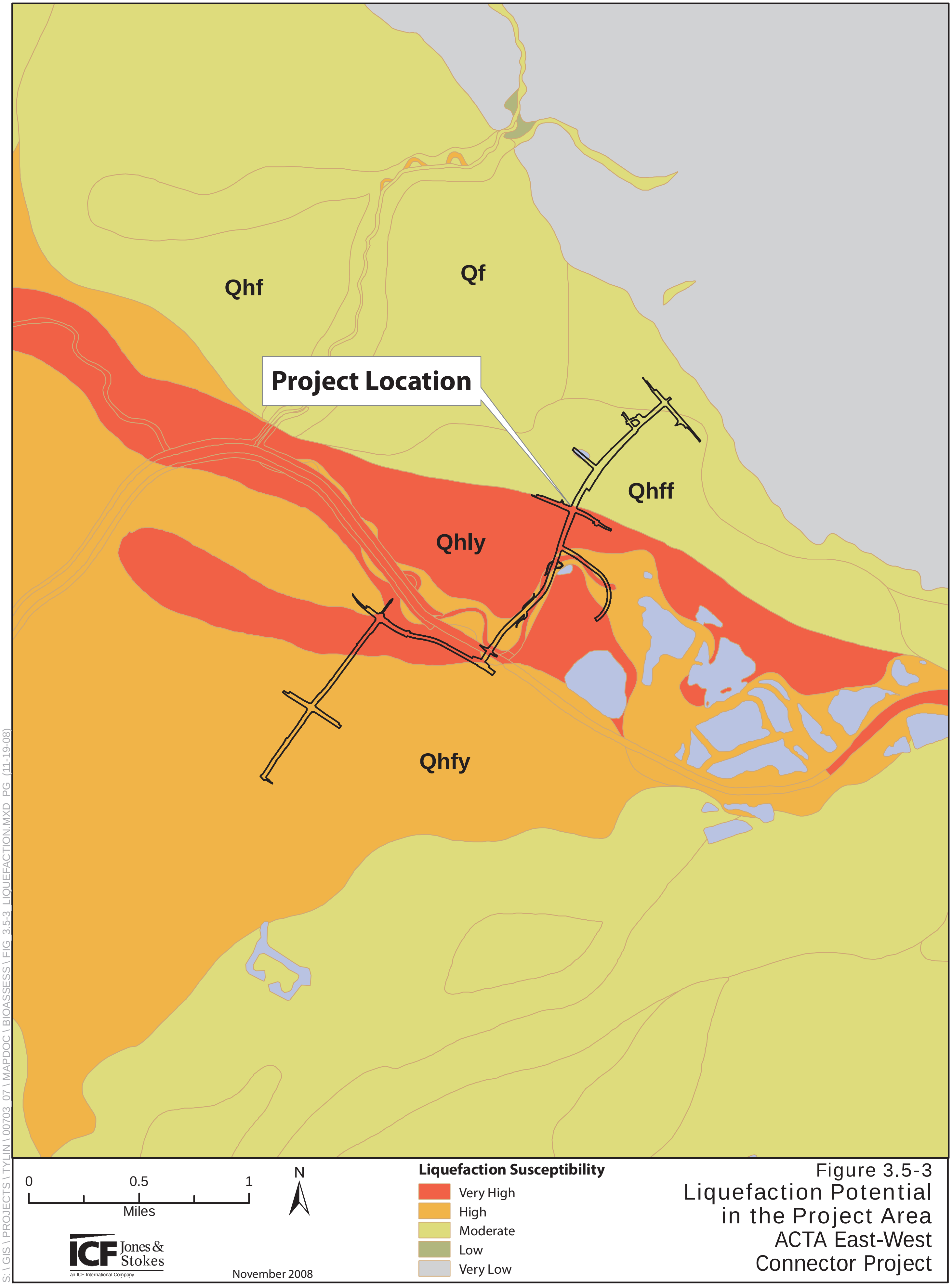

Figure 3.5-3
Liquefaction Potential in the Project Area
ACTA East-West Connector Project

Table 3.5-2. Underlying Soil Characteristics

Soil Unit	Map Unit Name	Surface Texture	Permeability	Slope (%)	Drainage	Shrink-Swell Potential
DaB	Danville Loam	Silty Clay Loam	Moderately low to moderately high	3-10	Well drained	Moderate (depth of 0-21 inches and 53-80 inches) High (depth of 21-53 inches)
107	Clear Lake	Clay	Moderately low to moderately high	0–2	Poorly drained	High
111	Danville Loam	Silty Clay Loam	Moderately low to moderately high	0–2	Well drained	Moderate (depth of 0-21 inches and 53-80 inches) High (depth of 21-53 inches)
131	Omni Loam	Silty Clay Loam	Moderately low to moderately high	–	Poorly drained	Moderate (0-6 inches) High (6-60 inches)
135	Pits	Gravel	–	–	–	-
143	Sycamore Loam	Silt	Moderately high to high	–	Poorly drained	Moderate
161	Yolo Loam	Silt	Moderately high to high	0–2	Well drained	Moderate

The soils in the project vicinity are mainly silt to silty clay loam and the permeability ranges from moderately low to moderately high. Soils in the project vicinity are classified as poorly drained to well drained. The project alignment would also have a low erosion potential.

Regulatory Setting

Federal

Clean Water Act 402 and National Pollutant Discharge Elimination System

The CWA is discussed in detail in Section 3.7, Hydrology and Water Quality. However, because CWA 402 is directly relevant to construction, additional information is provided below.

Amendments in 1987 to the CWA added Section 402p, which establishes a framework for regulating municipal and industrial stormwater discharges under the NPDES program. The EPA has delegated to the State Water Board the authority for the NPDES program in California, which is implemented by the state's nine RWQCBs. The project alignment is under the jurisdiction of the San Francisco Bay RWQCB. Under the NPDES Phase II Rule, construction activity disturbing 1 acre or more must obtain coverage under the state's General Construction Permit. General Construction Permit applicants are required to prepare a Notice of Intent and a SWPPP, and to implement and maintain BMPs to avoid adverse effects on water quality as a result of construction activities, including earthwork.

State

Alquist-Priolo Earthquake Fault Zoning Act

California's Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act) (PRC 2621 *et seq*.), originally enacted in 1972 as the Alquist-Priolo Special Studies Zones Act and renamed in 1994, is intended to reduce the risk to life and property from surface fault rupture during earthquakes. The Alquist-Priolo Act prohibits the location of most types of structures intended for human occupancy across the traces of active faults and strictly regulates construction in the corridors along active faults. It also defines criteria for identifying active faults, giving legal weight to terms such as "active," and establishes a process for reviewing building proposals in and adjacent to earthquake fault zones.

Under the Alquist-Priolo Act, faults are zoned, and construction along or across them is strictly regulated if they are "sufficiently active" and "well-defined." A fault is considered sufficiently active if one or more of its segments or strands shows evidence of surface displacement during Holocene time (defined for the purposes of the Act as within the last 11,000 years). A fault is considered well-defined if its trace can be clearly identified by a trained geologist at the ground surface or in the shallow subsurface, using standard professional techniques, criteria, and judgment (Hart and Bryant 1997).

Seismic Hazards Mapping Act

Like the Alquist-Priolo Act, the Seismic Hazards Mapping Act of 1990 (PRC 2690–2699.6) is intended to reduce damage resulting from earthquakes. While the Alquist-Priolo Act addresses surface fault rupture, the Seismic Hazards Mapping Act addresses other earthquake-related hazards, including strong ground shaking, liquefaction, and seismically induced landslides. Its provisions are similar in concept to those of the Alquist-Priolo Act: the state is charged with identifying and mapping areas at risk of strong ground shaking, liquefaction, landslides, and other corollary hazards, and cities and counties are required to regulate development within mapped seismic hazard zones.

Under the Seismic Hazards Mapping Act, permit review is the primary mechanism for local regulation of development. Specifically, cities and counties are prohibited from issuing development permits for sites in seismic hazard zones until appropriate site-specific geologic or geotechnical investigations have been carried out, and measures to reduce potential damage have been incorporated into the development plans.

Caltrans Bridge Design Specifications and Seismic Design Criteria

The Caltrans Bridge Design Specifications and Seismic Design Criteria (SDC) specify the minimum seismic design requirements for bridges designed by and for the California Department of Transportation (Caltrans). The criteria outline the Caltrans bridge category and classification system, seismic performance criteria, seismic design philosophy and approach, seismic demands and capacities on structural components and seismic design practices that collectively make up the Caltrans seismic design methodology. Bridges are categorized as either Important or Ordinary depending on the desired level of seismic performance. The Ordinary category is divided into two classifications: Standard and Nonstandard. A bridge's category and classification will determine its seismic performance level and which methods are used for estimating the seismic demands and structural capacities. The structures proposed through project implementation would be considered Ordinary Standard features.

Local

City of Fremont General Plan

The City of Fremont General Plan (1991) includes policies that guide development in the City to ensure the safety of the public in accordance with local geologic conditions and hazards. The policies listed below are applicable to the proposed project:

- **Policy HS 1.1.1:** Control development in areas subject to geologic hazards and land instability.
- **Policy HS 1.1.2:** Require proposed new development in areas of potential geologic hazard to evaluate geologic hazards and sufficiently mitigate hazards through site planning, appropriate construction techniques, building design and engineering.
- **Policy HS 2.1.2:** Maintain construction and soil engineering standards that minimize earthquake danger to building occupants.
- **Policy HS 2.1.3:** Locate critical facilities and systems vital to the public health and safety (e.g., water, power, and waste disposal systems; police and fire stations; hospitals; and communication facilities) away from areas of greatest land instability, and design such facilities to mitigate any seismic or geologic hazards associated with the development site.

City of Union City General Plan

The City of Union City General Plan (2002) includes policies that guide development in the City to ensure the safety of the public in accordance with local geologic conditions and hazards. The policies listed below are applicable to the proposed project.

- **Policy HS-B.1.1:** The City shall require investigations by both registered soils engineers and engineering geologists prior to issuing building permits or discretionary approvals (i.e., general plan amendment, rezoning, conditional use permit, tentative subdivision map, etc.) for any new construction unless waived due to current existing information and location. Soils engineering reports shall specifically address secondary seismic hazards, especially potential for soil liquefaction, ground shaking, lateral spreading, local subsidence, and lurch cracking. All such reports shall be independently evaluated, on behalf of the City, for completeness and accuracy.
- **Policy HS-B.1.4:** The City shall continue to implement updated editions of the Uniform Building Code published by the International Conference of Building Officials.
- **Policy HS-B.1.5:** All environmental analyses submitted to the City under the California Environmental Quality Act in support of development proposals shall include sections evaluating seismic and geologic hazards.

City Grading and Erosion Control Ordinances

The Cities of Fremont and Union City have grading and erosion control ordinances, as found in the City of Fremont Municipal Code, Chapter 4, Grading, Erosion and Sediment Control; and City of Union City Municipal Code 18.92.170, Grading. These ordinances are intended to control erosion and sedimentation caused by construction activities. A grading permit is required for construction-related projects. As part of the permit, the project applicants must submit a grading and erosion control plan, vicinity and site maps, and other supplemental information. Standard conditions in the grading permit include a description of BMPs similar to those contained in a SWPPP.

3.5.3 Impact Analysis

This section describes the impact analysis relating to geology, soils, and seismicity for the proposed project. It describes the methods used to determine the impacts of the proposed project and lists the significance criteria and thresholds used to conclude whether an impact would be significant. Measures to mitigate (i.e., avoid, minimize, rectify, reduce, eliminate, or compensate for) significant impacts accompany each impact discussion.

Methodology

The evaluation of the geology, soils, and seismicity impacts in this section is based on the results of technical maps, reports, and other documents that describe the geologic, seismic, and soil conditions of the project alignment, and on professional judgment. The analysis assumes that the project applicants would conform to the latest UBC standards, CBSC standards, City of Fremont and Union City General Plan seismic safety standards, City of Fremont and Union City grading ordinances and NPDES requirements.

Significance Criteria

For this analysis, an impact pertaining to geology, soils, and seismicity was considered significant under CEQA if it would result in any of the following environmental impacts, which are based on professional practice and State CEQA Guidelines Appendix G (14 CCR 15000 *et seq*.). A significant impact is identified if the proposed project would:

- expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving the:
  - 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 project alignment or based on other substantial evidence of a known fault;
  - strong seismic ground shaking;
  - seismic-related ground failure, including liquefaction;
  - landslides; or
- cause substantial soil erosion or loss of topsoil;
- be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the proposed project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse; or
- be located on expansive soil, as defined in Table 18-1-B of the UBC (International Conference of Building Officials 1997), creating substantial risks to life and property.

Project Impacts and Mitigation Measures

The potential geology, soils, and seismicity impacts of the proposed project are associated with the new roadway and related structures between Paseo Padre Parkway and Mission Boulevard. There would be three bridges (one over Alameda Creek Flood Control Channel and two over Old Alameda Creek) and three grade separation structures (at the BART and UPRR tracks). The impacts that the proposed project would have on geology, soils, and seismicity issues are described below. Mitigation measures for proposed for each potentially significant impact are identified.

The topography of the project alignment is relatively flat. On the west side of the project alignment, beginning at Decoto Road, the elevation is approximately 25 feet above mean sea level (msl). Surface elevations increase to approximately 50 feet msl by the end of the project alignment. Because the project alignment is relatively flat, and the proposed project would not disrupt any hillsides in the project alignment, project implementation would not affect landslide conditions in the project alignment.

Impact GEO-1: Potential Structural Damage and Injury Caused by Fault Rupture (Less than Significant)

The proposed project includes a new roadway, three bridges, and an underpass with three grade separation structures. Based on available knowledge of fault locations and locations of earthquake epicenters, the risk of surface fault rupture in the project alignment is low. Risks associated with fault rupture include the potential to compromise the structural stability of the new roadway and support features, and the potential to cause injury to construction workers and residents in the project vicinity. Although risks resulting from fault rupture are considered low, implementation of the BART, American Railway Engineering and Maintenance of Ways Association (AREMA), Caltrans, and City of Fremont and Union City General Plan standards into the project design for the proposed project would further minimize potential fault rupture hazards on associated project features. Therefore, this impact is considered less than significant and no mitigation is required.

Impact GEO-2: Potential Structural Damage and Injury from Ground Shaking (Less than Significant)

A large earthquake on a nearby fault, including the Hayward, Calaveras-Pacines-Benito, and San Andreas faults, all within 20 miles of the project alignment, could cause moderate to high ground shaking in the project alignment. This may cause liquefaction and associated ground failure, such as lateral spreading or differential settlement, which in turn could increase the risk of structural loss, injury, or death. As part of the design process described above, ACTA is required to implement BART, AREMA, Caltrans, and the City of Fremont and Union City General Plan standards into the project design for applicable features to minimize potential ground shaking hazards on associated project features.

Based on the general information available for soils along the alignment, the foundation systems expected for the Alameda Creek Flood Control Channel and Old Alameda Creek bridges would be relatively standard (requiring pile foundations). Potential geotechnical and seismic impacts would be addressed in the design of these structures using the Caltrans design guidelines.

The grade separation structures are expected to require excavations of 30 feet below ground surface and would also require retaining walls. Based on available geotechnical information and groundwater data, it appears that one of the construction options for the grade separation structure may require building a system of concrete structural mat and retaining walls (boat slab). The slab would be subject to groundwater pressures and therefore would require a pile foundation system. This area may also require a deep soil mix type of wall system around the perimeter of the area of excavation to restrict the groundwater flow across the excavation footprint. Detailed studies and engineering analysis will be conducted to assess and mitigate these conditions.

The grade separation structures for the BART and UPRR lines may be supported on concrete driven piles, steel H piles, cast-in-drilled-hole piles or on special footings such as reinforced concrete box. Following the determination of construction methods that are possible in this area, further geotechnical investigations would be used to determine the most appropriate design for this phase of the proposed project.

Miscellaneous structures throughout the project alignment, including retaining walls and culverts, would be supported on foundations that are designed based on geotechnical studies conducted during the design phase of the proposed project. In addition, pavement construction is expected to be based on detailed studies and Caltrans design standards. In general, pavement may consist of concrete pavement, hot mix asphalt pavement, rubberized pavement, or other effective systems as deemed appropriate for site conditions.

ACTA would also be required to conduct further geotechnical investigations for the project alignment to verify the potential for liquefaction, lateral spreading, and differential settlement that may occur through ground shaking during the design phase of the proposed project. Based on subsurface conditions, ACTA would design the proposed project to accommodate the effects of these conditions. Through implementation of these design features, this impact is considered less than significant and no mitigation is required.

Impact GEO-3: Potential Structural Damage and Injury from Development on Unsuitable Materials or Materials Subject to Liquefaction (Less than Significant)

Liquefaction susceptibility maps have identified the project alignment as ranging from high to very high susceptibility, with soils between the UPRR lines as minimally to moderately susceptible to liquefaction. The potential for liquefaction increases the risk of structural loss, injury, or death. As part of the design process described above, the project applicants are required to implement BART, AREMA, Caltrans, and the City of Fremont and Union City General Plan standards into the project design for applicable features to minimize the potential liquefaction hazards on associated project features.

ACTA would also be required to conduct further geotechnical investigations for the project alignment to verify liquefaction potential through the project design phase of the project. Regular interval borings would occur along the roadways and proposed support structures. Based on subsurface conditions, ACTA would design the proposed project to accommodate the effects of liquefaction. If liquefiable soils or soils susceptible to seismically induced settlement are determined to be present at any location where project activities would occur, corrective actions would be taken as necessary, and may include removal and replacement of soils, on-site densification, grouting and design of special foundations, or other similar measures, depending on the extent and depth of susceptible soils. All of these measures reduce pore water pressure during ground shaking by densifying the soil or improving its drainage capacity (Johansson 2000).

ACTA would also be required to conduct further geotechnical investigations for the project alignment to determine the existence of any landfill or other unsuitable materials underlying the project alignment. If any are present, ACTA would follow recommendations in the geotechnical report for removal of these materials and replacement with appropriately engineered fill.

Through implementation of these project design features, this impact is considered less than significant and no mitigation is required.

Impact GEO-4: Potential Accelerated Runoff, Erosion, and Sedimentation from Grading Activities (Less than Significant)

Grading, excavation, and removal of vegetation cover associated with construction activities could temporarily increase erosion and sedimentation throughout the project alignment. Construction activities could also result in soil compaction and wind erosion impacts that could adversely affect soils and reduce the revegetation potential at the construction sites and staging areas. Normal measures to maintain surface drainages and slope maintenance would be incorporated into project plans in order to maintain soil and slope stability throughout the project alignment. In addition, landscaping plans would be implemented along new slopes throughout the project alignment, as well as the wetlands mitigation site and the infiltration basins (Mitigation Measures BIO-7 and HWQ-5, respectively), to reduce sedimentation and erosion.

As described in Section 3.7, Hydrology and Water Quality, an SWPPP would be developed by a qualified engineer or erosion control specialist and implemented before construction activities are undertaken. The SWPPP would be kept on site during construction activity and would be made available upon request to representatives of the San Francisco Bay RWQCB. The objectives of the SWPPP would be to (1) identify pollutant sources that may affect the quality of stormwater associated with construction activity; and (2) identify, construct, and implement measures to reduce pollutants in stormwater discharges during and after construction. The SWPPP would identify potential pollutants and address the management of dredged sediments and hazardous materials present on the site during construction (including vehicle and equipment fuels). The SWPPP also would include details of how the sediment and erosion control practices, referred to as BMPs, would be implemented. Implementation of the SWPPP would comply with state and federal water quality regulations. A detailed discussion of the project SWPPP is included in Section 3.7, Hydrology and Water Quality under Mitigation Measure HWQ-1.

Furthermore, compliance with the City of Fremont and City of Union City grading ordinances would also minimize any adverse impacts associated with erosion and sedimentation. ACTA would be required to obtain a grading permit prior to project implementation from both the City of Fremont and City of Union City. The grading permit would require BMPs. Therefore, this impact is considered less than significant. No further mitigation is required.

Impact GEO-5: Potential Structural Damage as a Result of Development on Expansive Soils (Less than Significant)

Geotechnical investigations have not been undertaken in order to determine the expansive properties of soils in the project alignment. However, based on information provided by the Alameda County Soil Survey, the shrink-swell potential for the soils that are mapped for the project alignment ranges from moderate to high (Welch 1981). Expansive soils have the potential to compromise the structural integrity of the proposed new roadway and support structures. However, this impact is considered less than significant because, as part of the design process described above, ACTA is required to implement BART, AREMA, Caltrans, and City of Fremont and Union City General Plan standards into the project design for applicable features to minimize the potential shrink-swell hazards on associated project features.

In accordance with the City of Fremont and City of Union City requirements, ACTA would also be responsible for conducting a geotechnical evaluation for expansive soils. The proposed alignment and associated support structures would require subsurface borings at regular intervals. Based on subsurface conditions, ACTA would design the proposed project to accommodate the effects of expansive soils. Therefore, this impact is considered less than significant. No further mitigation is required.

Section 3.6
Hazards and Hazardous Materials

Section 3.6
Hazards and Hazardous Materials

3.6.1 Introduction

This section describes the environmental and regulatory setting for hazards and hazardous materials within or adjacent to the project area. It also describes the impacts from hazardous materials that would result from implementation of the proposed project, and mitigation measures that would reduce these impacts. Public safety issues associated with construction-related roadway disruptions are addressed in Section 3.12, Transportation and Traffic. Flooding hazards are discussed in Section 3.7, Hydrology and Water Quality.

Additional information on hazards and hazardous materials is provided in Appendix L, which includes the complete Phase I Environmental Site Assessment (Fugro West 2008).

3.6.2 Environmental Setting

Sources of Information

The key sources of data and information used in the preparation of this hazards and hazardous materials section are listed below.

- Phase I Environmental Site Assessment, Proposed I-880 to 238 East-West Connector (Fugro West 2008)
- City of Fremont General Plan (City of Fremont 1991)
- Union City General Plan Policy Document (City of Union City 2002)

Existing Conditions

This section discusses the existing conditions related to hazards and hazardous materials in the project alignment.

Phase I Environmental Site Assessment

The purpose of the Phase I Environmental Site Assessment is to provide general information regarding recognized environmental conditions of the project alignment and adjacent properties that could pose a risk to workers during construction of the proposed project.

The Phase I Environmental Site Assessment for the proposed project was conducted in general conformance with the scope and limitations of American Society for Testing and Materials (ASTM) Designation: E 1527 05, Standard Practice for Environmental Site Assessments. Recognized environmental conditions as defined by the ASTM Standard are the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, past release, or material threat of a release into structures at the property or into the ground, groundwater, or surface water at the property. This term includes hazardous substances or petroleum products even under conditions in compliance with laws.

The results of the assessment revealed the following applicable environmental conditions as related to project implementation.

- The Newark Aquifer constitutes a major drinking water source for residents of Fremont, Newark, and Union City; therefore the Alameda County Water District (ACWD) has made a requirement on the final vertical depth of cut for the project alignment to preserve the boundary between the Newark Aquifer and the Newark Aquiclude. ACWD requires that a minimum of 5 feet of Newark Aquiclude material remain undisturbed above the aquifer boundary.
- Total Petroleum Hydrocarbon (TPH)-affected soils were encountered on the former Pacific States Steel Corporation property and remnant concentrations may coincide with construction elements of the project alignment . Excavation of the TPH-affected soil was previously restricted by ACWD to a vertical depth corresponding to an elevation of 10 feet above mean sea level. Since the roadway alignment located in this area consists of a depressed section excavated to an elevation of approximately 16 feet above mean sea level, the residual TPH-affected soil would likely be left in place.
- Historically, land uses in the area of the roadway alignment were agricultural; therefore, shallow soils may contain remnant concentrations of agricultural chemicals from past applications. In addition, the project alignment may support agricultural improvements such as water production wells, buried pipelines, and drainage systems.
- Shallow soils may contain aerially deposited lead from historic automobile or industrial business emissions in the area.
- The project alignment crosses under two UPRR rights-of-way. Typically, railroad rights-of-way are viewed as potential areas of soil contamination because petroleum or chemical conveyance pipelines are located within the right-of-way easement. Although no indication of long- term surface

releases nor pipeline conveyances were observed along the project alignment, other potential contaminants could be present in the surficial soil.

- The project alignment extends across two detention basins. Stormwater detention basin sediments may contain elevated concentrations of stormwater contaminants, including petroleum hydrocarbons and heavy metals.

Reconnaissance Surveys

On February 25, March 5, and June 13, 2008, the project alignment and adjacent land uses were surveyed at a reconnaissance level. During these surveys, there were no observations of stressed vegetation or stained soils. In addition, no past or current uses of underground storage tanks (USTs), above-ground storage tanks (ASTs), hazardous materials, waste sumps, pits, or clarifiers were observed in the limits of the roadway alignment.

Background Information Collection

In order to obtain information about historical uses of the project alignment, topographic maps and aerial photographs of the project alignment were reviewed. The 1947 and 1978 USGS Topographic Maps of the Newark Quadrangle were reviewed, and showed the gradual change from agricultural and rural land uses to the existing residential and commercially developed land uses seen today along the project alignment.

Aerial photographs of the project site dating from 1954 to 2004 were reviewed and compared with current aerial photographs to assess changes in land uses in the project vicinity. Current photographs were used to determine adjacent land uses, and to identify features that may indicate the use, storage, spillage, or disposal of hazardous materials or wastes.

A records search was conducted on the Environmental Data Resources (EDR) Well Search Report, the California Department of Toxic Substances Control's (DTSC's) Envirostor website, and the RWQCB's Geotracker website.

Properties in the immediate vicinity of the project alignment listed on the Envirostor and Geotracker websites include the following.

Envirostor

- Former Kraftile Facility at 800 Kraftile Road, Fremont
- Cattellus Property at Mission Boulevard and 7th Street, Union City
- Pacific States Steel Corporation, Union City

Geotracker

- Super 7/Citgo Gas 18916 at 35015 Fremont Boulevard, Fremont
- City of Union City Corporation Yard at 34900 Alvarado-Niles Road, Union City
- Former Kraftile Facility at 800 Kraftile Road, Fremont
- Pierotti Fremont Imports at 35018 Fremont Boulevard, Fremont

The Cities of Fremont and Union City Fire Departments were contacted to review environmental records pertaining to these facilities. In addition, records were requested for any sites within the cities that may support USTs or hazardous materials. The City of Fremont Fire Department had documents pertaining to Super 7/Citgo Gas and Virdees Foreign Automotive. Information provided by these documents is included below in the discussion for each site. The Alameda County Environmental Health Department was also contacted to determine if USTs or hazardous materials records had been identified for any of the properties located within and adjacent to the project alignment; they reported no records for any of the properties.

Environmental Case and Records Review

The EDR database was reviewed to generate a list of properties with documented hazardous materials handling, storage, or releases in the vicinity of the project. The EDR report is compiled from published federal, state, and local regulatory agency databases. EDR initially identified 49 locations within a 0.25-mile radius of the project alignment, as listed and shown in the Phase I Environmental Site Assessment (Appendix L). After reviewing the EDR map, site visits were undertaken to identify the accurate locations of the listed facilities, and to determine which facilities were in close proximity to the project alignment. Following the review of listed sites, 21 of the 49 facilities were identified as either being located along the project alignment or its immediate vicinity. These identified sites are indicated in the databases as hazardous waste generators, support USTs, or have reported a leak or hazardous materials investigation. The other 28 properties listed in the EDR report were judged to not have the potential to affect the project alignment because of their physical location, direction, or environmental status. Three additional facilities were also identified based on the reconnaissance survey. The 24 confirmed sites are shown in Appendix L.

Of the 24 facilities shown, six have had remedial actions or investigations that were overseen by ACWD, DTSC, or RWQCB. These facilities are briefly discussed below, in addition to a seventh site, Virdees Foreign Automotive, which was identified by the Fremont Fire Department as a site of interest. A detailed discussion of each site is available in Appendix L, in addition to the full records review that was conducted for the proposed project. These seven sites—including three individual locations for one of the sites—are shown in Figures 3.6-1a and 3.6-1b. The properties were numbered according to EDR's numerical designation.

00703.07 EIR (9-08)

ICF Jones & Stokes
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Figure 3.6-1a
Hazardous Material Sites with Remedial Actions
ACTA East-West Connector Project

00703.07 EIR (rev.12-08)

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Figure 3.6-1b
Hazardous Material Sites with Remedial Actions
ACTA East-West Connector Project

Virdees Foreign Automotive

An up-to-date Hazardous Materials Business Plan, Hazardous Waste Generator Permit, and a Uniform Fire Code Activities Permit were on file for this property (Site A on Figure 3.6-1a). Permits were on file back to the beginning of operations in May 1988. According to the Fremont Fire Department, hazardous materials stored on site included acetylene, coolant, carburetor cleaner, lubricants, oils, and batteries. No records indicating hazardous material or petroleum release to the environment were identified for this site.

7-Eleven/Citgo Gas 18916

This property (EDR 42 on Figure 3.6-1a) appears on the state HAZNET database as a generator of the following waste streams: aqueous solution with less than 10% total organic residues, other empty containers of 30 gallons or more, and unspecified aqueous solution. An up-to-date Hazardous Materials Business Plan, Hazardous Waste Generator Permit, and a Uniform Fire Code Activities Permit were on file with the Fremont Fire Department for this property. Based on the review of the soil and groundwater data provided in the referenced reports, there are no indications that any residual hydrocarbon contamination in the soil would pose a threat to construction workers for the proposed project because groundwater would not be encountered during the construction of this portion of the roadway alignment.

Pierotti Fremont Imports—Fremont

The EDR database reported that a leak was discovered during tank closure and was caused by structural failure at this site (EDR 41 on Figure 3.6-1a). The contaminant of concern was listed as waste oil affecting soil only. The reported abatement method reported was excavation and disposal at an approved site.

Based on the information provided in the database report, there is no indication that residual hydrocarbon contamination in the soil would pose a significant risk to the construction workers for the roadway alignment because groundwater would not be encountered during the construction of this portion of the roadway alignment.

Pacific States Steel Corporation—Union City

The Pacific States Steel Corporation properties cover three sites, totaling approximately 85 acres (EDR 11, 26, and 28 on Figure 3.6-1b). Section I was formerly located south of the intersection of 7th Street and Mission Boulevard and consisted of 5.5 acres. Phase II, located immediately west of Phase I, consisted of 16.6 acres of land. Phase III was the former plant and consisted of 62.6 acres. The roadway alignment would traverse through a portion of the Phase III property.

The Phase II property was purchased for use as a disposal area for slag material and industrial wastewater generated during the steel-making process from 1966 to 1978. This facility is listed as a State of California Superfund site, and is on the California Bond Expenditure Plan, indicating that heavy metals (cadmium, chromium, nickel, lead, and zinc), oils, and TPH have been detected in slag piles and ponds on site. Transformers and capacitors containing polychlorinated biphenyls (PCBs) and asbestos-containing material were also found on site.

Several remedial actions have been undertaken at this site, with ACWD and the City of Union City identified as cleanup oversight agencies. In 2006, DTSC certified the Pacific States Steel Corporation site, determining that the cleanup of all hazardous substances on the site is now complete. Following remediation activities, residential and commercial developments were constructed at this location.

Because of this site history, further investigations following the determination of project design specifications would be required to ensure the construction and operational safety of the proposed project. These studies would address the potential soil and groundwater contamination conditions that may be present at this site.

Former Kraftile Facility—Fremont

This facility (EDR 27 on Figure 3.6-1b) appears on the state HAZNET database as a generator of 39.6 tons of asbestos-containing waste. Based on the reported excavation and disposal of the metal- and petroleum-affected soils, the non-detectable concentrations of petroleum hydrocarbons in the groundwater, and the facility location with respect to the proposed alignment, impacts at this property are not considered to represent a significant risk to construction workers for the proposed project.

Former City of Union City Corporation Yard—Union City

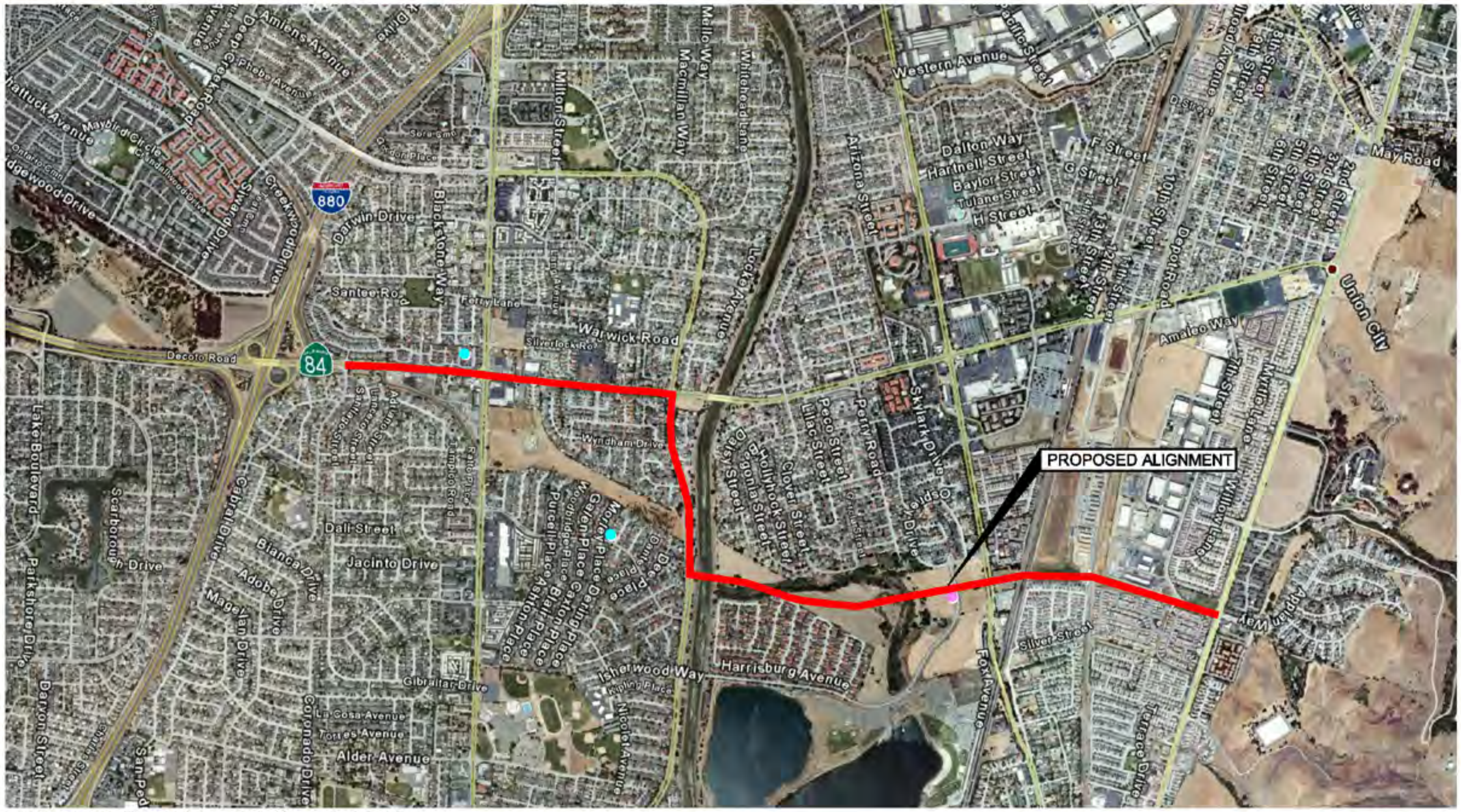
The City of Union City Department of Public Works used this property (EDR 25 on Figure 3.6-1b) as a corporation and maintenance yard for equipment and storage. Operations at the facility included vehicle maintenance, material storage, parking yard for City vehicles, and a fueling station. Although remediation activities have occurred on site, groundwater monitoring efforts in 2008 reported elevated concentrations of total petroleum hydrocarbons. This facility is down-gradient of the project alignment. However, elevated concentrations of total petroleum hydrocarbons in the groundwater may represent a risk if subsurface improvements proposed through final project designs would intercept the affected water.

Cattellus—Union City ~~(EDR 8 on Figure 3.6-1b)~~

This facility (EDR 8 on Figure 3.6-1b) was listed on the DTSC Envirostor database. Potential contaminants of concern include lead, pesticides in rinse waters, contaminated soil, and halogenated solvents. No further information was provided in the database report or on Envirostor. The property has since been redeveloped, and is not considered to represent a risk during construction of the proposed project.

The results of the EDR search indicate that no state water wells or public supply wells are located within a 0.25-mile radius of the project alignment. Two federally listed wells were identified within 0.25 mile of the project alignment and are discussed below. In addition, at least one agricultural well is present within 0.25 mile of the project alignment. These wells are shown on Figure 3.6-2 and are discussed below.

May 2008
Project No. 3303.003



BASE MAP SOURCE: This aerial photo was obtained from the Google Earth Pro.

NORTH

0 1500 3000
FEET

LEGEND
APPROXIMATE LOCATION OF USGS WELL
APPROXIMATE LOCATION OF AGRICULTURAL WELL

SITE PLAN
Proposed I-880 to 238 East-West Connector
Alameda County, California

PLATE B-1

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Figure 3.6-2
Wells in Project Vicinity
ACTA East-West Connector Project

- USGS-004S001W19E002M – This well is located approximately 0.25 mile south of the project alignment and was constructed in 1983 with a depth of 147 below ground surface (bgs).
- USGS-004S002W24L006M – This well is located approximately 0.06 mile northwest of the project alignment and was constructed in 1959 with a reported depth of 324 bgs.
- 4S1W18K002 – This well, according to ACWD records, is located south of the project alignment and west of Quarry Lakes Drive. According to ACWD, several wells were once present at this location but some may have been destroyed.

Relocation of Compressed Natural Gas Refueling Island

Through project implementation, the new roadway alignment and 7th Street modification would encroach on the compressed natural gas (CNG) refueling island at the existing Union City Corporation Yard located off 7th Street (Figure 2-11). The area previously occupied by the now vacated 7th Street/Chesapeake Street intersection would be used to relocate the CNG fueling island and emergency shut-off valve, but the underground storage tank would remain in place.

Nearby Schools and Airports

~~There are no existing schools~~ One school is located within 0.25 mile of the project alignment. Warwick Elementary School, a facility of the Fremont Unified School District, is located on Warwick Avenue, approximately 0.25 mile west of the intersection of Decoto Road and Paseo Padre Parkway. The project alignment is not located within 2 miles of a public airport, or in the vicinity of a private airstrip.

Emergency Routes

Land uses in the project vicinity range from mixed residential and commercial properties to open space, protected creek watersheds, and agricultural fields. Mission Boulevard, Decoto Road, and Paseo Padre Parkway are major roadways, providing primary access to residential and commercial development along the project alignment. These roadways also provide emergency access and evacuation routes for local residences and establishments.

Regulatory Setting

A hazardous material is defined by DTSC as a material that poses a significant present or potential hazard to human health and safety or the environment if released because of its quantity, concentration, or physical or chemical characteristics (26 California Code of Regulations [CCR] 25501). Common hazardous materials include petroleum hydrocarbons, pesticides, volatile organic chemicals, and certain metals.

Various federal and state agencies exercise regulatory authority over the use, generation, transport, and disposal of hazardous substances. The primary federal regulatory agency is the U.S. Environmental Protection Agency (EPA). The primary California state agency with similar authority and responsibility is the California Environmental Protection Agency (Cal-EPA), which may delegate enforcement authority to other local agencies with which it has agreements. Federal regulations applicable to hazardous substances are contained primarily in the CFR Titles 29 (Labor), 40 (Protection of Environment), and 49 (Transportation). State regulations are contained in CCR Titles 13 (Motor Vehicles), 19 (Public Safety), 22 (Social Security), and 26 (Toxics).

Applicable legislation and policies related to hazards and hazardous materials are summarized below.

Federal

Comprehensive Environmental Response, Compensation, and Liability Act of 1980

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), also called the Superfund Act (42 United States Code [USC] 9601 *et seq.)*, is intended to protect the public and the environment from the effects of prior hazardous waste disposal and new hazardous material spills. Under CERCLA, EPA has the authority to seek the parties responsible for hazardous materials releases and to ensure their cooperation in site remediation. CERCLA also provides federal funding (the Superfund) for the remediation of hazardous materials contamination. The Superfund Amendments and Reauthorization Act of 1986 amends some provisions of CERCLA and provides for a Community Right-to-Know program.

EPA has the authority to implement CERCLA in all 50 states and all United States territories, using a variety of enforcement tools, including orders, consent decrees, and other small-party settlements. Identification, monitoring, and remediation of Superfund sites are usually coordinated by state environmental protection or waste management agencies. When potentially responsible parties cannot be identified or located, or when responsible parties fail to act, the EPA has the authority to remediate abandoned or historical sites where hazardous materials contamination is known to exist and to pose a human health hazard.

Pursuant to CERCLA, the EPA maintains a National Priorities List of uncontrolled or abandoned hazardous waste sites identified for priority remediation under the Superfund program. Sites are identified for listing on the basis of the EPA's hazard ranking system. Sites also may be placed on the National Priorities List if they meet the following requirements.

- The Agency for Toxic Substances and Disease Registry of the U.S. Public Health Service has issued a health advisory that recommends removing people from the site.
- EPA has determined that the site poses a significant threat to public health.

State

EPA granted the state primary oversight responsibility to administer and enforce hazardous waste management programs. In addition, state regulations, which are equal to or more stringent than federal regulations, require planning and management to ensure that hazardous wastes are handled, stored, and disposed of properly to reduce risks to human health and the environment. Several key state laws pertaining to hazardous wastes are discussed below.

Hazardous Materials Release Response Plans and Inventory Act of 1985

The Hazardous Materials Release Response Plans and Inventory Act, also known as the Business Plan Act, requires businesses using hazardous materials to prepare a hazardous materials business plan that describes their facilities, inventories, emergency response plans, and training programs. Under the Business Plan Act, hazardous materials are defined as raw or unused materials that are part of a process or manufacturing step. They are not considered hazardous waste, although the health concerns pertaining to the release or inappropriate disposal of these materials are similar to those relating to hazardous waste.

Hazardous Waste Control Act

The Hazardous Waste Control Act created the state hazardous waste management program. The Hazardous Waste Control Act is implemented by regulations contained in 26 CCR, which describe:

- identification and classification;
- sources;
- transport;
- design and permitting of recycling, treatment, storage, and disposal facilities;
- treatment standards;

- operation of facilities, including staff training;
- closure of facilities; and
- liability issues of hazardous waste management.

Regulations in 26 CCR list more than 800 materials that may be hazardous and establishes criteria for identifying, packaging, and disposing of them. Under the Hazardous Waste Control Act and 26 CCR, hazardous waste generators must complete a manifest that accompanies the waste from the generator to the transporter to the ultimate disposal location. Copies of the manifest must be filed with DTSC.

Emergency Services Act

Under the Emergency Services Act, the state developed an emergency response plan to coordinate emergency services provided by federal, state, and local agencies. Rapid response to incidents involving hazardous materials or hazardous waste is an important part of the plan, which is administered by the California Office of Emergency Services. This office coordinates the responses of other agencies, including EPA, the California Highway Patrol, the nine RWQCBs, the various air quality management districts and air pollution control districts, and county disaster response offices.

California Occupational Safety and Health Administration Standards

Worker exposure to contaminated soils, vapors that could be inhaled, or possibly groundwater containing hazardous levels of constituents would be subject to monitoring and personal safety equipment requirements that are established in California Occupational Safety and Health Administration (Cal-OSHA) regulations. Title 8 specifically addresses airborne contaminants. The primary intent of the Title 8 requirements is to protect workers, but compliance with some of these regulations also would reduce potential hazards to non-construction workers and those using facilities along the project alignment because required site monitoring, reporting, and other controls would be in place.

Workers who are in direct contact with soil or groundwater containing hazardous levels of constituents would perform all activities in accordance with a hazardous operations site-specific health and safety plan, as outlined in Cal-OSHA standards. A health and safety plan is not required for workers such as heavy equipment operators, carpenters, painters, or other construction workers who would not be performing investigation or remediation activities where direct contact with materials containing hazardous levels of constituents could occur. However, elements of a health and safety plan protect those workers who may be adjacent to cleanup activities by establishing engineering controls, monitoring, and security measures to prevent unauthorized entry to cleanup sites and to reduce hazards outside the investigation or cleanup area.

Other State Laws, Regulations, and Programs

Additional state regulations that affect hazardous waste management include:

- the Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65), which requires the labeling of substances known or suspected by the state to cause cancer; and
- California Government Code 65962.5, which requires the Office of Permit Assistance to compile a list of potentially contaminated sites in the state.

Local

City of Fremont Plans and Regulations

The City of Fremont General Plan includes a number of policies to regulate hazards and hazardous materials in the City. In addition, the City has programs and regulations in place to deal with the identification and removal of hazardous wastes, and remediation efforts, as necessary, under disaster conditions or incidents in which hazardous materials are discovered. The following policies from the General Plan are applicable to project implementation:

- **Policy HS 6.1.2:** Ensure cleanup of hazardous materials prior to a change in use from industrial to other uses.
- **Policy HS 6.1.3:** The City has adopted the Alameda County Hazardous Waste Management Plan in compliance with State law.
- **Policy HS 6.2.1:** Require that hazardous materials be managed in a manner that minimizes the risk to workers and residents.
- **Policy HS 7.1.1:** Maintain an Emergency Plan and adequately trained personnel to respond to human-made or natural disasters.

The City regulates the management, handling, and storage of hazardous materials. The City controls the underground storage of hazardous materials and establishes permitting procedures, responsibility for enforcement, and compliance scheduling. This issue is critical in Fremont where leakage of hazardous substances from USTs could contaminate the underlying aquifer that supplies the City’s drinking water.

The City Hazardous Incident Team is specially trained to make a preliminary assessment of the type of material involved in an emergency situation. Additionally, one fire apparatus for the City has specialized equipment necessary for hazardous material incident response. The City maintains records of the type of hazardous materials used and stored. Users are required to comply with the Hazardous Materials Ordinance and permitting process.

The City Health and Safety Plan was adopted in January 1987 (and subsequently amended), and has been approved by the State Office of Emergency Services. The plan sets forth responsibilities within City government for responding to a hazardous materials emergency. The plan also includes a detailed checklist for actions, training programs, procedures for requesting state and federal funding assistance and incident reporting procedures. Also included in the plan are maps showing where significant quantities of hazardous materials are stored, evacuation routes from the facilities, and the location of sensitive receptors such as schools, hospitals, and nursing homes.

Every city and county is required by state law to adopt a Hazardous Waste Management Plan. If the county plan is applicable and contains sufficient detail for the city's use, a city may adopt the county plan. Alameda County's plan, prepared in 1989, identified general areas throughout the County, based on siting and environmental criteria, which are considered appropriate for the siting of new offsite hazardous waste transfer, storage, or disposal facilities. Several possible sites in the City may meet the Plan's criteria as potential treatment, storage, or disposal facilities for hazardous wastes. No specific sites in Fremont have been identified. The City Council adopted the County plan by resolution on July 25, 1989.

The City also developed an Emergency Plan in compliance with state requirements. The plan is a comprehensive approach to emergency preparedness, addressing possible hazards that might result from an emergency such as a natural disaster, technological incident, nuclear defense, civil disorder, or terrorism. The plan provides the basic guidelines for organization, authority, duties, services, and staff during a disaster. The plan is intended to be coordinated with state, regional, and county emergency plans. The role of every organization, agency, or activity expected to contribute to an emergency response is identified in the plan.

City of Union City Plans and Regulations

The City of Union City General Plan includes a number of policies to regulate hazards and hazardous materials in the City. In addition, the City has programs in place to deal with the identification and removal of hazardous wastes, and remediation efforts, as necessary, under disaster conditions or incidents in which hazardous materials are discovered. The following policies from the General Plan are applicable to project implementation:

- **HS-A.1.10:** The City shall maintain an up-to-date Emergency Plan which is consistent with the State and Federal disaster preparedness requirements, participate in disaster response exercises, provide for the training of personnel and elected officials after every election in emergency response.
- **HS-A.1.13:** The City shall include as part of the Emergency Plan an emergency evacuation plan.

The Environmental Programs Division of the City administers the hazardous materials technical standards contained in the Uniform Fire Code. These include new construction and plan check activities, chemical inventory evaluation, occupancy classification, field inspections, and operational support.

In 1983, the City of Union City adopted a Hazardous Materials Storage Ordinance and amended the Fire Code to implement the state's community right-to-know laws and the UST regulations. The goal of the ordinance and subsequent amendments is to protect people, businesses, structures, and the environment from the adverse effects of hazardous materials used and stored in Union City. Cal-EPA recently designated Union City as the local Certified Unified Program Agency and delegated several new programs to the Division, namely the Aboveground Storage Tank, Hazardous Waste Generator, and the Hazardous Waste Tiered Permit treatment program.

The Underground Storage Tank program authorized by Chapter 6.7 of California's Health and Safety Code has been implemented by the City of Union City since 1983. Components of this program have included inspection, permitting, installations and removals, and cleanups associated with releases. Currently, this program element covers 39 sites with an aggregate of 92 active, inactive, or temporarily closed USTs.

The Hazardous Materials Release Response Plan and Inventory Program for the City includes the Hazardous Materials Management Plan described in Title 24 of CCR Section 80.113, Part 9. The City of Union City has been implementing a program to collect and disseminate information regarding the types and quantities of hazardous materials handled, stored, or used by a business since 1983. Since the program's inception, the number of regulated facilities has grown to over 250. Facilities range in size from small auto repair and print shops, to moderate-sized plating and light manufacturing operations, to very large industrial plants.

3.6.3 Impact Analysis

This section describes the impact analysis relating to hazards and hazardous materials for the proposed project. It describes the methods used to determine the impacts of the proposed project and lists the criteria used to conclude whether an impact would be significant. Measures to mitigate (i.e., avoid, minimize, rectify, reduce, eliminate, or compensate for) significant impacts accompany each impact discussion.

Methodology

Impacts on the public and environment that could result from hazardous materials and other hazards were evaluated based on the results of the Phase I Environmental Assessment (Fugro West 2008). This report includes a list of all known hazardous sites along the project alignment. The analysis is also based on the known presence of other health-threatening factors in the project vicinity.

Evaluation of safety, fire, and emergency response impacts considered the relative location of the project alignment, the types of hazards present, and the proximity to emergency response services. It is assumed that hazardous spill prevention and response measures would be incorporated into the construction specifications.

Significance Criteria

For this analysis, an impact pertaining to hazards and hazardous materials was considered significant under CEQA if it would result in any of the following environmental effects, which are based on professional practice and State CEQA Guidelines Appendix G (14 CCR 15000 *et seq*.). A significant impact is identified if the proposed project would:

- create a significant hazard to the public or the environment as a result of routine transport, use, production, upset, or disposal of hazardous materials;
- 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 ;
- allow hazardous emissions or use of hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school ;
- be located on a site that is included on a list of hazardous materials sites pursuant to Government Code 65962.5 and, as a result, would create a significant hazard to the public or the environment ;
- if identified in an airport land use plan or, where such a plan has not been adopted, be located within 2 miles of a public airport or public use airport, and create a safety hazard for people residing or working in the project area;
- if located in the vicinity of a private airstrip, create a safety hazard for people residing or working in the project area ;
- impair the implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or
- 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.

Project Impacts and Mitigation Measures

Impacts that could occur as a result of project implementation are described below. ~~Because the proposed project would not be located within 0.25 mile of an existing or proposed school, there would be no impacts on school facilities from emissions or the handling of hazardous materials in relation to the proposed project.~~ In addition, the proposed project would not be located within a 2-mile radius of a public airport or public use airport, or within the vicinity of a private airstrip. Therefore, no impacts from hazards or hazardous materials related to the proposed project concerning schools or airports would occur. Therefore, these impacts are not further discussed and no mitigation would be required.

Impact HAZ-1: Creation of a Hazard to the Public or the Environment through the Routine Transport, Use, or Disposal of Hazardous Materials (Less than Significant with Mitigation)

Construction of the proposed project would require the use of vehicles and other construction equipment that use hazardous materials such as gasoline and diesel fuels, motor oil, gear lubricants, transmission fluids, hydraulic fluids, coolants, and degreasers. The accidental releases of small quantities of these substances during construction could contaminate soils and degrade the quality of surface water and groundwater, resulting in a public safety hazard. This impact is considered significant. Implementation of Mitigation Measure HWQ-4 would reduce this impact to a less-than significant level.

Operation of the proposed project would not result in impacts on the public or environment through hazardous materials. The roadway alignment would be designed for safety, and would not increase the risk of hazardous material spills over conditions present along existing roadways. Therefore, no impacts are expected.

Mitigation Measure HWQ-4: Prepare and Implement a Hazardous Materials Spill Prevention and Control Program during Construction

To ensure compliance with the NPDES General Construction Permit, ACTA will require that project contractors develop and implement a spill prevention and control program to minimize the potential for, and effects from, spills of hazardous, toxic, or petroleum substances during all construction activities. The NPDES General Construction Permit requires the spill prevention and control program. The program will be completed before any construction activities begin. The program may include the following practices.

- Provision of security for storage areas that contain hazardous materials
- Secondary containment for hazardous materials storage
- Implementation of preventative measures, specified to hazardous materials that would be used, to prevent spillage of each material
- Provision of containment and cleanup or mop-up supplies at each site
- Posted emergency contact information

ACTA will review and approve the spill prevention and control program before the onset of construction activities. ACTA will inspect the construction area routinely to verify that the measures specified in the spill prevention and control program are properly implemented and maintained. ACTA will notify contractors immediately if there is a noncompliance issue and will require compliance.

The federal reportable spill quantity for petroleum products, as defined in 40 CFR 110, is any oil spill that:

- violates applicable water quality standards,

- causes a film or sheen upon or discoloration of the water surface or adjoining shoreline, or
- causes a sludge or emulsion to be deposited beneath the surface of the water or adjoining shorelines.

If a spill is reportable, the contractor will notify the City's Fire Department and the DTSC, which has a spill response and cleanup ordinances to govern emergency spill response. A written description of reportable releases must be submitted to the San Francisco Bay RWQCB and the DTSC. This submittal must include a description of the release, including the type of material and an estimate of the amount spilled, the date of the release, an explanation of why the spill occurred, and a description of the steps taken to prevent and control future releases. The releases would be documented on a spill report form. The contractor will also notify ACWD of reportable spills, and include ACWD in the distribution of spill-related reports prepared for other agencies.

Impact HAZ-2: Accidental Mobilization and Exposure of Workers and Public to Hazardous Materials during Construction (Less than Significant with Mitigation)

The Phase I Site Assessment prepared for the proposed project (Fugro West 2008) showed that there are potential hazardous materials sites in the vicinity of the project alignment that are listed as hazardous in government databases. These sites include the Pacific States Steel Corporation and former Union City Corporation Yard. In addition, land uses adjacent to the project alignment and the wetlands mitigation site may present unknown hazardous materials that could be encountered through project implementation. Various organic substances, metals, petroleum products, and other chemicals may be present in the soil at these sites. There also is the possibility that unknown or unrecorded contamination exists because of past agricultural or industrial uses or construction activities in the area. Soil disturbance from grading, trenching, excavating, and other ground-disturbing activities have the potential to expose or mobilize hazardous substances in soils, sediments, and groundwater, and could expose construction workers and the public to contaminated dust or soil gases. Past agricultural uses may also include unknown agricultural wells that may be present on undeveloped portions of the project alignment and the wetlands mitigation site.

This impact is considered significant. The proposed project would implement a Phase II Environmental Site Assessment following the more precise determination of the roadway alignment and construction specifications. This assessment would include a hazardous materials assessment of soil and groundwater that would be disturbed by construction of the proposed project. These studies and the specific measures they will identify to reduce hazards-related impacts have been incorporated into Mitigation Measure HAZ-2 below. In addition, implementation of the following mitigation measures would reduce this impact to a less-than-significant level.

The relocation of the CNG fueling island on the Union City Corporation Yard site may also present a hazard to workers and the public. Although the UST would not be moved, the above-ground CNG fueling island would be relocated. Prior to implementation of the proposed project, ACTA would acquire the required permits from the City of Union City to ensure the safe movement of this structure. Plans and specifications for relocating the CNG fueling island would be reviewed and approved by the Union City Planning, Building, and Fire Departments and would be required to conform to the Uniform Fire Code requirements (Perez pers. comm.). Implementation of Mitigation Measure PSR-1 would also require an investigation to identify the exact locations of the pipelines supporting this facility. This information would then be used to identify the appropriate measures to be taken throughout the movement of the CNG fueling station to ensure the continuous stability of the natural gas system at this site. With the implementation of these measures, this impact is considered less than significant.

Mitigation Measure HAZ-1: Train Construction Workers to Identify Potentially Contaminated Materials and, if Found, Stop Work and Implement Hazardous Materials Investigations and Remediation

Prior to the onset of construction, all construction workers will be trained in the identification of potentially contaminated soil and water, including information on the characteristics of potential contamination, such as discolored soil, oils or sheens on water, and unusual odors. In the event that hazardous materials are encountered during construction, all construction activities in the area of the discovery will stop, and ACTA will conduct hazardous materials investigations to identify the nature and extent of contamination and evaluate potential impacts on project construction. If necessary, ACTA will implement remediation measures consistent with all applicable local, state, and federal codes and regulations. Construction will not resume until remediation is complete. If waste disposal is necessary, ACTA will ensure that all hazardous materials removed during construction are handled and disposed of by a licensed waste disposal contractor and transported by a licensed hauler to an appropriately licensed and permitted disposal or recycling facility, in accordance with local, state, and federal requirements.

Mitigation Measure HAZ-2: Implement Recommendations in the Phase I Environmental Site Assessment to Prepare a Phase II Environmental Site Assessment, a Health and Safety Plan, and a Soil and Groundwater Management Plan, and to Properly Abandon any Agricultural Wells

ACTA will implement the following recommendations from the Phase I Environmental Site Assessment (Fugro West 2008), including preparation of a Phase II Environmental Site Assessment. As required for any specific Phase II ESA conducted in ACWD jurisdiction, the scope of work will be submitted to ACWD and other jurisdictional entities for their review and comment prior to implementation. The Phase II Environmental Site Assessment will be conducted by qualified professionals and will conform to all relevant regulations. For any soil and groundwater assessment requiring a Drilling Permit from ACWD pursuant to this Phase II Environmental Site Assessment or subsequent review, a work plan for chemical investigation will be submitted to ACWD for their approval.

As required by Cal-OSHA standards, a Health and Safety Plan will be prepared prior to the onset of construction activities. The plan will address all activities proposed through implementation of the project. The project-specific Health and Safety Plan will be developed under the guidance of a health and safety professional or certified industrial hygienist before any investigation, cleanup, or construction activities begin in the area. Workers who could directly contact soil, vapors, or groundwater containing hazardous levels of constituents will perform all activities in accordance with the Health and Safety Plan. The plan will include:

- a description of all planned construction activities;
- a list of known contaminants that may be present, including the media that may be affected (e.g., soil, groundwater, soil-vapor) and the highest known concentrations;
- the identification of potential physical, mechanical, electrical, and biological hazards that may be encountered;
- the identification of special procedures or precautions that need to be employed (e.g., confine space entry, ambient air monitoring, dust suppression, and so on);
- the determination of the level of and list of required personal protective equipment;
- the development of contingency measures and decontamination procedures;
- listed emergency contact information, including directions to the nearest hospital; and
- provisions for daily tailgate meetings.

Based on the results of the Phase II Environmental Site Assessment performed for the proposed project alignment, a Soil and Groundwater Management Plan will be prepared to address potential impacts that may occur through implementation of the proposed project. The proposed project would disturb existing shallow soil conditions in the project alignment, and encounter subsurface soil and groundwater where improvements extend below the surface. At a minimum, the Soil and Groundwater Management Plan will establish soil and groundwater mitigation and control specifications for grading and construction activities, including health and safety provisions for monitoring exposure to construction workers, procedures to be undertaken in the event that previously unreported contamination is discovered, and emergency procedures and responsible personnel. The plan will also include procedures for managing soils and groundwater removed from the site to ensure that any excavated soils or

dewatered groundwater with contaminants are stored, managed, and disposed of in accordance with applicable regulations. The plan will include:

- the project background and description of proposed actions;
- a summary of environmental conditions (e.g. previous investigations, known contaminants, media affected, highest known concentrations, potential exposure pathways, etc.); and

- general soil and groundwater management practices, including:
  - site dewatering procedures,
  - excess soil handling procedures,
  - general construction activities that will occur on or adjacent to the hazardous materials site,
  - dust control procedures,
  - stormwater runoff procedures,
  - soil transportation and disposal procedures (if necessary),
  - contingency procedures for unexpected conditions (e.g. upon encountering stained or obviously contaminated soil, any USTs, well, associated piping and/or other identifiable environmental conditions posing a potential risk to health, safety, or the environment), and
  - reporting procedures.

Any wells, agricultural wells, and other improvements that may be encountered throughout the project alignment and wetlands mitigation site during construction activities will be properly abandoned or removed, in coordination with ACWD. In accordance with prior communication with ACWD, abandonment of each agricultural well or improvement will need to be handled on a case-by-case basis in accordance with the California Department of Water Resources guidelines and ACWD specifications. If any hazardous materials, underground storage tanks, soil contamination, or groundwater contamination is encountered during excavation or construction activities, ACWD will be included in the notification and reporting procedures.

Mitigation Measure PSR-1: Conduct an Investigation of Utility Line Locations and Maintain Utility Services

A detailed study identifying the locations of utilities along the project alignment will be conducted during the design phase of the proposed project. For areas with the potential for adverse impacts on utility services, the following measures will be implemented.

- Utility excavation or encroachment permits will be required from the appropriate agencies. These permits include measures to minimize utility disruption. ACTA and its contractors will comply with permit conditions. Such conditions will be included in construction contract specifications.
- Utility locations will be verified through a field survey (potholing) and use of the Underground Service Alert services.
- Detailed specifications will be prepared as part of the design plans to include procedures for the excavation, support, and fill of areas around utility cables and pipelines. All affected utility services will be notified of the project construction plans and schedule. Arrangements will be made with these entities regarding the protection, relocation, or temporary disconnection of services.

- Residents and businesses adjacent to the project alignment will be notified of planned utility service disruption 2 to 4 days in advance, in conformance with the Cities of Fremont and Union City and state standards.
- Disconnected cables and lines will be reconnected promptly.
- The project will observe the California Department of Health Services (DHS) standards, which require:
  - a 10-foot horizontal separation between parallel sewer and water mains, and
  - a 1-foot vertical separation between perpendicular water and sewer line crossings.

In the event that separation requirements cannot be maintained, the project proponent will obtain a DHS variance through provisions of water encasement or other means deemed suitable by the department.

Impact HAZ-3: Impairment of the Implementation of or Physical Interference with an Adopted Emergency Response Plan or Emergency Evacuation Plan during Construction (Less than Significant with Mitigation)

Widening of the existing roadway and construction of the new roadway alignments may require temporary lane closures that could result in the alteration of emergency evacuation routes. This impact is considered significant. Implementation of the following mitigation measure would reduce this impact to a less-than-significant level.

Mitigation Measure TRA-1: Develop and Implement a Traffic Control Plan for Project Construction

In accordance with the City of Fremont and Union City policies on street closures and traffic diversion for arterial and collector roadways, the construction contractor will prepare a traffic control plan (to be approved by the City engineers) before construction. The traffic control plan will include:

- a street layout showing the location of construction activity and surrounding streets to be used as detour routes, including special signage;
- a tentative start date and construction duration period for each phase of construction;
- the name, address, and emergency contact number for those responsible for maintaining the traffic control devices during the course of construction; and
- written approval to implement traffic control from other agencies, as needed.

Additionally, the traffic control plan will address the following stipulations required of the proposed project.

- Provide access for emergency vehicles at all times.

- Avoid creating additional delay at intersections currently operating at or approaching congested conditions, either by choosing routes that avoid these locations, or restricting construction-related trips to and from the site to ~~constructing during~~ nonpeak times of day.
- Maintain access for driveways and private roads, except for brief periods of construction, in which case property owners will be notified.
- Provide adequate off-street parking areas at designated staging areas for construction-related vehicles.
- Maintain pedestrian and bicycle access and circulation during proposed project construction where safe to do so. If construction encroaches on a sidewalk or recreation trail, a safe detour will be provided for pedestrians at the nearest crosswalk. If construction encroaches on a bike lane, warning signs will be posted that indicate bicycles and vehicles are sharing the roadway.
- Provide detours as necessary throughout project construction to maintain safe access to the Quarry Lakes Regional Recreation Area.
- Identify the location of all project-related detours of EBRPD trail facilities through coordination with and approval of EBRPD planning staff, and provide detour signage approved by EBRPD to minimize hazards to trail users.
- Control traffic with flag persons wearing Occupational Safety and Health Administration–approved vests and using a Stop/Slow paddle to warn motorists of construction activity.
- Maintain access to transit services and ensure that public transit vehicles are detoured.
- Post standard construction warning signs in advance of the construction area and at any intersection that provides access to the construction area.
- Notify police and fire departments of both Cities of construction locations to ensure that alternative evacuation and emergency routes are designed to maintain response times during construction periods, if necessary during lane closures.
- Provide written notification to contractors regarding appropriate routes to and from construction sites, and weight and speed limits for local roads used to access construction sites. Submit a copy of all such written notifications to the City of Fremont and City of Union City planning departments.
- Repair or restore the road rights-of-way to their original condition or better upon completion of the work.

Impact HAZ-4: Exposure of People or Structures to Increased Risk of Loss, Injury, or Death involving Urban or Wildland Fires during Construction (Less than Significant with Mitigation)

The new roadway alignment is located in an undeveloped, natural area that supports nonnative grasslands and ruderal vegetation. Land uses surrounding this roadway segment support residential and commercial development, and include Quarry Lakes Regional Park and natural landscape features such as Old Alameda Creek. Because of the natural condition of the site on which construction activities would occur, this area may be susceptible to wildfire as a result of construction activities (i.e., inadvertent ignition of flammable materials). After full development of the proposed project, there would be no project features that would put this area at risk for future wildland fires.

This impact is considered significant. Implementation of the following mitigation measure would reduce this impact to a less-than-significant level.

Mitigation Measure HAZ-3: Implement Procedures to Reduce Fire Risk during Construction

During construction, all staging areas or areas slated for development using spark-producing equipment will be cleared of dried vegetation or other materials that could serve as fire fuel. Any construction equipment that normally includes a spark arrester will be equipped with an arrester in good working order. During construction, adequate water will be made available for fire protection.

Impact HAZ-5: Emission or Use of Hazardous Materials, Substances, or Waste within 0.25 mile of an Existing or Proposed School (Less than Significant)

Warwick Elementary School is located in a developed area approximately 0.25 mile west of the intersection of Decoto Road and Paseo Padre Parkway. The project does not propose any sources of considerable pollutant emissions, and project-related hazardous materials usage would be limited to construction-related fuels, chemicals, and materials, as discussed under Impact HAZ-1 above. Fuels, chemicals, and materials would not be stored or used in volumes that would create a substantial risk to the nearby school, and would be handled, stored, and disposed of in accordance with all relevant regulations. The proposed project would result in a slight increase in traffic along Decoto Road and Paseo Padre Parkway, which are located near the school. As a result, a marginal increase in mobile source air toxics (MSAT) emissions would occur along surface streets that are near the school. Impacts related to the proposed project's MSAT emissions are discussed under Impact AIR-4 in Section 3.2, Air Quality, of the Draft EIR, and were found to be less than significant. The projected annual average daily traffic (AADT) volumes at horizon Year 2035 of 14,870 to 57,015 (Table 3.2-10 on page 3.2-45) would be well below the 140,000 to 150,000 AADT criterion established by the Federal Highway

Administration (FHWA) for projects considered to have a high potential for MSAT-related adverse impacts. As such, the marginal increase in MSAT emissions that may occur along surface streets near the school is not considered a significant hazardous materials impact. Therefore, this impact is less than significant and mitigation is not required.

Section 3.7

Hydrology and Water Quality

Section 3.7
Hydrology and Water Quality

3.7.1 Introduction

This section describes the affected environment and regulatory setting for hydrology and water quality in the project area and its vicinity. It also describes the impacts on hydrology and water quality that would result from implementation of the proposed project, and mitigation measures that would reduce these impacts.

3.7.2 Environmental Setting

Sources of Information

The key sources of data and information used in the preparation of this chapter are listed and briefly described below.

- Draft Hydrology and Hydraulics Study Report prepared by WRECO (2008a) (Appendix I)
- Draft Water Quality Report prepared by WRECO (2008b) (Appendix M)

Existing Conditions

This section discusses the existing conditions related to hydrology and water quality in the study area.

Climate

The City of Fremont's climate is oceanic; the mean annual temperature is 59ºF with a maximum annual average of 68ºF and a minimum of 47ºF (Federal Emergency Management Agency 2000). The City of Union City has a mean high annual temperature of 79.6ºF, and a mean low annual temperature of 43.6ºF (Fizber 2008). The average rainfall in California is variable and inconsistent from region to region. The average rainfall in Fremont and Union City is 15 to 19 inches per year (Alameda County Public Works Agency 2003). The rainy season is October 15 through April 15 (California Department of Transportation 2003).

Surface Water

The project area is located in the San Francisco Bay Hydrologic Region, which is divided into seven hydrologic units. The project area falls within the South Bay Hydrologic Unit, which is further divided into four subregions or hydrologic areas. Specifically, the project falls within the Alameda Creek Hydrologic Area (California Watershed Portal 2008).

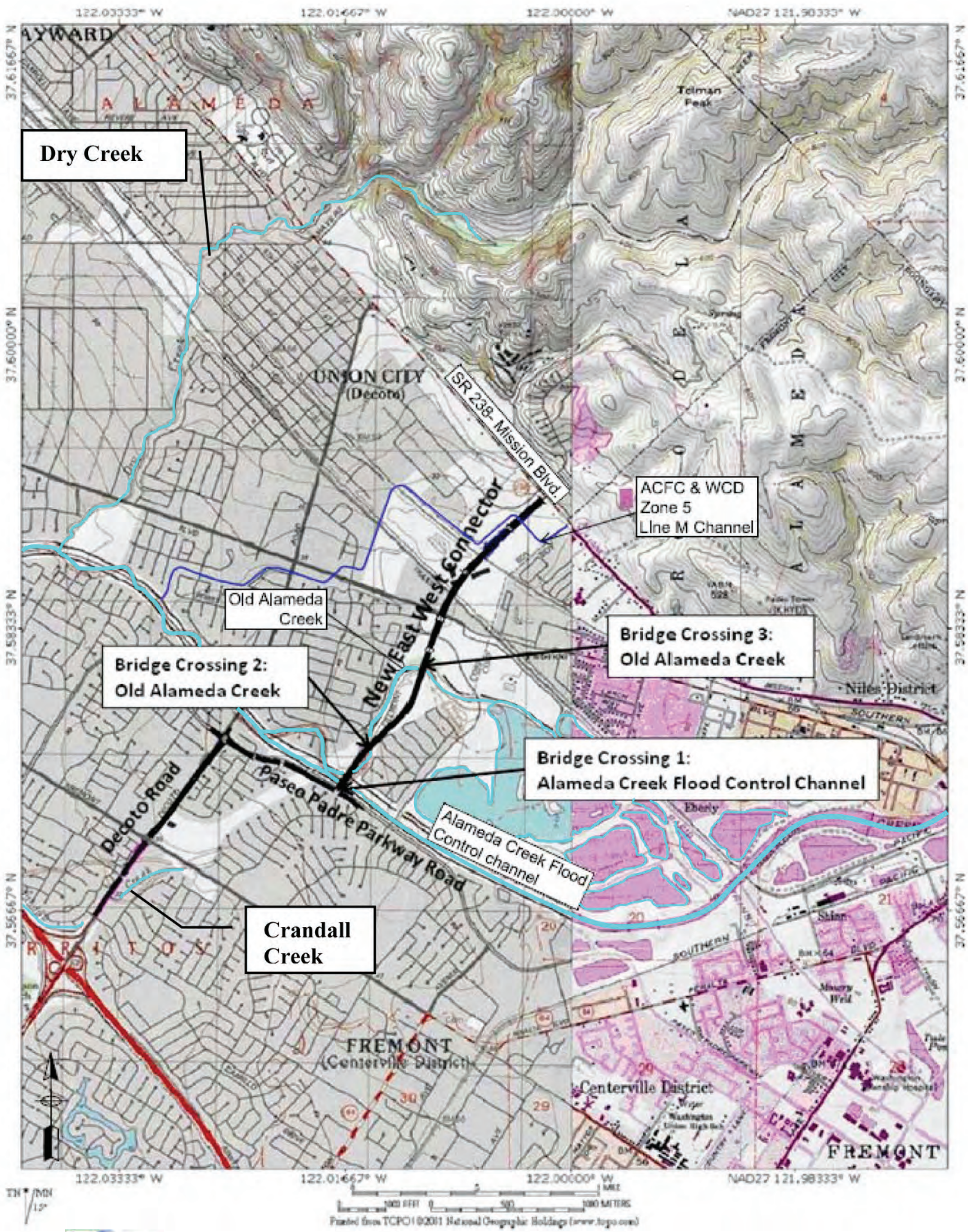
The major aquatic resources along the project alignment include, from west to east, Crandall Creek, Alameda Creek Flood Control Channel, Old Alameda Creek, the Line M Channel, and two stormwater detention basins (called New Basin and Basin 2C). The Line M Channel flows into the Alameda Creek Flood Control Channel north of the project alignment, and the Alameda Creek Flood Control Channel ultimately flows to the San Francisco Bay. These major aquatic resources are discussed in Section 3.3, Biological Resources.

The project alignment crosses Old Alameda Creek at two separate locations and the Alameda Creek Flood Control Channel at one location (Figure 3.7-1). These crossings would be constructed as three separate concrete bridges supported by abutments or intermediate piers. The project alignment would also pass over Crandall Creek on the west end but would not encroach on the creek, which is culverted beneath Decoto Road at this location; and all project activities would be within the existing Decoto Road right-of-way. The project alignment would extend over ~~and the Line M Channel on the east end.~~ Approximately 1,100 feet of the Line M Channel would be replaced by double ~~8~~10-foot-by-5-foot box culverts.

Surface Water Quality

The San Francisco Bay RWQCB defines the beneficial uses for certain creeks, rivers, lakes, and bays. Beneficial uses of waterways can be impaired by pollutants. Beneficial use impairments result from several factors but generally result from point-source and nonpoint-source pollutants. Generally, surface water quality in the project area is considered sufficient for wildlife, urban, agricultural, and recreational activities. Point-source pollutants include discharges of wastewater from municipal sewage treatment plants, and industrial and commercial facilities. Nonpoint-sources include urban runoff containing oils, grease, and toxic chemicals; construction runoff; livestock and animal wastes; and runoff from agricultural and residential areas.

CWA Section 303(d) (see discussion in Regulatory Setting, below) establishes the total maximum daily load (TMDL) process to assist in guiding the application of state water quality standards. This process requires states to identify streams with “impaired” water quality (those affected by the presence of pollutants or contaminants) and to establish the TMDL or the maximum quantity of a particular constituent that a water body can assimilate without experiencing adverse effects. The Alameda Creek Flood Control Channel was listed as impaired in for diazinon according to CWA Section 303(d) (State Water Resources Control Board 2006).



Source: WRECO

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Figure 3.7-1
Creek and Channel Crossings Map

In general, the water quality of Alameda Creek Flood Control Channel is representative of urban runoff. Urbanized environments can capture pollutants from many sources such as oil from vehicles and tires. Other sources may include household chemicals such as pesticides and fertilizers. During the dry season, such chemicals collect on impervious surfaces. Many of the chemicals may break down prior to a storm event; however, these products are often resilient in the environment and can affect beneficial uses. During the first major storm event, water quality is often degraded in urbanized environments as a result of all the pollutant buildup during the dry season. In general, typical runoff from roadway projects may contain constituents similar to those listed in Table 3.7-1 below.

Table 3.7-1. California Department of Transportation Pollutant Sources

Constituents	**Primary Sources**
Particulates	Pavement wear, vehicles, atmosphere, maintenance, snow/ice abrasives, sediment disturbance
Nitrogen, Phosphorus	Atmosphere, roadside fertilizer application, sediments
Lead	Auto exhaust, tire wear, lubricating oil and grease, bearing wear, atmospheric fallout
Zinc	Tire wear, motor oil, grease
Iron	Auto body rust, steel highway structures, moving engine parts
Copper	Metal plating, bearing and bushing wear, moving engine parts, brake lining wear, fungicide and insecticide application
Cadmium	Tire wear, insecticide application
Chromium	Metal plating, moving engine parts, brake lining wear
Nickel	Diesel fuel and gasoline, lubricating oil, metal plating, bushing wear, brake lining wear, asphalt paving
Manganese	Moving engine parts
Bromide	Exhaust
Cyanide	Anticake compound used to keep deicing salt granular
Sodium, Calcium	Deicing salts, grease
Chloride	Deicing salts
Sulfate	Roadway bed, fuel, deicing salts
Petroleum	Spills, leaks or blow-by of motor lubricants, antifreeze and hydraulic fluids, asphalt leachate
PCBs, Pesticides	Spraying of highway rights-of-way, atmospheric deposition, PCB catalyst in synthetic tires
Pathogenic Bacteria	Soil litter, bird droppings, trucks hauling livestock/stockyard waste
Rubber	Tire wear
Asbestos*	Clutch and brake lining wear

* No mineral asbestos has been identified in runoff; however some breakdown products of asbestos have been measured.

Source: Federal Highway Administration 1996.

Groundwater

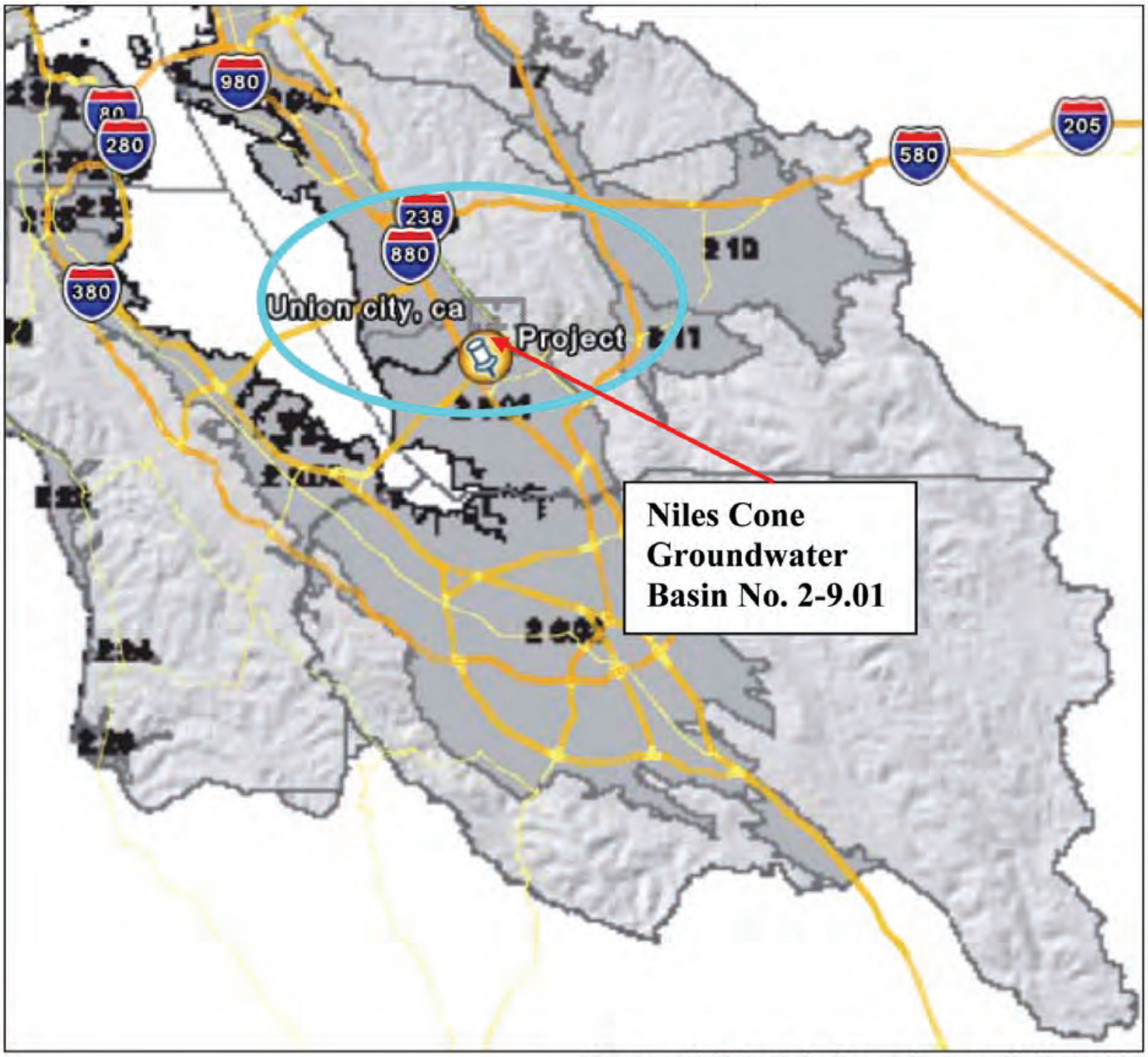
The project area overlies the Santa Clara Valley Groundwater Basin, Niles Cone Subbasin (Figure 3.7-2). The Niles Cone Subbasin is bounded on the east by the Diablo Range and on the west by the San Francisco Bay. Alameda Creek Flood Control Channel is the principal stream in the basin and flows near the eastern and northern margins of the basin while Coyote Creek flows along the southern margin of the basin (California Department of Water Resources 2006).

The Niles Cone subbasin has a surface area of 65,800 acres, or 103 square miles. The subbasin is drained by Alameda Creek Flood Control Channel as it runs from the Diablo Range down into San Francisco Bay. Water-bearing formations of significance in this subbasin include an alluvial fan created by Alameda Creek Flood Control Channel, the Dry Creek alluvial fan, and the Newark, Centerville, Fremont, and Deep aquifers, created by transgression and regression of San Francisco Bay's shoreline. The Hayward Fault cuts across the top of the Alameda Creek alluvial fan, impeding flow of groundwater and divides the basin into the Below Hayward Fault and Above Hayward Fault subbasins. The impermeable nature of the Hayward fault is characterized by the discrepancies in water levels on either side of the fault line (California Department of Water Resources 2006). The project area lies in the ~~Above~~ Below Hayward Fault subbasin.

Groundwater levels in the Niles Cone Subbasin have seen a recent decline as a result of overdraft, making it necessary to obtain water from the State Water Project to recharge groundwater levels in the basin (California Department of Water Resources 2006). Between 2006 and 2007, water levels dropped in the Above Hayward Fault Aquifer indicator well from 35.9 feet to 29.2 feet, a decrease of 6.7 feet (Alameda County Water District 2008). According to the ACWD, groundwater elevation currently ranges from ground level to 76 feet below ground surface. The current estimated storage capacity corresponding to mean sea level is 47,000 acre-feet (California Department of Water Resources 2006).

Groundwater Quality

The Niles Cone Subbasin is characterized as a sodium chloride groundwater type along the western margin and a sodium bicarbonate type along the eastern portion (California Department of Water Resources 2006). Total dissolved solids range from about 286 milligrams per liter (mg/L) to 39,734 mg/L and average about 2,204 mg/L based on data from 113 wells (California Department of Water Resources 2006). Local impairments include saline water intrusion from overdraft of the aquifer. For a discussion of the potential for contamination by hazardous waste, see Section 3.6.2, subsection Pacific States Steel Corporation—Union City.



Source: California's Groundwater –Bulletin 118

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Source: WRECO

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Figure 3.7-2
Groundwater Basins and Subbasins within the Project Limits

Flooding

The Federal Emergency Management Agency (FEMA) delineates floodplains and publishes the information in flood insurance rate maps (FIRMs). The proposed alignment would cross Line M Channel, which is identified as falling within the 100-year flood boundary. FIRM Panel Number 0600140010C shows a floodplain area southeast of Mission Boulevard. The Line M Channel bed and sides are mainly unlined with earthen embankments. However, portions of the channel are concrete lined.

The floodplain associated with Line M Channel in the project area is shown in the two main floodplain zones (Figure 3.7-3). Zone X shows areas above the base flood or above the 500-year flood, with minimal to moderate flood hazard. Zone AH areas are characterized by shallow flooding. Zone AE areas are within the base flood, with a 1% chance of being equal to or exceeding in any given year (100-year storm event) (WRECO 2008a).

Regulatory Setting

Federal

Clean Water Act

The CWA is the primary federal law that protects the quality of the nation's surface waters, including lakes, rivers, and coastal wetlands. It operates on the principle that any discharge of pollutants into the nation's waters is prohibited unless specifically authorized by a permit; permit review is the CWA's primary regulatory tool.

The State Water Board is the state agency with primary responsibility for implementation of state and federally established regulations relating to water resource issues. Typically, all regulatory requirements are implemented by the State Water Board through one of nine geographically separated RWQCBs. The San Francisco Bay RWQCB is the agency responsible for regulating discharges to the local waterways near the project area.

The following paragraphs provide additional details on specific sections of the CWA.

Section 404 Permits for Fill Placement in Waters of the United States

CWA Section 404 regulates the discharge of dredged and fill materials into "waters of the United States," which include oceans, bays, rivers, streams, lakes, ponds, and wetlands. Project proponents must obtain a permit from the Corps for all discharges of dredged or fill material into waters of the United States, including wetlands, before proceeding with a proposed activity.

Before any actions that may affect surface waters are carried out, a delineation of jurisdictional waters of the United States must be completed, following Corps protocols, in order to determine the presence of wetlands or other waters of the

United States that qualify for CWA protection. These include any or all of the following.

- Areas within the ordinary high water mark of a stream, including non-perennial streams with a defined bed and bank and any stream channel that conveys natural runoff, even if it has been realigned.
- Seasonal and perennial wetlands, including coastal wetlands.

Wetlands are defined for regulatory purposes as areas "inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions." (33 CFR 328.3, 40 CFR 230.3.)

CWA Section 404 permits may be issued only for the least environmentally damaging practicable alternative. That is, authorization of a proposed discharge is prohibited if there is a practicable alternative that would have less adverse impacts and lacks other significant adverse consequences. If the proposed action or any subsequent intends on dumping any fill material for rail alignment or bridge crossings, then this permit would be applicable.

The wetland delineation prepared for the proposed project and potential impacts on wetlands are addressed in Section 3.3, Biological Resources.

Section 402 National Pollutant Discharge Elimination System Permits for Discharge to Surface Waters

CWA Section 402 regulates discharges to surface waters through the NPDES program, administered by the EPA.

In California, the State Water Board is authorized by EPA to oversee the NPDES program through the RWQCBs (see related discussion under Porter-Cologne Water Quality Control Act below). The NPDES program provides for both general permits (those that cover a number of similar or related activities) and individual permits.

Section 303(d) List of Impaired Water Bodies and Total Maximum Daily Load

CWA Section 303(d) requires the identification of water bodies that do not meet, or are expected to not meet water quality standards, or are considered impaired. The affected water body and associated pollutant is then prioritized in the 303(d) list. Once a TMDL has been established, or the maximum amount of a contaminant a water body can assimilate without affecting beneficial uses has been identified, the RWQCB's Water Quality Control Plan (basin plan) is updated and the water quality objective is enforced.

According to the 2006 San Francisco Bay RWQCB 303(d) List of impaired waterways, the Alameda Creek Flood Control Channel was listed as impaired for

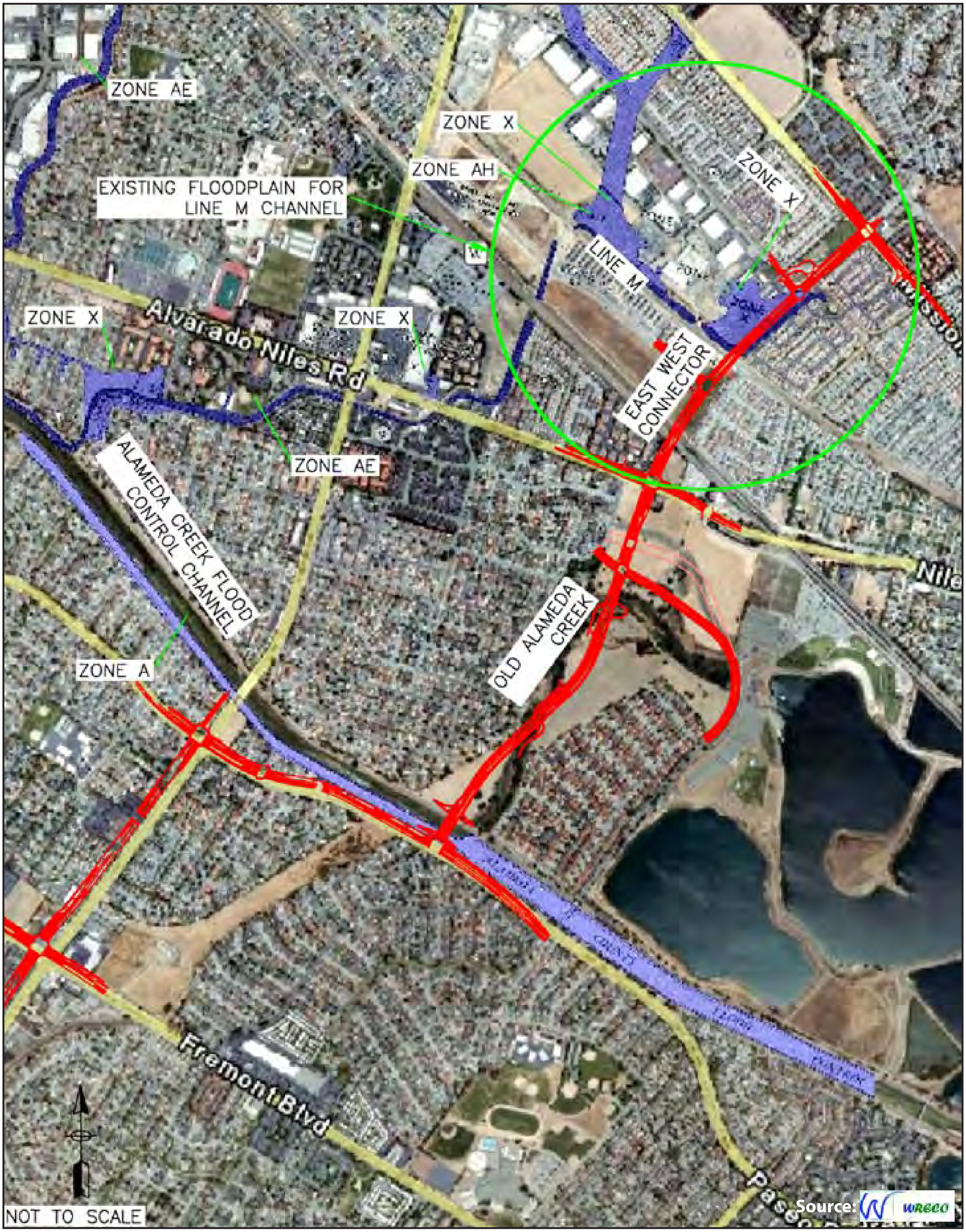

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Figure 3.7-3
Floodplain in the Project Vicinity
ACTA East-West Connector Project

diazinon according to CWA Section 303(d) (State Water Resources Control Board 2006). The project alignment includes the Alameda Creek Flood Control Channel, where it extends along Paseo Padre Parkway between Isherwood Way and Decoto Road.

Section 401 Water Quality Certification

Under CWA Section 401, applicants for a federal license or permit to conduct activities that may result in the discharge of a pollutant into waters of the United States must obtain certification from the state in which the discharge would originate. If appropriate, certification must be obtained from the interstate water pollution control agency with jurisdiction over affected waters at the point where the discharge would originate. Therefore, all projects that have a federal component and may affect the quality of the state's waters (including projects that require federal agency approval, such as issuance of a Section 404 permit) must also comply with CWA Section 401.

Federal Flood Insurance Program

The National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973 were enacted to reduce the need for large, publicly funded flood control structures and disaster relief by restricting development on floodplains.

FEMA administers the National Flood Insurance Program to provide subsidized flood insurance to communities that comply with FEMA regulations limiting development in floodplains.

FEMA issues FIRMs for communities participating in the National Flood Insurance Program. These maps delineate flood hazard zones in the community. The locations of FEMA-designated floodplains in the project area are included in the discussion of physical setting below.

Executive Order 11988

Executive Order 11988 (Floodplain Management) addresses floodplain issues related to public safety, conservation, and economics. The order requires that federal agency construction, permitting, or funding of a project must:

- avoid incompatible floodplain development,
- be consistent with the standards and criteria of the National Flood Insurance Program, and
- restore and preserve natural and beneficial floodplain values.

This order will apply to the proposed action if a Section 404 permit is determined to be required.

State

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Porter-Cologne Act), passed in 1969, articulates with the CWA (see the Clean Water Act section above). It established the State Water Board and divided the state into nine regions, each overseen by a RWQCB.

The State Water Board is the primary state agency responsible for protecting the quality of the state's surface and groundwater supplies, but much of its daily implementation authority is delegated to the nine RWQCBs, which are responsible for implementing CWA, Sections 401, 402, and 303(d).

In general, the State Water Board manages both water rights and statewide regulation of water quality, while the RWQCBs focus exclusively on water quality within their regions.

The State Water Board has regulatory authority over wetlands and waterways under both the federal Clean Water Act (CWA) and the State of California's Porter-Cologne Water Quality Control Act (California Water Code, Division 7). Under the CWA, the State Water Board has regulatory authority over actions in waters of the United States, through the issuance of water quality certifications (certifications) under Section 401 of the CWA, which are issued in combination with permits issued by the U.S. Army Corps of Engineers (Corps), under Section 404 of the CWA. When the State Water Board issues Section 401 certifications, it simultaneously issues general Waste Discharge Requirements (WDRs) for the project, under the Porter-Cologne Water Quality Control Act. Activities in areas that are outside of the jurisdiction of the Corps (e.g., isolated wetlands, vernal pools, or stream banks above the ordinary high water mark) are regulated by the State Water Board, under the authority of the Porter-Cologne Water Quality Control Act. Activities that lie outside of Corps jurisdiction may require the issuance of either individual or general WDRs from the State Water Board.

Basin Plans and Water Quality Objectives

The Porter-Cologne Act provides for the development and periodic review of basin plans that designate beneficial uses of California's major rivers and groundwater basins and establish narrative and numerical water quality objectives for those waters. Beneficial uses are defined as a means to categorize waterways into specific uses (i.e., the reasons why the water body is considered valuable), while water quality objectives represent the standards necessary to protect and support those beneficial uses.

Basin plans are primarily implemented by using the NPDES permitting system to regulate waste discharges so that water quality objectives are met (see discussion of the NPDES system in the Clean Water Act section above). Basin plans are updated every 3 years, and provide the technical basis for determining waste discharge requirements and taking enforcement actions.

Water Quality Objectives

The San Francisco Bay RWQCB has set water quality objectives, narrative or numeric, for both surface waters and groundwater in its region. Surface water objectives are established for the following substances or parameters: ammonia, bacteria, biostimulatory substances, chemical constituents, color, dissolved oxygen, floating material, oil and grease, pH, pesticides, radioactivity, salinity, sediment, settleable material, suspended material, tastes and odors, temperature, toxicity, and turbidity. Specific objectives for concentrations of chemical constituents are applied to water bodies based on their designated beneficial uses.

Dewatering Activities

On 18 June 2002, the RWQCB adopted Order No. R2-2007-0033 (General Dewatering Permit). This general NPDES permit covers the discharge to waters of the United States of clean or relatively pollutant-free wastewater that poses little or no threat to water quality. This order covers well development water, construction dewatering, pump and well testing, pipeline and tank pressure testing, pipeline and tank flushing or dewatering, condensate discharges, water supply system discharges, and miscellaneous dewatering or low threat discharges.

The General Dewatering Permit would be applicable to the proposed project and alternatives if there would be any excavation below the water table. However, the aquitard is thick, and construction of the grade separation would not expose the aquifer to construction materials.

San Francisco Bay Regional Water Quality Control Board, Alameda County's NPDES Permit, Provision C.3

In February 2003, the RWQCB for the San Francisco Bay Region revised Provision C.3 in the County's NPDES permit governing discharges from the municipal storm drain systems in cities and towns within Alameda County. The permit provision was phased in from 2004 through 2006.

Provision C.3 requirements are separate from, and in addition to, requirements for erosion and sediment control and for pollution prevention measures during construction. Project site designs must minimize the area of new roofs and paving. Where feasible, pervious surfaces should be used instead of paving so that runoff can percolate to the underlying soil. Runoff from impervious areas must be captured and treated. The permit specifies ways to calculate the required size of treatment devices.

Provision C.3 applies to the proposed project because the project alignment would be greater than 10,000 square feet.

Local

Alameda County Water District

ACWD is the local water purveyor in the project vicinity. ACWD works to protect surface water and groundwater quality. In 2006 and 2007, ACWD pumped about 31,400 acre-feet of groundwater from the groundwater basin (an acre-foot is the amount of water it would take to cover 1 acre with water 1 foot deep). ACWD interests are to protect groundwater quality from contamination by pollutants from industry and other sources.

Alameda County Flood Control and Water Conservation District

The Alameda County Flood Control and Water Conservation District (ACFCWCD) helps protect western Alameda County residents and property from flooding while preserving the natural environment. ACFCWCD is the devoted steward of a valuable resource—a vast flood control infrastructure including channels, pump stations, and other facilities.

Within the Public Works Agency, ACFCWCD works specifically to protect Alameda County citizens from flooding while preserving the natural environment.

Alameda County Watercourse Protection Ordinance

The Alameda County Watercourse Protection Ordinance restricts the discharge of pollutants to watercourses and the encroachment of new development into watercourses of unincorporated areas of the County. In addition to prohibiting discharges into watercourses, the ordinance establishes a 20-foot building setback from the top of the bank to contain flows from the 100-year flood event. Implementation of this ordinance serves to protect surface water and groundwater recharge areas from erosion, sedimentation, and sources of pollution. The proposed project would be required to comply with this ordinance.

Alameda Countywide Clean Water Program

The Alameda Countywide Clean Water Program (ACCWP) was initiated with the goal of forging consistent, effective countywide strategies to control sources of stormwater pollution. In support of this program, the San Francisco Bay RWQCB has issued a joint municipal stormwater permit to the 17 agencies and cities participating in the ACCWP, recently reissued on February 19, 2003 (Alameda Countywide Clean Water Program 2003). The participating entities include Alameda County; the Alameda County Flood Control Department and its Zone 7; and the Cities of Alameda, Albany, Berkeley, Dublin, Emeryville, Fremont, Hayward, Livermore, Newark, Oakland, Piedmont, Pleasanton, San Leandro, and Union City. The ACCWP is responsible for helping participant entities ensure that they are fulfilling their obligations under the permit and for preparing detailed reports that describe what each entity is doing to prevent stormwater pollution. The program coordinates its activities with other pollution prevention programs, such as wastewater treatment, hazardous waste disposal, and waste recycling.

The ACCWP has developed a Stormwater Quality Management Plan (SWQMP) that describes the program's approach to reducing stormwater pollution. The SWQMP for 2001 through 2008 serves as the basis of the ACCWP's NPDES permit (Alameda Countywide Clean Water Program 2003). The project area is within the boundaries addressed by the SWQMP. The plan does not regulate discharge requirements. Rather, the ACCWP is an advisory tool intended to assist dischargers within the boundaries of the 17 participatory agencies to comply with San Francisco Bay RWQCB regulations. The SWQMP provides details and guidelines for San Francisco Bay RWQCB compliance for entities that would generate discharges to water bodies.

The ACCWP permit included additional requirements (Provision C.3) specifically addressing control of stormwater impacts associated with new development and redevelopment projects. Provision C.3 states that permit holders must incorporate stormwater source control measures, site design principles, and treatment control measures in new development and significant redevelopment projects to reduce water quality impacts of stormwater runoff for the life of these projects. Generally, new development and redevelopment projects must now incorporate on-site stormwater treatment devices into project designs. As of August 15, 2006, these requirements apply to projects creating or replacing more than 10,000 square feet of impervious surface area. The ACCWP published a guidance manual, which directs member agencies on application and implementation of stormwater control measures. Provision C.3 requirements of the ACCWP permit are enforced according to this guidance manual. New development and redevelopment projects must also develop a hydrograph modification management plan that includes analysis of the project's potential to modify the stormwater hydrograph. Specifically, projects must address potential increases in the frequency and duration of flow magnitude and runoff volume from increased impervious surfaces.

3.7.3 Impact Analysis

This section describes the impact analysis relating to hydrology and water quality for the proposed project. It describes the methods used to determine the impacts of the proposed project and lists the thresholds used to conclude whether an impact would be significant. Measures to mitigate (i.e., avoid, minimize, rectify, reduce, eliminate, or compensate for) significant impacts accompany each impact discussion.

Significance Criteria

For this analysis, an impact pertaining to hydrology and water quality was considered significant under CEQA if it would result in any of the following environmental effects, which are based on professional practice and State CEQA Guidelines Appendix G (14 CCR 15000 *et seq*.). A significant impact is identified if the proposed project would:

- violate any water quality standards or waste discharge requirements or otherwise substantially degrade water quality from construction or operation of the proposed project;
- substantially deplete groundwater supplies or substantially interfere with groundwater recharge, resulting in a net deficit in aquifer volume or a lowering of the local groundwater table level by increasing the amount of impervious surfaces;
- substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river from bridge footings or channel lining, in a manner that would result in substantial erosion or siltation on site or off site;
- 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 that would result in flooding on site or off site;
- create or contribute to runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;
- substantially degrade water quality;
- place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or FIRM or other flood hazard delineation map;
- place structures within a 100-year flood hazard area, thus impeding or redirecting flood flows; or
- 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.

Approach and Methodology

The evaluation of hydrology and water quality effects is based on professional standards and the conclusions of hydrology and water quality reports prepared for the proposed project (WRECO 2008a, 2008b) (Appendices I and M, respectively). The key construction-related impacts were identified and evaluated qualitatively based on the physical characteristics of the project area and the magnitude, intensity, location, and duration of activities. The key operational- or buildout-related impacts were identified and evaluated qualitatively and quantitatively based on currently available plans. It is assumed that the project applicants would conform to City and County building standards, grading permit requirements, erosion control requirements, and stormwater treatment and detentions standards.

Specific components of the proposed project were considered in the impacts assessment, such as the widening of the Decoto Road and Paseo Padre Parkway and the new roadway construction. Impact conclusions were made after considering the implementation of best management practices (BMPs) and water quality improvements and after consideration of the application of all relevant City, state, and federal regulations. For example, conclusions below about flooding take into account the full effect of the proposed flood control improvements.

Project Impacts and Mitigation Measures

Review of the thresholds of significance indicated the proposed project would not cause exposure of persons or property to increased risks involving seiche, tsunami, or mudflow because of the project area's distant location from the ocean and the relatively flat topography of the area.

The majority of the project lies in Zone X, outside the 100-year flood zone. Although portions of the project alignment cross the 100-year floodplain, the proposed project would not place housing or structures in a 100-year flood zone. The increased amount of impervious surface and associated runoff from the proposed project would be captured and detained and would not cause any drainages to exceed the ACFCWCD's 1-foot freeboard requirement for the 100-year event. Additionally, although the proposed project would increase impervious surfaces (e.g., roads and structures) and reduce the infiltration of groundwater to the underlying aquifer along the project alignment, the project area (approximately 22 acres) is less than 1% of the total Niles Cone Subbasin surface area (65,800 acres) and would not interfere with the overall recharge of the subbasin. Therefore, there would be no impact on groundwater recharge.

Groundwater quality is not expected to be affected by runoff because it is 30 feet deep and protected by an impervious clay layer. Construction of the grade separation may require some dewatering as it approaches the groundwater table. However, proper BMPs will be used during construction, and operational runoff will not enter the groundwater table in the grade separations. These topics are not addressed further in this Draft EIR. The remaining thresholds identified above are discussed in the analysis below.

Impact HWQ-1: Degradation of Surface Water Quality from Construction-Related Earth-Disturbing Activities (Less than Significant with Mitigation)

Construction-related earth-disturbing activities would introduce the potential for increased erosion and sedimentation, which could adversely affect water quality. During site grading, trenching, and other construction activities, areas of bare soil could be exposed to erosive forces. Bare soils are much more likely to erode than vegetated areas because of the lack of dispersion, infiltration, and retention properties created by covering vegetation. Construction activities involving soil disturbance, excavation, cutting and filling, stockpiling, and grading could result in increased erosion and sedimentation into stormwater runoff and to surface waters which would degrade water quality.

This impact is considered significant. The following mitigation measures would reduce this impact to a less-than-significant level.

Mitigation Measure HWQ-1: Comply with National Pollutant Discharge Elimination System Requirements and Develop and Implement a Stormwater Pollution Prevention Plan

ACTA will comply with the requirements of the ACCWP SWQMP, Alameda County's NPDES General Construction Permit, and Caltrans NPDES permit where applicable before the onset of any construction activities. Compliance and coverage with the SWQMP and NPDES General Construction Permit will require controls of pollutant discharges that use BMPs and technology to reduce erosion and sediments to meet water quality standards. BMPs may consist of a wide variety of measures taken to reduce pollutants in stormwater and other non-point-source runoff. Measures range from source control, such as reduced surface disturbance, to the treatment of polluted runoff, such as detention basins.

A Stormwater Pollution Prevention Plan (SWPPP) will be developed by a qualified engineer or erosion control specialist in accordance with the San Francisco Bay RWQCB requirements for NPDES compliance and implemented prior to the issuance of any grading permit before construction. Additionally, local requirements by the City planning or public works departments will also be incorporated. The SWPPP will be kept on site during construction activity and will be made available upon request to representatives of the San Francisco Bay RWQCB.

The SWPPP will include BMPs for the proposed project and may include the following practices.

- Install falsework and netting at bridge construction sites to keep bridge debris and construction materials from falling into the Alameda Creek Flood Control Channel and Old Alameda Creek during construction activities.
- Erosion control measures will be installed adjacent to suitable aquatic habitat to prevent soil from eroding or falling into these areas. Natural and biodegradable erosion control measures (i.e., straw wattles and hay bales) will be used. Plastic monofilament netting (erosion control matting) will not

be allowed because salamanders and frogs can become caught in this type of erosion control material.

- Contain soil and filter runoff from disturbed areas by berms, vegetated filters, silt fencing, straw wattle, plastic sheeting, catch basins, or other means necessary to prevent the escape of sediment from the disturbed area.
- ~~Use other temporary erosion control measures (such as silt fences, staked straw bales/wattles, silt/sediment basins and traps, check dams, geofabric, sandbag dikes, and temporary revegetation or other ground cover) to control erosion from disturbed areas as necessary.~~
- Use a dry detention basin (which is typically dry except after a major rainstorm, when it will temporarily fill with stormwater), designed to decrease runoff during storm events, prevent flooding, and allow for off-peak discharge. Basin features will include maintenance schedules for the periodic removal of sediments, excessive vegetation, and debris that may clog basin inlets and outlets.
- Cover, or apply nontoxic soil stabilizers to, inactive construction areas (previously graded areas inactive for 10 days or more) that could contribute sediment to waterways.
- Enclose and cover exposed stockpiles of dirt or other loose, granular construction materials that could contribute sediment to waterways.
- Ensure that no earth or organic material will be deposited or placed where it may be directly carried into a stream, marsh, slough, lagoon, or body of standing water.
- Ensure that grass or other vegetative cover will be established on the construction site as soon as possible after disturbance.
- Locate staging areas at least 50 feet away from any drainages.
- Prohibit the following types of materials from being rinsed or washed into the streets, shoulder areas, or gutters: concrete; solvents and adhesives; thinners; paints; fuels; sawdust; dirt; gasoline; asphalt and concrete saw slurry; heavily chlorinated water.

ACTA, in coordination with the city planning or public works departments, will select a combination of BMPs to minimize runoff flows and remove contaminants from stormwater discharges. The final selection of BMPs will be subject to approval by the RWQCB. ACTA will verify that a Notice of Intent has been filed with the State Water Board and that a SWPPP has been developed before allowing construction to begin. ACTA will perform inspections of the construction area, to verify that the BMPs specified in the SWPPP are properly implemented and maintained. ACTA will notify contractors immediately if there is a noncompliance issue and will require compliance. If necessary, ACTA will require that additional BMPs be designed and implemented if those originally constructed do not achieve the identified performance standard.

Mitigation Measure HWQ-2: Clean Paved Areas with Street-Sweeping Equipment

To minimize the amount of pollutants entering the storm drain system during construction, project roadways and other paved areas will be cleaned regularly using street-sweeping equipment. Additionally, litter and debris that may accumulate on the streets of the project area will be regularly collected and properly disposed of. These activities will be the responsibility of the applicant or its contractors.

Mitigation Measure HWQ-3: Implement Additional Water Quality Protection Measures to Reduce Sediment in Surface Waters during Construction

If construction occurs when flows are present in on-site surface waters (Alameda Creek Flood Control Channel, Old Alameda Creek, Line M Channel, and other drainages), the contractor will implement measures to protect surface water quality, including flow diversions, impoundments (e.g., diversion structures), or other methods to avoid the direct exposure of surface water to sediment created as part of construction activity. As a performance standard, the measures will maintain basin plan standards for turbidity. If ambient turbidity is greater than 50 NTUs, then project construction will not exceed 10% over the ambient conditions.

Where the proposed project has potential to result in elevated turbidity, monitoring will be performed at least twice daily at upstream and downstream locations to determine whether the standards outlined above have been met. In the event that they are not being met, the turbidity-generating activities will cease until turbidity is within the identified limits, and construction methods or turbidity control measures will be modified to ensure that turbidity limits continue to be met.

Impact HWQ-2: Contamination of Surface Water Quality from Leak or Accidental Spill of Hazardous Materials during Construction (Less than Significant with Mitigation)

As a result of close proximity to water features, construction equipment and activities for the proposed project would have the potential to leak hazardous materials, such as oil and gasoline, and potentially affect surface or groundwater quality. Improper use or accidental spills of fuels, oils, and other construction-related hazardous materials, such as construction-borne sediment, hydrocarbons, and heavy metals from vehicles, also could pose a threat to water quality. While water quality in the project area may currently be affected by contaminants in urban runoff, construction of the proposed project would represent a different type of potential contaminant release associated with construction-related hazardous materials.

This impact is considered significant. Implementation of the following mitigation measure would reduce this impact to a less-than-significant level.

Mitigation Measure HWQ-4: Prepare and Implement a Hazardous Materials Spill Prevention and Control Program during Construction
To ensure compliance with the NPDES General Construction Permit, ACTA will require that project contractors develop and implement a spill prevention and control program to minimize the potential for, and effects from, spills of hazardous, toxic, or petroleum substances during all construction activities. The NPDES General Construction Permit requires the spill prevention and control program. The program will be completed before any construction activities begin. The program may include the following practices.

- Provision of security for storage areas that contain hazardous materials
- Secondary containment for hazardous materials storage
- Implementation of preventative measures, specific to hazardous materials that would be used, to prevent spillage of each material
- Provision of containment and cleanup or mop-up supplies at each site
- Posted emergency contact information

ACTA will review and approve the spill prevention and control program before the onset of construction activities. ACTA will inspect the construction area routinely to verify that the measures specified in the spill prevention and control program are properly implemented and maintained. ACTA will notify contractors immediately if there is a noncompliance issue and will require compliance.

The federal reportable spill quantity for petroleum products, as defined in 40 CFR 110, is any oil spill that:

- violates applicable water quality standards,
- causes a film or sheen upon or discoloration of the water surface or adjoining shoreline, or
- causes a sludge or emulsion to be deposited beneath the surface of the water or adjoining shorelines.

If a spill is reportable, the contractor will notify the City's Fire Department and the DTSC, which has a spill response and cleanup ordinances to govern emergency spill response. A written description of reportable releases must be submitted to the San Francisco Bay RWQCB and the DTSC. This submittal must include a description of the release, including the type of material and an estimate of the amount spilled, the date of the release, an explanation of why the spill occurred, and a description of the steps taken to prevent and control future releases. The releases would be documented on a spill report form. The contractor will also notify ACWD of reportable spills, and include ACWD in the distribution of spill-related reports prepared for other agencies.

Impact HWQ-3: Increased Runoff from New Impervious Surfaces and Adverse Impacts on Surface Waters (Less than Significant with Mitigation)

The proposed project, when fully built, would result in new impervious surfaces, which would result in an incremental reduction in the amount of natural soil surface available for infiltration of rainfall and runoff, potentially generating additional runoff during storm events. Additional runoff could contribute to the flood potential of natural stream channels, accelerate soil erosion and stream channel scour, and provide an efficient means of transport for pollutants to enter waterways. Project features that detain water, such as the proposed infiltration basins required by Provision C.3 would assist with reducing rates of runoff.

The project alignment would cross the Alameda Creek Flood Control Channel and Old Alameda Creek at two locations. Preliminary hydraulic analyses were performed on both channels.

For the Alameda Creek Flood Control Channel bridge, both a concrete box girder bridge and a concrete slab bridge were evaluated and compared to the existing conditions with no bridge. The proposed structure would reduce the flow conveyance area and affect the water surface profile upstream of the bridge, which is unavoidable. Both bridge types could pass the 100-year design flow of 31,000 cubic feet per second (cfs) with more than 1 foot of freeboard (WRECO 2008a). The proposed new bridge would cause only a very slight increase to the water profile and a very small change to the flow velocity. Therefore, the proposed bridge would not substantially alter the existing flow conveyance.

The existing Old Alameda Creek is only receiving runoff from two local tracts and Zone 5 Line N-12. The upstream groundwater recharge basins do not contribute flows to this stretch of Old Alameda Creek near the project alignment. The existing 100-year flow for Old Alameda Creek is 250 cfs. With the proposed bifurcation from Zone 5 Line M Channel and runoff from local residential developments (Tract 7405), the additional runoff to be discharged to Old Alameda Creek would be 298 cfs. Additional flow from the Line M Channel diversion pipeline would have minimal impact on the hydraulic capacity of the channel and would be contained within the channel, with at least 1 foot of freeboard (WRECO 2008a). In addition, the added discharge would enter the new open channel segment connecting to Old Alameda Creek to support the wetlands mitigation plan~~could be used~~ to enhance the existing Old Alameda Creek habitat and restore more riparian habitat to mitigate the wetland impacts from the proposed project. Refer to Mitigation Measure BIO-7~~8~~ in Section 3.3, Biological Resources.

Approximately 1,100 feet of the existing Line M Channel would be replaced by double box culverts (~~8~~ 10 feet by 5 feet), and a bifurcation structure would be installed up stream of this point to divert 50% of the Line M Channel flow through an 84-inch pipeline to Old Alameda Creek~~under the new roadway alignment for the flow conveyance in the affected Line M Channel~~. A limited amount of biofiltration water quality treatment would be lost by replacing the

1,100-foot open channel with a culvert. The existing vegetation offers some potential improvement to water quality during low flows through the capture of fine sediments and nutrient uptake. However, during storm events, this section of hydraulically efficient channel likely transports most of the sediment load downstream with high velocity to receiving waters at the existing Line M Channel terminus, offering little to no water quality benefit. Fill of this open channel section of Line M Channel and replacement with twin 10-foot-by-5-foot box culverts, a bifurcation structure, and an additional 84-inch diversion pipeline to route 50% of flood flows to Old Alameda Creek would improve local flood control and eliminate nuisance flooding along Line M Channel.

Additional water quality treatment, as well as replacement of open water habitat, would be achieved through construction of the new open channel segment connecting to Old Alameda Creek to support the wetlands mitigation plan (Mitigation Measure BIO-7 in Section 3.3). The 84-inch diversion pipeline would extend from the bifurcation structure to this new channel. Flow energy at the outfall will be dissipated on a concrete or rock stilling basin and then travel downstream through 1,100 feet of new open channel, connecting to the current upstream end of Old Alameda Creek. This new channel section would provide a larger geometric cross section than the old Line M Channel with greater slope and vegetation complexity. This would reduce the overall flow velocities, increase sediment capture, and contact time to improve nutrient uptake potential. Overall water quality would be improved.

The proposed project would not substantially alter the drainage patterns or alter the watershed boundary that is tributary to Alameda Creek Flood Control Channel. All surface water flows that are collected in the existing stormwater drainage system would be captured in the proposed roadway storm drain system (including the infiltration basins), Line M Channel improvements, and Old Alameda Creek habitat enhancements. Surface water runoff generated by storm events and low flow urban runoff would be routed to Alameda Creek Flood Control Channel through the existing Line M Channel and the improved Old Alameda Creek channel. If there is heavy storm event, there is adequate capacity in the Old Alameda Creek to contain the flows and maintain freeboard levels in Alameda Creek Flood Control Channel (WRECO 2008a). There would only be a minor change to the existing Old Alameda Creek flood hydrograph.

Existing drainage facilities throughout the project alignment would be extended, replaced, repaired, and/or improved as necessary to provide proper drainage for the increase runoff of the widened roadways.

The objective of the drainage design is to limit the design water surface elevations and velocities to no greater than the existing conditions, or to what can be handled by the existing conditions, at the boundary of the project area (WRECO 2008a). In addition, the project's design goal is to maintain pre-construction storm water discharge flows by metering or detaining these flows to pre-construction rates prior to discharge to a receiving water body. One of the overall project goals is to alleviate current flooding in the Line M Channel, which does not have adequate capacity during major storms, by diverting 50% of the flow and carrying it through Old Alameda Creek to the Alameda Creek Flood Control Channel.

Thus, operation of the proposed project would not generate an increase in runoff flows such that it would result in significant flooding or soil erosion impacts. However, any increase in surface runoff as a result of the proposed project could result in an increased transport of pollutants to waterways and affect water quality.

This impact is considered significant. Implementation of the following mitigation measures would reduce this impact to less-than-significant levels.

Mitigation Measure HWQ-5: Construct the Tree Wells and Infiltration Basins to Implement the Hydrograph Modification Management Plan for Stormwater Runoff

ACTA will coordinate with ACWD, ACCWP, and RWQCB to design and construct the hydrograph modification management plan to detain runoff to match the pre-project runoff conditions for low flows. The plan will include construction of tree wells and infiltration basins as Integrated Management Practices. Stormwater runoff from the new roadway will be collected and conveyed through the use of underground conduits to infiltration basins. The infiltration basins will be planted with grasses and other vegetation to provide primary treatment by means of infiltration. The tree wells and infiltration basins will be constructed and the vegetation established so they can effectively control flows, trap sediments and uptake nutrients, and decrease the likelihood of poor quality surface runoff reaching Old Alameda Creek. During large storm events when the infiltration basins cannot absorb all the stormwater, the high flows will go into an overflow pipeline extending underground from the basins to outfalls in Old Alameda Creek. ~~The high flows will bypass infiltration basins and will be discharged directly to Old Alameda Creek via outfall pipe to provide drainage relief for large storm events.~~ The conceptual hydro modification management plan, based on the Water Quality Report prepared by WRECO (2008b) (Appendix M), is shown in Figure 3.7-4. The location of the basins, outfalls, and tree wells shown in the figure are tentative and will be further detailed during the design phase. The basins will be sized according to guidelines set forth in the Alameda Countywide Cleanwater Program and are expected to be sized in the range from about 10,000 square feet to 30,000 square feet. They will be located on existing nonnative grassland and will avoid riparian vegetation to the extent possible. If this is not possible, additional mitigation will be required to compensate for these impacts (in addition to what is specified in Mitigation Measure BIO-7). The outfalls from each basin to Old Alameda Creek will include rock slope protection, which will be approximately 72 square feet (6 feet wide, 12 feet long, and 2 to 3 feet deep). The outfalls will be situated above the depth of the 100-year water level.

Implementation of this plan would result in temporary secondary impacts ~~of removing~~ on existing vegetation, including nonnative grassland and vegetation at Arroyo Park from the infiltration basins and some riparian vegetation and wetlands along Old Alameda Creek from the overflow pipelines and outfalls~~, and vegetation at Arroyo Park~~. The vegetation planted in the infiltration basins will be a seeding mix of native grasses that will result in~~the same as that removed so there is~~ a 1:1 replacement ratio. Replacement vegetation for Arroyo Park will be “Bay- friendly landscaping” in that it is native, drought-tolerant and thrives in

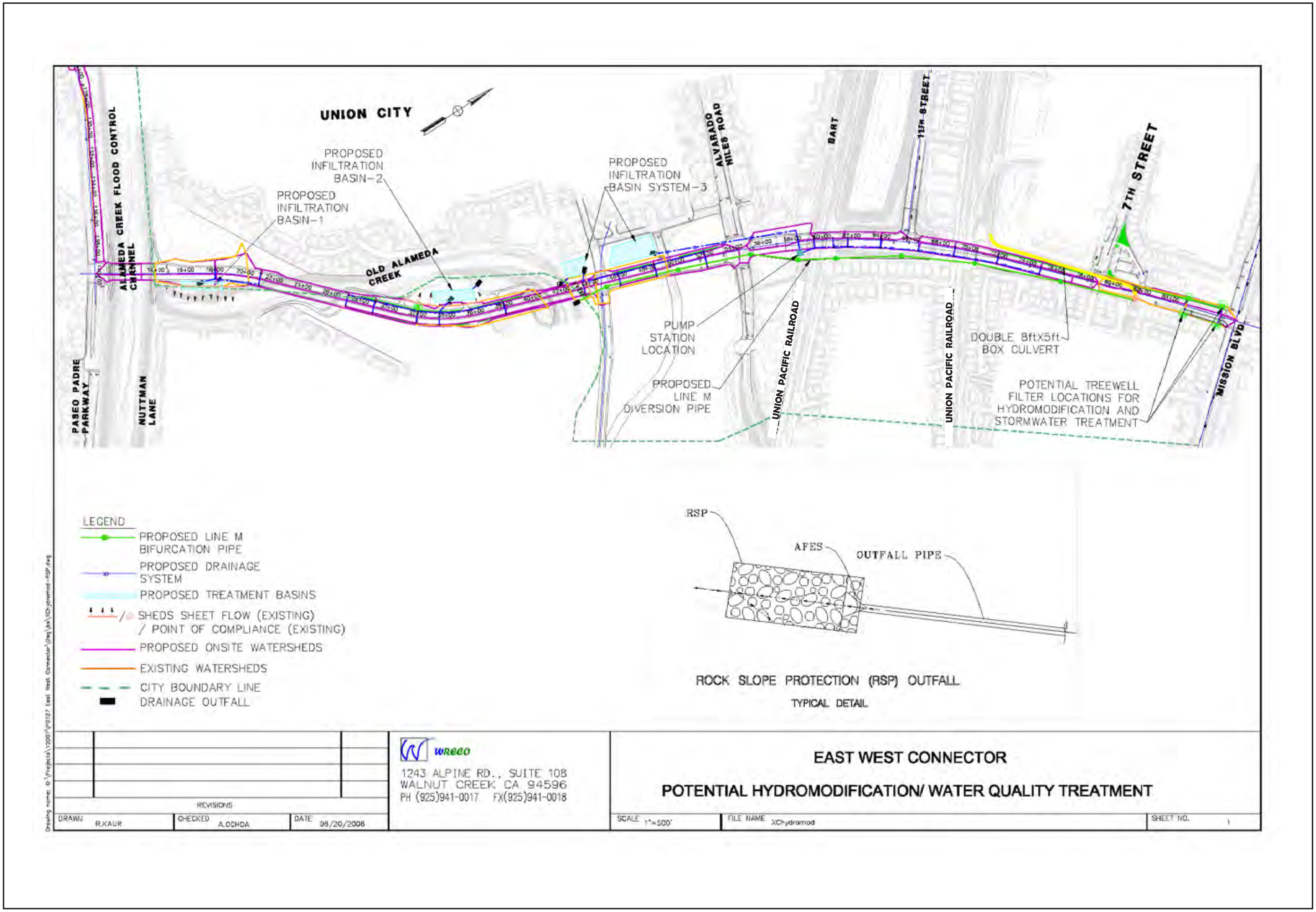

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Figure 3.7-4
Potential Hydromodification and Water Quality Treatment Plan
ACTA East-West Connector Project

the Bay Area. Replacement of riparian vegetation~~, which may require a higher replacement ratio,~~ and wetlands will be ~~consistent with or~~ incorporated into the wetlands mitigation plan as required. Refer to Impacts BIO-7, BIO-9 and BIO-11, and Mitigation Measures BIO-7 and BIO-8~~: Identify Willow Riparian Woodland and Scrub Temporarily Affected and Install Protective Fencing during Construction~~ in Section 3.3~~8~~, Biological Resources.

Mitigation Measure HWQ-6: Incorporate Site-Specific Water Quality Treatment Devices into Site Drainage Plans to Meet Water Quality Standards and Maintain Beneficial Uses

ACTA or their contractors will incorporate stormwater treatment devices into the drainage plan and size the treatment devices according to ACCWP's permit section Provision C. Up to 50% of this water treatment may occur off site within the swales and/or infiltration basins after they are constructed and landscaping is established. The water treatment devices and detention basins will ensure that water quality standards and beneficial uses of downstream water bodies are met. These plans will address, but may not be limited to:

- manipulation of the hydroperiod to allow for appropriate plant growth;
- other vegetation and sediment management activities, such as periodic vegetation and sediment removal every 5 to 10 years;
- control of water residence time, periodic flushing of the water features, and maintenance of drainage channels and culverts;
- source control of contaminants reaching the water bodies;
- measures to reduce the potential for disease vectors (e.g., mosquitoes and rodents);
- measures to ensure that groundwater does not become contaminated; ~~and~~
- ~~and~~ use of water quality treatment devices such as traction sand traps or media filters; and
- conveying stormwater runoff from the proposed Alameda Creek Flood Control Channel and Old Alameda Creek bridges, by pipeline to an infiltration basin to receive water quality treatment prior to being discharged to Old Alameda Creek.

The measures identified in the drainage plans and measures to protect water quality according to Provision C.3 will conform to the performance standard that water quality in the off-site water features meets the numeric and narrative water quality objectives of the basin plan and that beneficial uses of the downstream water bodies are not compromised.

In addition to water quality BMPs incorporated in the project landscaping as described above, existing stormwater pipes that carry runoff that has not received primary treatment before being discharged to Line M Channel will have an in-line mechanical filtration vault installed before being connected to the new Line M Channel diversion pipeline. The vault will contain replaceable filtration media designed to remove sediment and other water quality target contaminants in order to meet Provision C.3 goals. This filtration device is not the primary water quality measure, but will act in series with other BMPs, and the sediment trapping and biological processes in Old Alameda Creek and the Alameda Creek Flood Control Channel.

The 1,100 feet of new channel construction adjacent and connecting to Old Alameda Creek will also increase residence time and vegetation contact time with the project area drainage. This increase in residence time will increase potential for nutrient uptake and sediment removal from Line M Channel diversion flow before they enter Alameda Creek Flood Control Channel. These flows will also expand the contiguous aquatic habitat and riparian corridor of Old Alameda Creek improving its overall water quality improvement capacity.

Impact HWQ-4: Water Quality Impacts from Discharges to CWA 303(d)-Listed Surface Water Bodies- Diazinon (Less than Significant)

Surface water runoff from the proposed project ultimately could be discharged into the Alameda Creek Flood Control Channel—which is on the CWA 303(d) list of water quality-limited segments being addressed by EPA-approved TMDLs for diazinon—and could contribute to the creek's concentrations of this constituent. Alameda Creek Flood Control Channel was moved to this list from the CWA 303(d) list of impaired water bodies because of a completed EPA-approved TMDL. ~~Because of the impairment, Alameda Creek Flood Control Channel has no remaining assimilative capacity or ability to accommodate additional quantities of this contaminant, irrespective of concentration. However, d~~Diazinon was phased out of use in 2001, and urbanized environments typically do not have a diazinon impairment anymore because household-related pesticides no longer contain diazinon. Additionally, diazinon is not one of the pollutants described in Table 3.7-1, which lists typical pollutants found from roads and highways~~.~~.

As a result, this impact is considered less than significant. No mitigation is required.

Impact HWQ-5: Potential Flood Hazards Associated with Levee or Dam Failure (Less than Significant)

Flooding as a result of the failure of one or more of the levees on either side of Alameda Creek Flood Control Channel could result from structural failure or a major and catastrophic seismic event. Although the risk of dam failure and its potential impact on the project area is remote, it could occur. ACTA has been and would continue coordinating with ACWD and ACFCWCD over the design of the proposed project to ensure that the project design and construction activities would not negatively impact the integrity of their facilities. These agencies would have the opportunity to provide further input and specific requirements during the permit process because ACTA needs to obtain an encroachment permit and approve for work in the Alameda County Flood

Control Channel. Additionally, t~~T~~he ACFCWCD inspects dams, local floodways, the predicted pattern and direction of floodwaters; and they have established evacuation plans and designated City evacuation routes. Because of the relatively small potential for such failure and the existing emergency evacuation procedures, this impact is considered less than significant. No mitigation is required.

With respect to flood events affecting the stability of proposed bridge features, the bridges over Old Alameda Creek and the Alameda Creek Flood Control Channel will be designed with piers and abutments deep enough to account for potential scour due to heavy storm flows. A preliminary analysis of scour requirements is presented in Chapter 5 of Appendix I of this Draft EIR. This analysis concludes that pier scour would be a maximum of 13.62 feet at the western Old Alameda Creek bridge location (there are no piers in the eastern bridge location), and 7.72 feet in the Alameda Creek Flood Control Channel. Scour would occur at the westernmost abutment of the Alameda Creek Flood Control Channel at an estimated maximum depth of 20.62 feet. Abutment scour would not occur at either of the Old Alameda Creek bridges, as the water surface in the channel would be below the abutment edges.

Section 3.8

Land Use and Planning

Section 3.8
Land Use and Planning

3.8.1 Introduction

This section describes the affected environment and regulatory setting for planning and land use in the project area. It also describes the impacts on land use and planning that would result from implementation of the proposed project, and mitigation measures that would reduce these impacts.

3.8.2 Setting

Sources of Information

Planning documents prepared and maintained by the Cities of Union City and Fremont formed the basis for the setting information presented in this section. Information obtained from field visits was also used to describe the existing setting. The key sources of information used in the preparation of this section are listed below.

- Union City General Plan, Draft May 1991, amended November 2002 (City of Union City 2002)
- Union City Pedestrian and Bicycle Master Plan (City of Union City 2006)
- Fremont General Plan (City of Fremont 1991)
- Fremont Pedestrian Master Plan (City of Fremont 2007)
- Fremont Bicycle Master Plan (City of Fremont 2005)
- Alameda County Congestion Management Agency Countywide Bicycle Plan (Alameda County Congestion Management Agency 2006)
- East Bay Regional Parks District Parks Master Plan (East Bay Regional Parks District 1997)

Existing Conditions

This section discusses the existing conditions related to planning and land use in the project vicinity. Existing conditions were determined by conducting pedestrian and windshield surveys of the project alignment, reviewing aerial photographs of the project alignment and the surrounding vicinity, and reviewing planning maps and planning documents relevant to the project alignment.

Jurisdictional Setting

The project alignment traverses a primarily urbanized area that lies within the incorporated boundaries of Union City and Fremont. Figure 3.8-1 shows the project alignment in relationship to the Cities' jurisdictional boundaries. Within the project alignment, the Fremont/Union City boundary is variously defined by Alameda Creek Flood Control Channel, Old Alameda Creek, and property boundaries. Portions of the project alignment are owned by Alameda County Flood Control and Water Conservation District (ACFCWCD), Alameda County Water District (ACWD), Caltrans, Fremont, and Union City.

Existing Land Uses

Existing Roadway

The project alignment includes 1.7 miles of existing roadways, including portions of Decoto Road (between Cabrillo Court and Paseo Padre Parkway) and Paseo Padre Parkway (between Decoto Road and Isherwood Way). These portions of Decoto Road and Paseo Padre Parkway are located in Fremont.

Land uses along Decoto Road are primarily commercial with some single-family homes. A church is located on the western side of Decoto Road, at the Brookmill Drive intersection. Land uses along Paseo Padre Parkway are primarily residential. The residential neighborhoods on the west side are separated from the roadway with cement walls and a sidewalk. The residential areas on the east side are separated from the roadway by the Alameda Creek Flood Control Channel.

New Roadway

The project alignment includes 1.3 miles of new roadway, from Paseo Padre Parkway on the west to Mission Boulevard on the east, in an area that is primarily undeveloped. The land has been reserved for roadway development since 1958, when Caltrans proposed a six-lane freeway extending from I-880 on the west to Mission Boulevard on the east. Undeveloped land in this corridor is variously owned by ACFCWCD, ACWD, Caltrans, Fremont, and Union City.

The undeveloped corridor between Paseo Padre Parkway and Alvarado-Niles Road is within the jurisdiction of both Fremont and Union City. The corridor includes the Alameda Creek Flood Control Channel at the west end and Old Alameda Creek extending through the middle. The undeveloped land along Old Alameda Creek is surrounded by residential uses on both sides, with Union City

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November 2008

Figure 3.8-1
Municipal Boundaries in Project Area
ACTA East-West Connector Project

on the north side of the creek and Fremont on the south side. Arroyo Park, a Union City facility, is located on the north side of the project alignment on Osprey Drive. A paved trail maintained by Fremont is located along the creek's southern bank. Former agricultural land on the Peterson Farm and Silva Farm properties, both owned by Caltrans, is covered in nonnative grassland.

The undeveloped corridor between Alvarado-Niles Road and Mission Boulevard is within the Union City corporate limits. The corridor is primarily undeveloped and includes two stormwater detention basins (called Basin 2C and New Basin) and the Line M Channel. BART and UPRR tracks, as well as Green Street bridge and Chesapeake Drive, cross through the corridor. The corridor is surrounded by existing and proposed residential development, existing industrial uses, and some proposed commercial development located north of the project alignment. Most of the land immediately adjacent to the proposed road comprises existing and proposed single-family residential development. The Union City Corporation Yard and Drigon Park also abut the project alignment to the north on the east end near Mission Boulevard.

Existing Land Use Designations

Figures 3.8-2a, 3.8-2b, and 3.8-3 show the land use designations of the project alignment and immediately surrounding areas, pursuant to the Fremont and Union City General Plans. As shown in the figures, the project alignment is primarily residential, with some commercial, industrial, and open space designations.

Existing Roadway

Along Decoto Road and Paseo Padre Parkway, the project alignment itself is not assigned a land use designation because it is a developed roadway. Most of the land surrounding the project-related portions of these two roads comprise the residential designations Low Density, 5 to 7 dwelling units per acre (d.u./acre) (Low 5–7); Medium Density 6.5 to 10 d.u./acre (Med 6.5–10), and Medium Density 11to 15 d.u./acre (Med 11–15). A small swath of Institutional Open Space (I-OS)[1] is associated with Crandall Creek, crossing Decoto Road between Canal Terrace and Ozark River Parkway. Surrounding the intersection of Decoto Road and Fremont Boulevard, land is also assigned the Neighborhood Commercial (N) and Thoroughfare Commercial (TH) designations, with a small area of residential Medium Density 18 to 23 d.u./acre (Med 18–23). All of this land along Decoto Road and Paseo Padre Parkway is developed according to its general plan designation, but the Med 18–23 area on the northeast corner of Decoto Road and Fremont Boulevard has been slated for redevelopment. Three single-family residences are currently located on these parcels. As part of a project recently approved by the City of Fremont, one of these houses would be

[1] Institutional Open Space is described in the Fremont General Plan as "publicly held land permanently committed to open space uses (including parks, agriculture, recreation, preservation of biological resource values and natural open space)."

demolished and a multi-family residential development would be constructed, with access from Decoto Road. The Alameda Creek Flood Control Channel is shown as I-OS, with the paved trail on the channel's western bank shown as a foot and bike trail. A foot and bike trail is also shown crossing the Alameda Creek Flood Control Channel at the approximate location of the project's proposed crossing. This trail crossing does not currently exist, but is shown in anticipation of the project crossing being constructed. The trail is shown continuing west into an undeveloped swath of land designated Low 5–7, crossing Fremont Boulevard, and continuing to Decoto Road near the Ozark River Way intersection. This undeveloped swath cutting diagonally between Decoto Road and Paseo Padre Parkway was previously reserved by Caltrans for construction of the SR 84 Realignment Project, continuing into the project-related alignment in the undeveloped corridor east of the Alameda Creek Flood Control Channel. That area west of Alameda Creek Flood Control Channel is no longer under consideration for roadway development, and has been slated for residential development by the City of Fremont.

New Roadway

Moving east from the Paseo Padre Parkway and the Alameda Creek Flood Control Channel, the jurisdictional boundaries are defined by Old Alameda Creek, with Union City to the north and Fremont to the south. The project alignment enters the Union City corporate limits, in an area is designated as Open Space (OS) in the Union City General Plan map.[2] The existing residential development north of the project alignment is designated Residential 3 to 6 d.u./acre (R3–6). The alignment then crosses back into Fremont on land designated as I-OS and adjacent to an existing residential development designated Low 2 to 3.5 d.u./acre. The existing paved trail on the southern banks of Old Alameda Creek and the existing trail fronting the residential development are shown on the Fremont land use map. After the eastern crossing of Old Alameda Creek, the project alignment re-enters Union City, in land designated as OS and R3–6. This OS and R3–6 land includes the existing Arroyo Park, and also comprises the Caltrans-owned Peterson Farm and Silva Farm properties. This Caltrans land is referred to in the Union City General Plan as the Caltrans property, and is marked for future development with a park on the west and single-family residences on the east. The Union City General Plan land use map shows a line marked Proposed SR 84, which is a reference to the project roadway under its former iteration as a Caltrans project. The proposed alignment is slightly west of the rough alignment shown in the map.

<u>The wetlands mitigation site straddles the existing alignment of Old Alameda Creek, which in this area serves as the border between Fremont and Union City. On the southern side of the creek, the site has the Fremont General Plan</u>

[2] The purpose of this designation is to conserve lands that should remain as open space for passive and active recreation uses, resource management, flood control management, and public safety. Uses that would typically be appropriate in this land use designation include but are not limited to public parks, playgrounds, golf courses and driving ranges, parkways, vista areas, wetlands, wildlife habitats and outdoor nature laboratories; stormwater management facilities; and buffer zones separating urban development and ecologically sensitive resources.

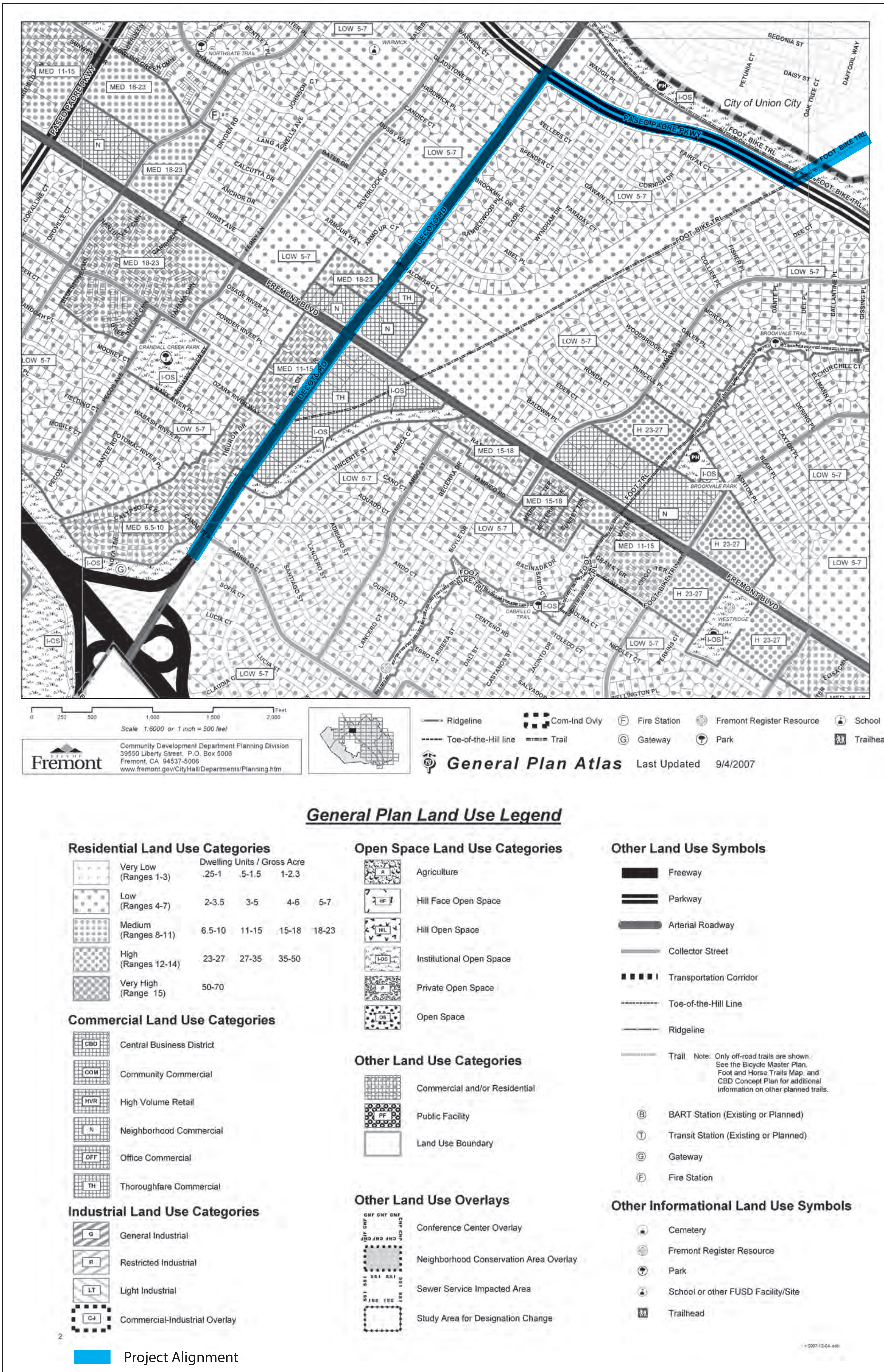

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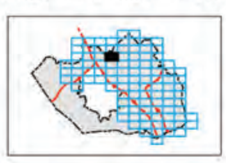
Figure 3.8-2a
General Plan Land Use Designations, Fremont
ACTA East-West Connector Project

(See Legend page at beginning of Atlas for complete listing of symbology)

Scale 1:6000 or 1 inch = 500 feet

City of Fremont
Community Development Department Planning Division
39550 Liberty Street, P.O. Box 5006
Fremont, CA 94537-5006
www.fremont.gov/CityHall/Departments/Planning.htm



Ridgeline — Toe-of-the-Hill line — Com-Ind Ovly — Trail — Fire Station — Gateway — Park — Primary Historic Resource — School — Trailhead

General Plan Atlas Last Updated 9/15/2005

General Plan Land Use Legend

Residential Land Use Categories

	Dwelling Units / Gross Acre			
Very Low (Ranges 1-3)	.25-1	.5-1.5	1-2.3	
Low (Ranges 4-7)	2-3.5	3-5	4-6	5-7
Medium (Ranges 8-11)	6.5-10	11-15	15-18	18-23
High (Ranges 12-14)	23-27	27-35	35-50	
Very High (Range 15)	50-70			

Commercial Land Use Categories

- CBD Central Business District
- COM Community Commercial
- HVR High Volume Retail
- N Neighborhood Commercial
- OFF Office Commercial
- TH Thoroughfare Commercial

Industrial Land Use Categories

- G General Industrial
- R Restricted Industrial
- LT Light Industrial
- C-I Commercial-Industrial Overlay

Open Space Land Use Categories

- A Agriculture
- HF Hill Face Open Space
- HIL Hill Open Space
- I-OS Institutional Open Space
- P Private Open Space
- OS Open Space

Other Land Use Categories

- Commercial and/or Residential
- PF Public Facility
- Land Use Boundary

Other Land Use Overlays

- CHF Conference Center Overlay
- Neighborhood Conservation Area Overlay
- SSI Sewer Service Impacted Area
- Study Area for Designation Change

Other Land Use Symbols

- Freeway
- Parkway
- Arterial Roadway
- Collector Street
- Transportation Corridor
- Toe-of-the-Hill Line
- Ridgeline
- Trail Note: Only off-road trails are shown. See the Bicycle Master Plan, Foot and Horse Trails Map, and CBD Concept Plan for additional information on other planned trails.
- BART Station (Existing or Planned)
- Transit Station (Existing or Planned)
- Gateway
- Fire Station

Other Informational Land Use Symbols

- Cemetery
- Fremont Register Resource
- Park
- School or other FUSD Facility/Site
- Trailhead

Project Alignment

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Figure 3.8-2b
General Plan Land Use Designations, Fremont
ACTA East-West Connector Project

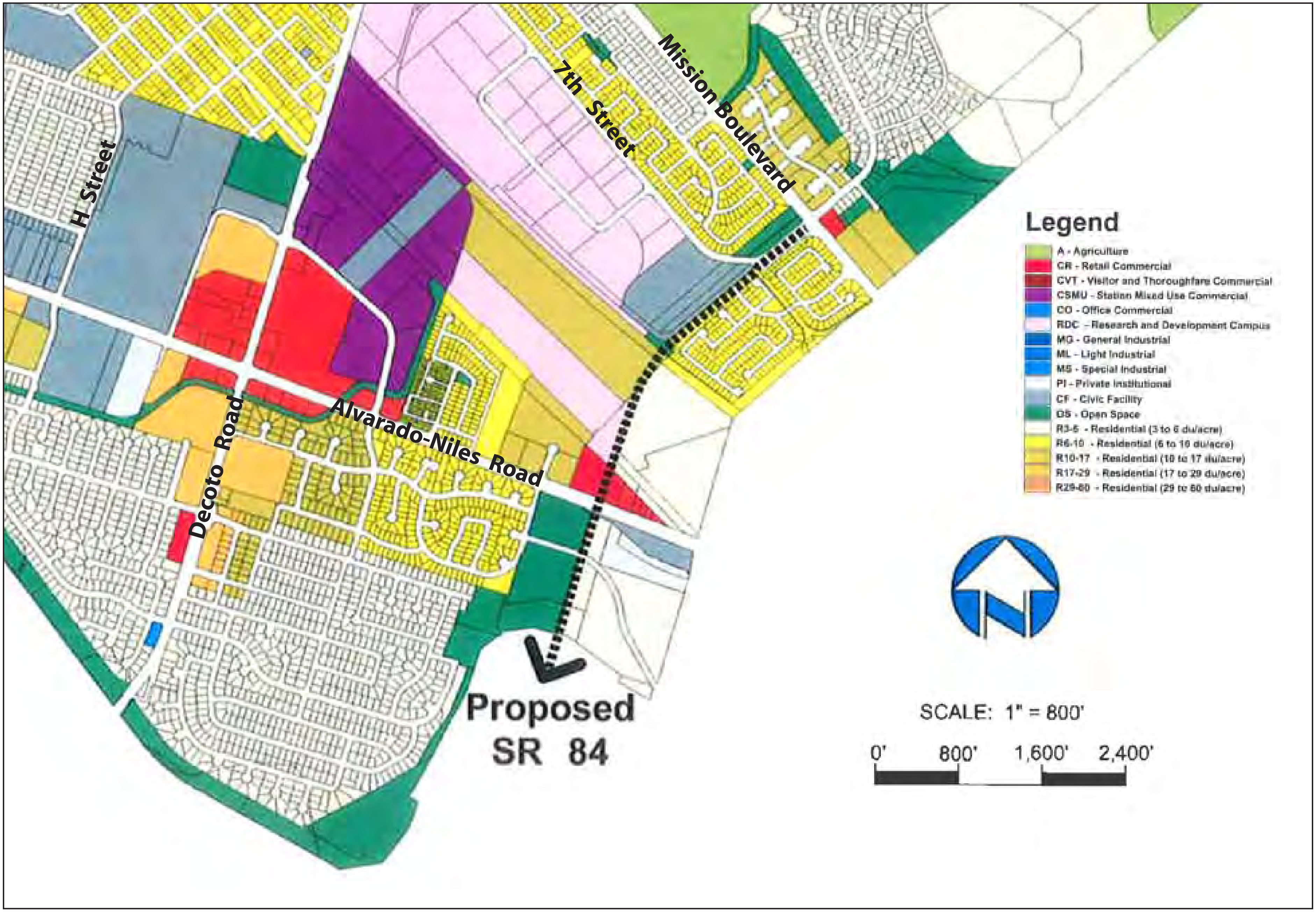

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Figure 3.8-3
General Plan Land Use Designations, Union City
ACTA East-West Connector Project

designation I-OS; on the northern side of the creek, the site encompasses land with the Union City General Plan designations of OS and Private Institutional (PI). Refer to Figure 3.3-3 for an illustration of the wetlands mitigation site.

After crossing Alvarado-Niles Road, the project alignment enters undeveloped land designated by Union City as Retail Commercial (RT), and crosses the BART and UPRR Oakland Subdivision tracks. The project alignment continues along undeveloped land designated as Research and Development Campus (RDC), Residential 10 to 17 d.u./acre (R10–17), and Civic Facility (CF, marking the Union City Corporation Yard). The project alignment meets up with 7th Street, which has no designation because it is an existing road, and terminates at Mission Boulevard. Adjacent land uses in this area include OS on the north side of the project alignment—marking Drigon Park—and Residential 6 to 10 d.u./acre (R6–10)—indicating the recently constructed single-family development on the project alignment's south side.

Regulatory Setting

Federal

No federal land use or planning regulations apply to the proposed project or the project alignment.

State

California Government Code—Title 7

Section 65100, *et seq*., of the California Government Code assigns planning responsibility within each city and county to the respective jurisdictions' planning agencies. Planning documents adopted by the respective cities are discussed below under local regulations.

Caltrans Right-of-Way Division

The Property Management Department within the Caltrans Right of Way Division manages all property held for future transportation projects and excess properties. A portion of the project alignment is owned by Caltrans, including the Peterson Farm and Silva Farm properties, which are leased to their respective tenants. Rules and policies pertaining to acquisition, management, lease, and rental within Caltrans-owned property are published in Chapter 11 of the Caltrans Right-of-Way Manual (California Department of Transportation 2008a).

Local

City of Fremont

Fremont General Plan

The Fremont General Plan (City of Fremont 1991) establishes Fremont's comprehensive and long-term goals and policies regarding land use planning and development within its borders, and outlines a plan for achieving those goals and implementing those policies. The current General Plan was adopted in May 1991. Fremont is currently in the process of updating its General Plan, but has not yet adopted this update. The Fremont General Plan includes the following chapters: Land Use, Housing, Local Economy, Open Space, Public Facilities, Transportation, Natural Resources, Health and Safety, and Parks and Recreation.

Table 3.8-1 lists the goals, policies, implementation items from the Fremont General Plan that are relevant to the proposed project, identified by element.

Table 3.8-1. Relevant Fremont General Plan Goals, Policies, and Implementation Items

Goal/Policy No.	Text
LAND USE ELEMENT	
Goal LU 4	Conservation of the city's open space resources.
Policy LU 4.3	Development on land designated Institutional Open Space is limited to compatible recreational and community uses.
Policy LU 4.4	Development of recreational or other public facilities on open space lands should conserve the open space character of the site and minimize impacts on mature landscaping and environmentally sensitive areas.
OPEN SPACE ELEMENT	
Goal OS 2	Recognition, protection, and enhancement of significant natural areas and wildlife habitats in the city, including Bay tidal, seasonal, and freshwater wetlands, and open meadows and fields.
Objective OS 2.2	Protection and enhancement of wetlands within the city.
Policy OS 2.2.1	The City shall take an active role in protecting wetlands. There shall be no net loss of wetlands as a result of development in Fremont.
Implementation 1	Early assessment of environmental constraints and resources should be conducted and submitted with applications for development of projects in or adjacent to wetland areas. Early consultation with the City regarding the implications of the environmental assessment for proposed development is recommended. See Land Use Chapter discussion and Policy 3.11 in the Land Use Chapter.
Implementation 2	Conditions of development approval shall include measures to protect wetlands, including long-term monitoring and maintenance programs as appropriate. Off-site mitigation should be used only if on-site mitigation is not feasible and if the loss of on-site wetlands is out-weighed by a specific public purpose. The replacement off-site mitigation site should be nearby.

Goal/Policy No.	Text
Implementation 3	Require that proposed development be compatible with wetlands, both in terms of the allowed uses, and in the arrangement of the buildings, parking, landscaping, access, drainage, runoff, and other facilities on the parcel.
Objective OS 2.3	Conservation of natural areas within the city.
Policy OS 2.3.1	Publicly owned unique natural areas remaining in the flatland area of the city (see Natural Resources Chapter, Figure 9-3) shall be managed to protect and enhance wildlife habitats to the degree feasible (See Biological Resources Section of the Natural Resources Chapter for implementation measures).
Objective OS 2.5	A comprehensive system of trails connecting destinations within Fremont.
Policy OS 2.5.1	Develop a system of trails shown on the General Plan trails map, as funding permits. Effort shall be concentrated on trails that link major destinations and are accessible to a large number of people.
Policy 2.5.2	Provide public access to major trails, with appropriate staging areas and parking where feasible. Public access points shown on the General Plan are approximate locations. … Where access is provided, (either as required or as part of project designs), site and building design adjacent to the access point or trail shall also provide for sufficient privacy and a clear boundary between public access and private uses.
Goal OS 4	Distinctive gateways and roadway landscaping for Fremont.
Objective OS 4.1	Clear identification of Fremont's boundaries with special gateways at all major entrances to the city (this section focuses on man-made gateways; natural gateways are addressed in the Visual Resources section of the Natural Resources Chapter).
Policy OS 4.1.1	The city's major entrances, including freeway offramps and BART stations, should be clearly marked with signs and landscaping where space permits.
Policy OS 4.1.2	Maintain city street standards that call for broad rights-of-way and abundant landscaping.
NATURAL RESOURCES ELEMENT	
Goal NR 1	Biological resources protected and enhanced.
Goal NR 2	Protection and conservation of natural resources in the planning, design and management of the City's landscape.
Goal NR 7	Development sensitive to surface water resources.
Goal NR 12	Air quality meeting State standards.
Goal NR 13	An open space frame to the City.
Objective NR 13.1	Preservation of the visual character of the City's Open Space frame and other unique natural visual elements of Fremont. The Frame includes the Hill Face, Bay lands, Alameda Creek flood control channel and adjacent publicly owned open space areas (Ardenwood Regional Park, Alameda Creek Quarries). Other unique natural elements include Central Park and Lake Elizabeth and Landmark Trees. (See the Land Use and Open Space Chapters for many policies and implementation measures related to the Open Space Frame).
Goal NR 14	A distinctive, positive visual image for Fremont.
Policy NR 14.1.3	The impacts of soundwall development on the scenic character of scenic routes and on visual access to scenic resources shall be considered prior to approval of soundwalls along scenic routes.
Policy NR 14.1.4	Maintain adequate landscaping for scenic roads to enhance their scenic character.

Goal/Policy No.	Text
Policy NR 14.1.5	Evaluate and consider the impacts of any significant roadway modification (including any grade separations) on the scenic character of scenic routes and on visual access to scenic resources.
Goal T 1	Efficient use of roadway system to provide convenient travel, reduce congestion, and improve air quality.
Goal T 2	Convenient alternatives to the automobile to conserve energy, reduce congestion, improve air quality and provide a variety of transportation choices to meet a variety of needs.
Goal T 3	Transportation facilities and corridors that enhance the City's historic, visual, natural resources.
Implementation 4	Preserve a transportation corridor under study from I-880 and Decoto Road to Mission Boulevard to meet the future transportation needs of Fremont residents.
Policy T 1.2.2	Limit access to parkways and arterials to maintain capacity, efficiency and safety of traffic flow.
Policy T 1.2.3	Coordinate traffic signals to provide smooth vehicular flow on arterials.
Policy T 1.2.4	Work closely with other jurisdictions responsible for roadways within Fremont and those which feed directly into Fremont's street network.
Implementation 1	Work with CALTRANS and the Alameda County Transportation Authority to achieve timely construction of programmed freeway and interchange improvements.
Implementation 2	Work cooperatively with neighboring jurisdictions to ensure comparable plans and roadway development standards, and ensure sufficient capacity on the mutual roadway network.
Policy T 1.2.6	Discourage through traffic on local streets.
Objective T 1.5	Participation in efforts to reduce regional traffic congestion.
Policy T 1.5.1	Coordinate local transportation planning with regional and other local plans.
Policy T 1.5.2	Work with other jurisdictions to develop solutions to regional congestion.
Objective T 2.1	A level of bus service providing a convenient and accessible alternative to the automobile.
Objective T 2.4	A safe and convenient bicycle network that facilitates bicycle travel for commuting to work, school, shopping and for recreation.
Policy T 2.4.1	Complete the bicycle route system identified on the Planned Bicycle Route, Horse and Foot Trails map (Figure 8-13).
Policy T 2.4.2	To increase bicycle safety, the bicycle system shall consist of on-road striped bicycle lanes and off-road bicycle trails, whenever feasible.
Objective T 2.6	A pedestrian walkway system in community commercial centers, in the Central Business District, neighborhood shopping centers and serving major transit facilities.
Policy T 2.6.1	Develop convenient, continuous walkway systems in the community commercial centers.
Objective T 3.1	Transportation facilities and corridors that enhance community and City identity.
Policy T 3.1.1	Provide street improvements and facilities that enhance neighborhood, district and City identity.
Policy T 3.1.2	Require transportation facilities that aesthetically complement their built and natural environment.

In addition to the goals and policies listed in Table 3.8-1, the Fremont General Plan includes the following discussion addressing the SR 84 Realignment Project, which refers to the proposed project in its former iteration as a Caltrans project.

- "A major change would occur in Centerville if a new SR 84 is constructed in the historic alignment near Decoto Road, either as a parkway or freeway. Any type of road would have impacts on the adjacent land and on the transportation patterns in Centerville. The City has requested various alternatives be considered for SR 84 (see Transportation Chapter for further discussion) including relocating the SR to another alignment outside of Fremont." (Land Use Element, page. 3-9.)
- "A freeway or major arterial has been proposed between Mission Boulevard and I-880. The construction of the SR 84 Realignment Project would have a significant impact in regards to access to Niles and could affect the types and locations of land uses located near interchanges with the proposed road (e.g., Mission Boulevard). The City has requested various alternative roadway types and alignments be considered for SR 84." (Land Use Element, page 3-16.)
- "A freeway extension of SR 84 to Mission Boulevard was identified as a project to be funded by local sales tax funds. Much of the right-of way for such an extension has been reserved for many years. However, concerns about the impact of a freeway have prompted the City to recommend the consideration of alternatives for the route, including the possibility of no road in the historic alignment, or the development of a parkway rather than a freeway." (Transportation Element, page 8-29.)
- The historic alignment of SR 84 between Decoto Road and Mission Boulevard is shown on Figure 8-9, Transportation Corridor.
- Figure 8-10 shows the planned widening of Decoto Road and Paseo Padre Parkway to three lanes in each direction.

Fremont Zoning Ordinance

Title VIII of the Fremont Municipal Code is the Fremont Planning and Zoning Ordinance, which establishes regulations for controlling the division and use of land within the City's borders.

Fremont Pedestrian Master Plan

The City of Fremont prepared a Pedestrian Master Plan (Fremont Ped Plan) in 2007 to specify the City's policies related to providing pedestrian facilities and to identify future improvements for the City's roads and trails. The Fremont Ped Plan includes engineering and design guidelines for constructing and maintaining pedestrian facilities (Appendix A of the Fremont Ped Plan). Because bike and pedestrian facilities often overlap in public trails systems, the Fremont Ped Plan also discusses bicycle facilities in certain places. Figure 3.8-4 shows Figure 4-3 of the Fremont Ped Plan, with existing Class I bike paths along Alameda Creek Flood Control Channel. The project alignment adjacent to Old Alameda Creek shown as a proposed Class I bike path. Decoto Road and Paseo Padre Parkway are not shown as existing or proposed bike or trail facilities.

Table 6-1 of the Fremont Ped Plan lists a 0.15-mile segment of Decoto Road east of Mount Palomar Court and a 0.6-mile segment of Fremont Boulevard on either side of Decoto Road as having existing sidewalk gaps. The plan recommends filling these sidewalk gaps (and others throughout the City) as priorities in pedestrian improvement. Page 6-36 of the Fremont Ped Plan shows specific improvements recommended on Fremont Boulevard between Decoto Road in the west and Tamayo Road in the east to fill gaps on both sides of the road.

Fremont Bicycle Master Plan

The City of Fremont prepared a Bicycle Master Plan (Fremont Bike Plan) in 2005 to specify the City's policies related to providing bicycle facilities and to identify future improvements for the City's roads and trails. The Fremont Bike Plan includes engineering and design guidelines for constructing and maintaining bicycle facilities (Appendix A of the Fremont Bike Plan). Figure 2-2 of the Fremont Bike Plan shows existing Class II bike lanes along the project-related segments of Decoto Road and Paseo Padre Parkway, and shows an existing Class I bike path along the south bank of the Alameda Creek Flood Control Channel.

The Fremont Bike Plan recommends bicycle improvements in the project alignment. Figure 3.8-5 represents Figure 5-2 of the Fremont Bike Plan, which shows a recommendation for implementing Class II bike lanes along Fremont Boulevard between Enea Court in the west and Walnut Avenue in the east, a long stretch that includes the road's project-related intersection with Decoto Road. This figure also shows a proposed Class I bike path along the project alignment within the undeveloped corridor east of the Alameda Creek Flood Control Channel. A western continuation in the undeveloped area formerly reserved for the Caltrans SR 84 Realignment Project is shown (connecting to Decoto Road near its intersection with Ozark River Way), with a proposed eastern continuation into Union City also shown. Chapter 5 of the Fremont Bike Plan recommends providing signage, stenciling, and striping along Fremont Boulevard between Beard Road and Thornton Avenue (including the project-related segment at the Decoto Road intersection), and ensuring that Paseo Padre Parkway bike lanes between Decoto Road and Thornton Avenue provide adequate width from gutter pans and sewer grates.

City of Union City

Union City General Plan

The Union City General Plan (City of Union City 2002) establishes Union City's comprehensive and long-term goals and policies regarding land use planning and development within its borders, and outlines a plan for achieving those goals and implementing those policies. The current General Plan was adopted in February 2002 as an update to the previous plan adopted in 1991. It is organized in two main parts—the General Plan Policy Document, which contains the specific goals and policies, and the General Plan Background Report, which contains supporting information. The General Plan Policy Document is divided into nine sections addressing various California requirements for general plans: Economic Development; Youth, Family, Seniors, and Health; Land Use; Community Design; Transportation; Health and Safety; Public Facilities and Services; and

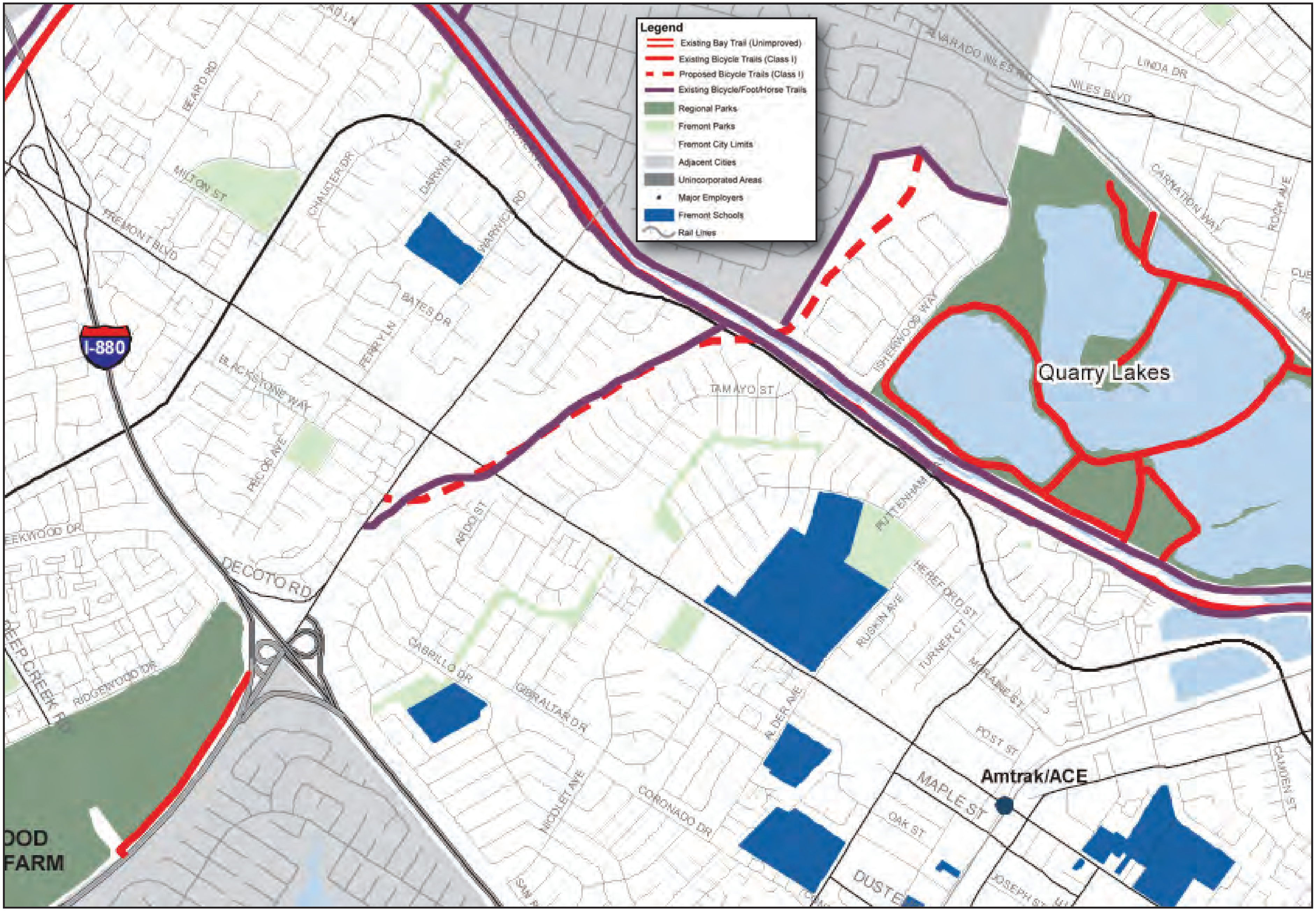

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Figure 3.8-4
Existing and Proposed Trails, Fremont

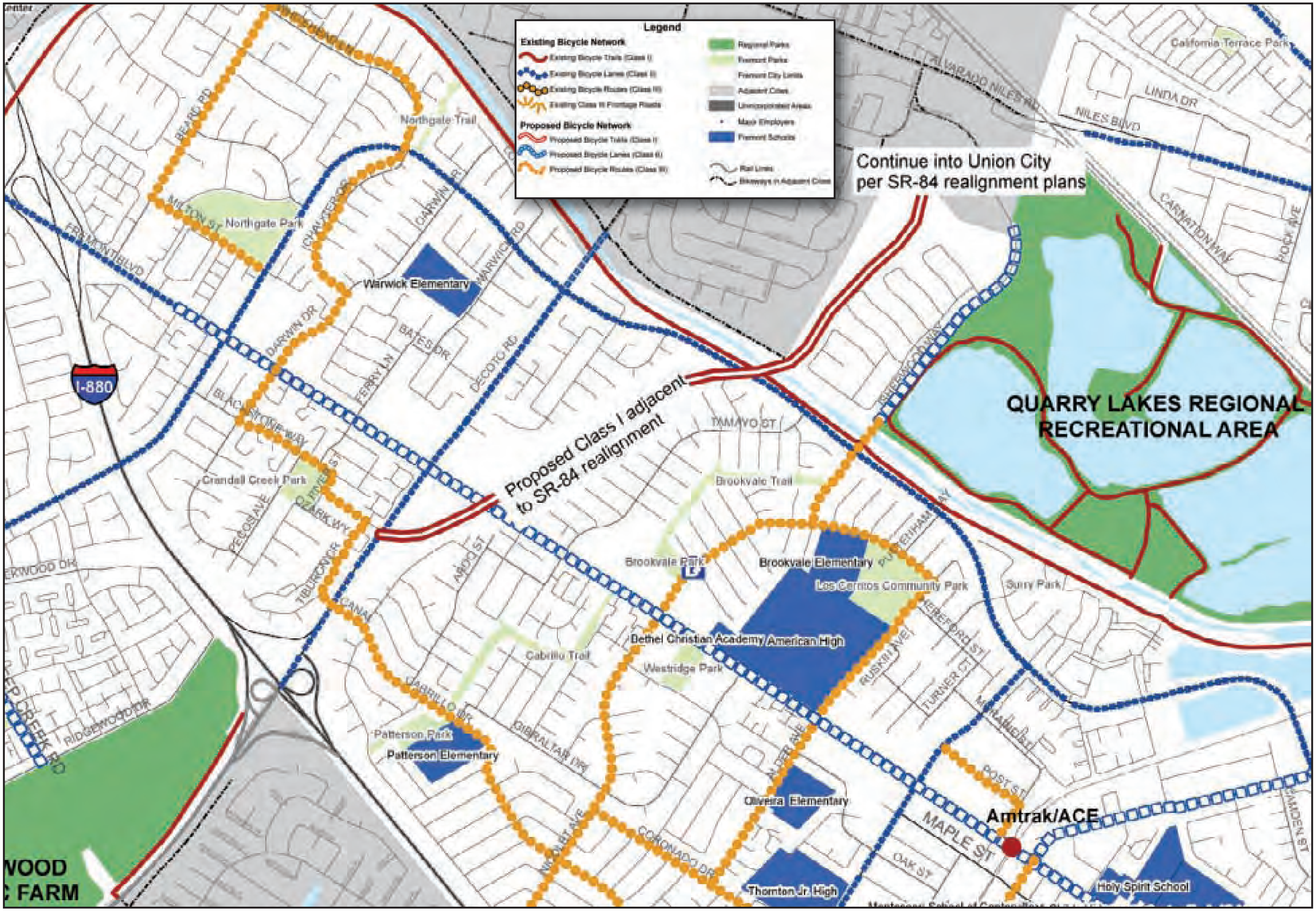

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Figure 3.8-5
Existing and Proposed Bicycle Network, Fremont

Natural and Historical Resources. Several of these elements contain goals and policies that are pertinent to the proposed project as presented below in Table 3.8-2.

Table 3.8-2. Relevant Union City General Plan Goals, Policies, and Implementation Items

Goal/Policy No.	Text
YOUTH, FAMILY, SENIORS, AND HEALTH ELEMENT	
Goal YFSH-E.1	To provide parks and facilities that serve the diverse needs of the city's growing population.
Policy YFSH-E.1.3	The City shall commit to increasing the number and /or size of neighborhood and /or citywide parks.
Policy YFSH-E.1.11	The City shall prepare a capital improvements program for parks acquisition and development.
Implementation YFSH-E.4	The City shall produce a trail and bike route map for public distribution.
LAND USE ELEMENT	
Goal LU-A.7	To achieve maximum jurisdictional and agency coordination in all aspects of physical and social planning.
Policy LU-A.7.1	The City shall coordinate growth and development with surrounding jurisdictions, the Local Agency Formation Commission, Congestion Management Agency, transit providers, and other regional agencies as appropriate to promote common goals.
Policy LU-A.7.2	The City should continue to coordinate with special districts such as the Alameda County Water District, Union Sanitary District, and East Bay Regional Park District, as part of the land use decision-making process.
Goal LU-B.2	To establish landscape and other buffer zones between potentially incompatible uses.
Goal LU-I.1	To create a community park site that serves as a gateway to Union City along SR 84.
Policy LU-I.1.1	The City shall make efforts to purchase the Caltrans property and expand Arroyo Park.
Policy LU-I.1.2	The City shall ensure that Arroyo Park is functionally linked to Quarry Lakes (in the city of Fremont) by park and open space areas along Alameda Creek.
Policy LU-I.1.3	The City shall strive to design the park so that it buffers residential uses from SR 84 and provides recreation facilities to serve the neighborhood and the community as space allows.
Policy LU-I.1.4	The City shall allow single-family residential to develop on the remainder of the Caltrans property, if any, that is not utilized for park or SR 84.
COMMUNITY DESIGN ELEMENT	
Goal CD-C.1	To create distinct and attractive corridor environments along Union City's major roadways and transit lines.
Policy CD-C.1.1	The City shall prepare an overall streetscape master plan for the entire city that identifies various improvements such as providing a variety of light fixture styles, accent landscaping, street furniture, decorative signage, landscape medians, and bollards.
Policy CD-C.1.2	The City shall create a citywide sign program that places "icon" signs along major corridors to help distinguish Union City from Fremont and Hayward. The sign program shall also address standards for signs within the public right-of-way.

Goal/Policy No.	**Text**
Policy CD-C.1.3	Whenever possible, the City shall avoid road alignments that result in long stretches that encourage speeding by motorists and that are visually monotonous.
Goal CD-D.1	To create positive first impressions for motorists/pedestrians entering the city through enhancement of the city's gateways.
Policy CD-D.1.1	The City shall enhance all city gateways by providing city identification signs, additional lighting, and accent planting.
Policy CD-D.1.2	The City shall provide attractive landscaping that reduces the visual impact of sound walls near gateways into Union City.
Goal CD-E.3	To enhance creeks as visual and trail resources and make connections between community parks, schools, residential, and commercial destinations.
Policy CD-E.3.1	Where feasible, the City should restore the natural edges along the city's creek system by planting natural vegetation.
Policy CD-E.3.3	The City shall in collaboration with Alameda County Flood Control prepare a creek system master plan that identifies potential improvements to the creek system.
TRANSPORTATION ELEMENT	
Goal TR-A.1	To establish a safe, convenient, and efficient roadway system that minimizes peak hour traffic congestion.
Policy TR-A.1.6	The City shall establish truck routes that will minimize noise impacts and safety hazards on the community.…The City shall discourage the use of Alvarado-Niles Road as a truck route.
Policy TR-A.1.9	The City shall support the timely construction of the SR 84 extension as a partially depressed and at-grade parkway through the Station District to Mission Boulevard in order to resolve current circulation deficiencies, improve the area's regional access and visibility, and stimulate the market for region-serving retail, light industrial/service commercial, and office uses.
Policy TR-A.1.10	The City shall ensure that the design of SR 84, 7th Street, and 11th Street is completed in such a manner that the industrial uses in the Station District can gain direct access to the facility with minimum disturbance to other uses in the area.
Policy TR-A.1.13	The City shall control the number of direct access points to SR 84, Mission Boulevard, Decoto Road, Union City Boulevard, Alvarado Boulevard, Dyer Street, Whipple Road and Alvarado-Niles Road to maintain traffic flow and minimize potential for accidents.
Policy TR-A.1.15	All new traffic signals should be equipped with audible signal devices, traffic signal timing and coordination, and signal emergency vehicle preemption. The City shall investigate new technologies which will improve movement of pedestrians, bicyclists, public transit and emergency vehicles.
Goal TR-A.2	To keep the transportation system in balance with the land uses in Union City.
Policy TR-A.2.1	The City shall work with the City of Fremont, Caltrans, and ACTA to complete the SR 84 extension between I-880 and Mission Boulevard.
Goal TR-A.3	To protect neighborhood integrity and livability and improve safety by minimizing through traffic in residential neighborhoods.
Goal TR-B.1	To provide an efficient, convenient public transportation system for residents and workers in Union City.

Goal/Policy No.	Text
Goal TR-C.1	To create an institutional framework that supports bicycle and pedestrian travel through policy development, city staff and committee actions, and capital project implementation.
Policy TR-C.1.1	The City shall consider the needs of bicyclists and pedestrians in all future road construction or widening projects and development projects.
Goal TR-C.2	To develop a comprehensive signed bicycle route network composed of Class I (paved off-street paths and multi-use trails), Class II (bicycle lanes), and Class III (shared-use roadways) facilities connecting all of Union City's neighborhoods and adjacent communities.
Policy TR-C.2.1	The City shall develop a planned bicycle route network that conveniently and efficiently links residential neighborhoods, parks and open space areas, transit centers, schools, shopping areas, public facilities, major employment centers, and the regional bicycle network.
Policy TR-C.2.9	The City shall encourage the development of easily accessible and safe bike paths along the SR 84 extension.
Goal TR-C.3	To develop Union City's local trail system and integrate local trails with regional trail systems whenever possible.
Policy TR-C.3.1	The City shall continue to improve its local trail system and ensure that all local trails meet the design requirements set forth in the bicycle and/or pedestrian design guidelines.
Policy TR-C.3.2	The City shall support regional efforts to implement trails (such as the Bay Trail and Bay Area Ridge Trail), and shall identify opportunities to connect local trails with regional trails.
Policy TR-C.3.3	The City shall seek opportunities to connect existing and planned trails to the bicycle route network.
Goal TR-C.4	To create a continuous pedestrian network that meets ADA standards and allows pedestrians to safely and conveniently access parks and open space areas, transit centers, schools, shopping areas, public facilities, major employment centers, and other significant destinations.
Policy TR-C.4.5	The City shall prioritize safety in the design of sidewalk improvements along major arterials, including separating sidewalks from motor vehicle travel lanes where possible.
Implementation TR-C.3	The City shall work with the Cities of Fremont and Hayward to ensure bicycle and pedestrian facilities are continuous between neighboring jurisdictions.
PUBLIC FACILITIES ELEMENT	
Goal PF-E.1	To collect and dispose of stormwater in a manner that minimizes inconvenience to the public, minimizes potential water-related damage, and enhances the environment.
Policy PF-E.1.4	The City shall improve the quality of runoff from urban and suburban development through use of appropriate and feasible mitigation measures including, but not limited to, artificial wetlands, grassy swales, infiltration/sedimentation basins, riparian setbacks, oil/grit separators, and other best management practices.
Policy PF-E.1.8	The City shall allow stormwater detention facilities to mitigate drainage impacts and reduce storm drainage system costs. To the extent practical, stormwater detention facilities should be designed for multiple purposes, including environmental, recreational and/or stormwater quality improvement.

Goal/Policy No.	Text
NATURAL AND HISTORICAL RESOURCES ELEMENT	
Goal NHR-A.1	To protect, restore, and enhance important biological habitats and their associated plant, wildlife, and fish species throughout Union City and to educate people as to this need.
Policy NHR-A.1.3	On sites that have the potential to contain critical or sensitive habitats, or special-species, or are within 100 feet of such areas, the City shall require the project applicant to survey the site by a qualified biologist at the proper time of year. A report of the findings of this survey shall be submitted to the city as part of the application process. Appropriate mitigation measures will be incorporated into the project as necessary to protect the resources.
Policy NHR-A.1.4	On sites with the potential to contain wetland resources, the City shall require that a wetland delineation be prepared using the protocol defined by the U.S. Army Corps of Engineers.
Policy NHR-A.1.13	The City shall continue to require a burrowing owl study on all development projects that incorporate vacant, unpaved parcels, or parcels adjacent to possible owl habitat.
Goal NHR-B.1	To protect and enhance the natural qualities of Union City's groundwater, surface water, and streams, and to ensure sufficient water supplies of good quality for all beneficial uses.
Policy NHR-B.1.1	The City shall work with Alameda County Flood Control in an effort to ensure protection of the natural conditions along stream and creek corridors. a. In areas already disturbed, efforts should be made to restore the natural character to the extent possible. b. The development of trails along the corridors should be encouraged, and streamside rest areas should be provided that include indigenous streamside vegetation. c. New projects for flood and erosion control should be designed to preserve the natural creekside condition where possible. Alteration of streambeds and adjacent vegetation is to be permitted only as a means of erosion or flood control as permitted by the City and in such a manner as to enhance the area within the city.
Policy NHR-B.1.2	The City shall require that an erosion control plan be prepared and approved prior to the issuance of a grading permit. This plan shall be prepared in keeping with standards for non-point source pollutants applied by the Regional Water Quality Control Board.
Policy NHR-B.1.3	The City shall take or encourage actions to protect the Niles Cone water-bearing aquifers. Particular attention shall be paid to the use of recharge wells, salt water barriers, and importation of water necessary to maintain the water levels at surface elevations adequate to prevent salt water intrusion. Efforts should ensure maximum opportunity for surface runoff to recharge groundwater basins, including the use of checkdams, ponding, or retention basins, where compatible with policies for stream and creek protection.
Policy NHR-B.1.4	The City shall evaluate public and private development projects, including golf courses, to determine the effects of the projects on on-site and downstream drainage patterns and associated ecological systems.
Policy NHR-B.1.5	Within its authority, the City shall ensure that flood control facilities built in natural areas be designed to use "soft" channel structures (i.e., avoid lined channels and culverts) that maintain to the greatest extent possible natural vegetation and infiltration.
Goal NHR-C.1	To protect, to the extent possible, the City's significant archeological and historical resources.
Policy NHR-C.1.5	The City shall support public and private efforts to preserve, rehabilitate, and continue the use of historic structures and sites.
Policy NHR-C.1.6	The City shall support efforts to protect and recover archeological resources.

Goal/Policy No.	Text
Policy NHR-C.1	The City shall maintain and publish a historical resource inventory.
Policy NHR-C.4	The City shall apply the Landmark and Historic Overlay Zone to noteworthy resources.
Goal NHR-D.1	To provide for a continuous system of open spaces for the preservation, enhancement and protection of open space land.
Policy NHR-D.1.16	The City shall protect open space from intrusion by public projects. Planned open space is to be protected from intrusion by massive public works projects such as freeways and utility systems wherever possible. When protection is not possible, such projects shall be designed to permit compatible recreational development.

In addition to the goals and policies listed in Table 3.8-2, the Union City General Plan includes the following discussion specifically addressing the project alignment and the SR 84 Realignment Project, which is a reference to the proposed project in its former iteration as a Caltrans project. The Union City General Plan has identified this project in its General Plan since 1986, when voters approved a ballot initiative to construct the road (Malloy pers. comm.).

- The 35-acre Caltrans Property is located south of Alvarado-Niles Road on the eastern end of the city. The City recognizes this site as an important future gateway and potential open space resource and would like to develop the site with residential and recreational uses. There is a tremendous opportunity to develop the park so that it could complement Quarry Lakes and extend into Fremont. Some portion of the land would also be developed as single-family residential. The availability of the Caltrans property is dependent on the construction and configuration of SR 84 connections to Union City. (Land Use Element, page LU-40 through LU-41.) The Caltrans property, part of which would be used for the wetlands mitigation site, has the land use designation of IS, which is intended for uses including, but not limited to, cemeteries, churches, private educational facilities, private nonprofit and service organizations, and continuing care retirement communities. However, as stated above, the Land Use Element acknowledges the potential for development of this site for park and residential uses.
- The only new highway projects are the SR 84 extension proposed to be constructed on the eastern side of the City near the Union City/Fremont city limits as shown in Figure TR-1, and the proposed widening of SR 238 (Mission Boulevard) to six lanes. The SR 84 extension is a new four- to six-lane parkway that, when completed, will extend from Mission Boulevard to I-880 in Fremont and to the Dumbarton Bridge. Also planned is an extension of 11th Street from Decoto Road to the proposed SR 84. These connections will provide important alternatives for through traffic in the Decoto Road corridor. SR 84 is planned to have a grade separation at the former Southern Pacific Railroad line and BART/Union Pacific Railroad line, and will provide regional access to the BART station area. This roadway will clearly strengthen the development potential of the Station District. (Transportation Element, page TR-1.)

Figure TR-5 of the Transportation Element (updated March 2005) shows the existing and proposed bicycle system within the City. In the project alignment, the figure shows Alvarado-Niles Road, Osprey Drive, and Quarry Lakes Drive as streets with existing bicycle lanes. Quarry Lakes Drive is also delineated as having an existing Union City-maintained paved trail. Both sides of the Alameda Creek Flood Control Channel are delineated as having existing East Bay Regional Park District (EBRPD) trails. The project alignment is generally outlined on this map, and labeled as part of the proposed bicycle network, as are 7th Street, 11th Street, and Mission Boulevard.

Union City Zoning Ordinance

Title 18 of the Union City Municipal Code is the Union City Zoning Ordinance, which identifies zones, or land use designations, applied to land within the City's jurisdiction. The Zoning Ordinance restricts and regulates the location, construction, reconstruction, alteration and use of buildings, structures and land for various allowable purposes.

Union City Pedestrian and Bicycle Master Plan

The City of Union City prepared a Pedestrian and Bicycle Master Plan in 2006 to specify the City's policies related to providing pedestrian and bicycle facilities and to identify future improvements for the City's roads and trails. The plan includes engineering and design guidelines for constructing and maintaining pedestrian facilities (Appendix A of the Pedestrian and Bicycle Master Plan) and bicycle facilities (Appendix B of the Pedestrian and Bicycle Master Plan). Bike lanes are proposed as Class I, Class II, or Class III (see additional discussion in Section 3.12, Transportation and Traffic). Figure 3.8-6 represents Figure 5-2 of the Pedestrian and Bicycle Master Plan in the project alignment, with a generalized alignment of the project roadway, and lists it as a Pedestrian Improvement Corridor. Pedestrian Improvement Corridors are defined as "major arterials and collector streets providing direct pedestrian access to transit, commercial centers, and employment centers" and "assume a need for significant improvements to accommodate current and/or projected pedestrian traffic volumes and to provide a desirable pedestrian experience." Alvarado-Niles Road in the project alignment is also listed as a Pedestrian Improvement Corridor and is shown as a Sidewalk Gap Closure, meaning a "street segment where sidewalk facilities are inadequate or nonexistent." Figure 3.8-7 shows Figure 5-3 of the Pedestrian and Bicycle Master Plan, delineating the generalized project alignment as part of the proposed bike network. The figure does not indicate whether it is to be a Class I, II, or III lane. Although their respective classes are not specified, 7th Street, 11th Street, and Mission Boulevard are also shown as part of the proposed bike network.

Alameda County Congestion Management Agency

Alameda County Congestion Management Agency prepared the most recent update to the Alameda County Congestion Management Program in 2007, describing updated strategies to reduce roadway congestion throughout the County and identifying projects intended to implement those strategies. The proposed project is not included on the Capital Improvement Projects list published in that document. In 2008 Alameda County Congestion Management Agency also prepared the most recent update of the Alameda Countywide Transportation Plan, a long-range policy document that guides transportation decisions and presents a vision for improving transportation circulation

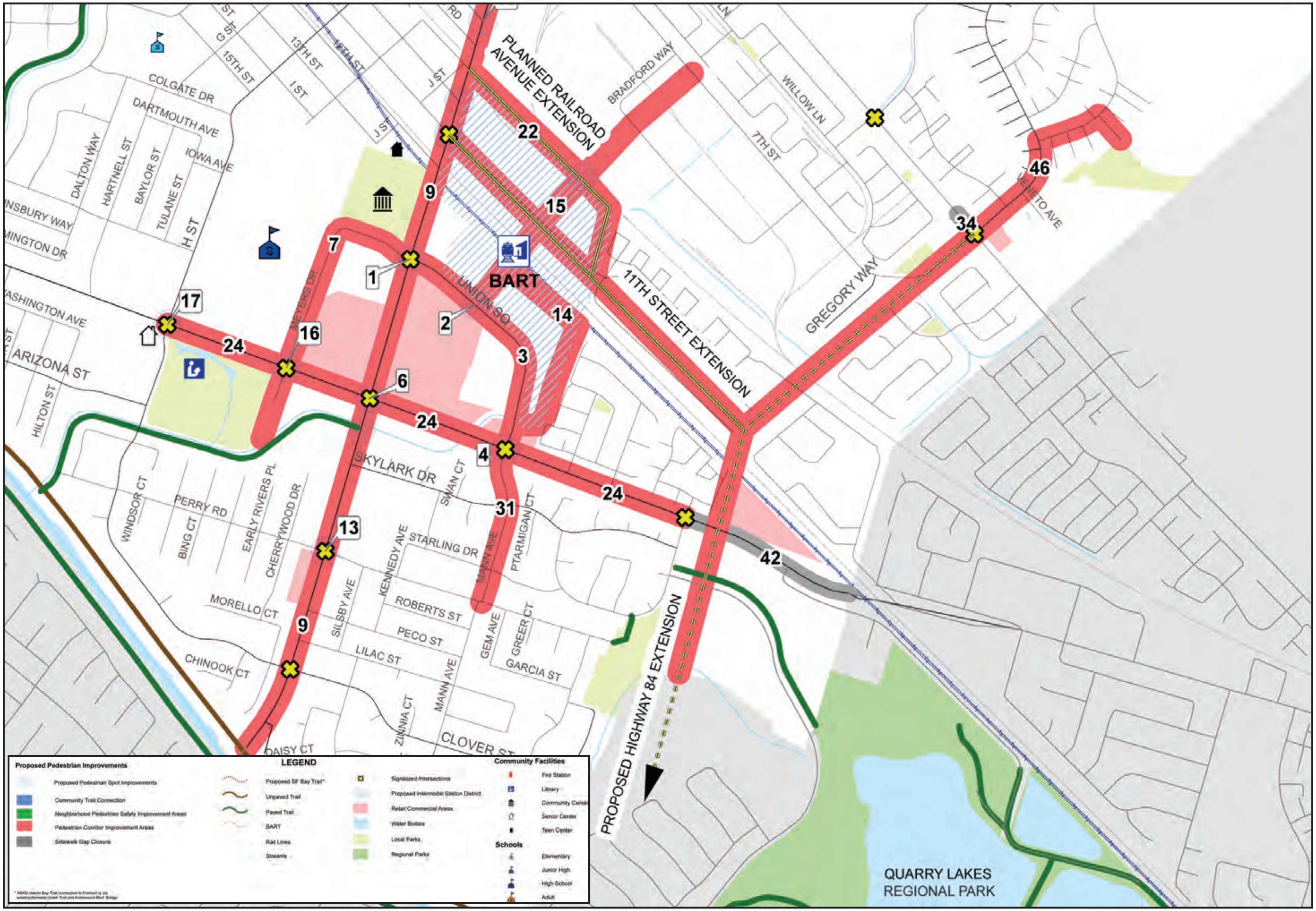

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Figure 3.8-6
Existing and Proposed Pedestrian Network, Union City

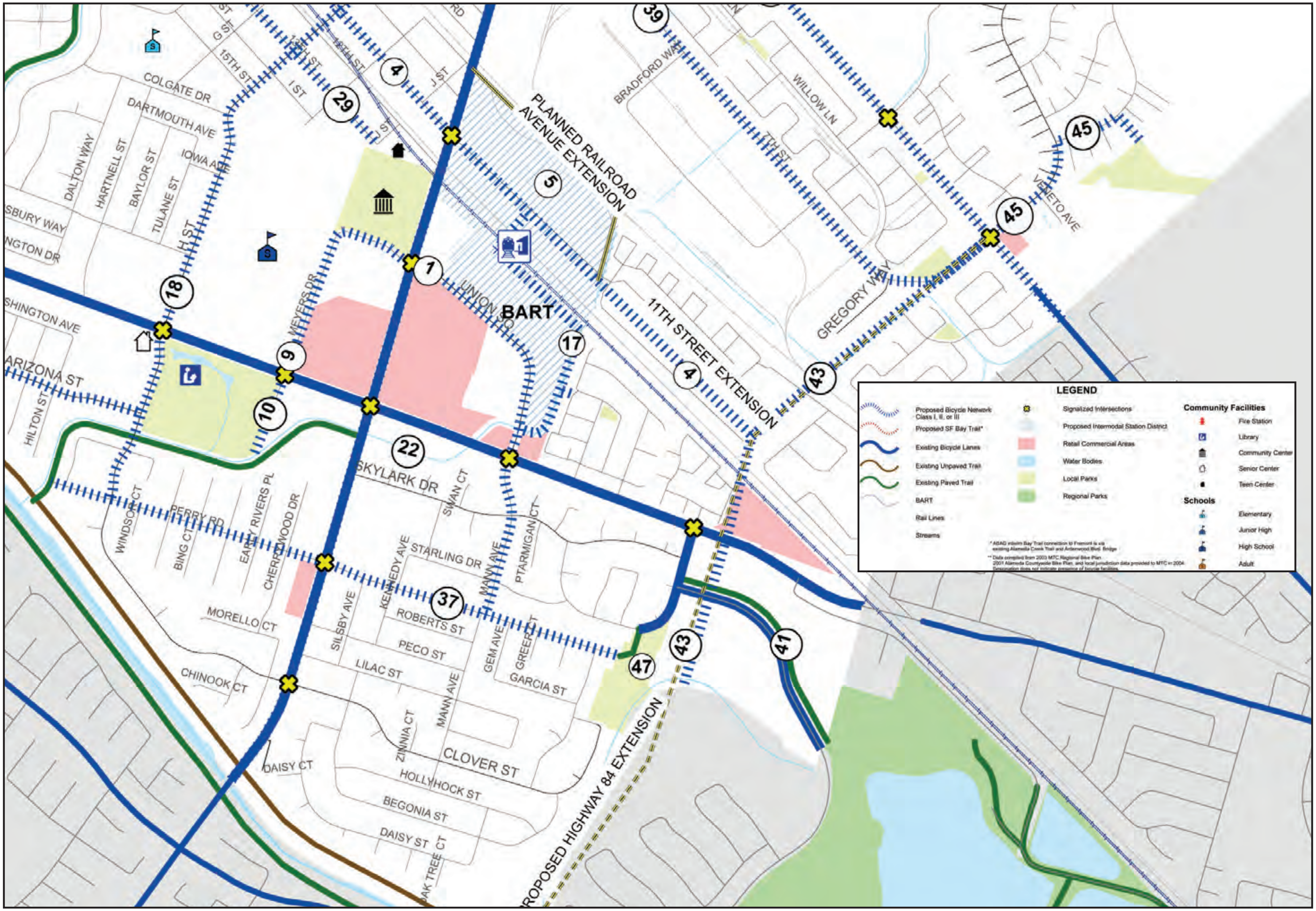

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Figure 3.8-7
Existing and Proposed Bicycle Network, Union City

throughout the County. According to the Alameda County Congestion Management Agency, ~~T~~the proposed project is ~~not~~ included on the list of committed projects presented in the Alameda Countywide Transportation Plan (Alameda County Congestion Management Agency 2009). ~~However, the~~The Route 84 project (also called the historic parkway) is also included in the Alameda County Congestion Management Agency's countywide traffic model.

Alameda County Congestion Management Agency prepared the Alameda Countywide Bicycle Plan (Alameda Bike Plan) in 2006—a framework established by multi-jurisdictional input to provide background, direction, and tools to improve the bicycling environment throughout the County. In the project alignment, Paseo Padre Parkway is listed as a proposed Class II cross-county corridor, and is identified as a "financially constrained" corridor, meaning that it is within the estimated revenues available within the respective jurisdiction/s. There are no proposed improvements in the project alignment that are identified as high-priority projects.

East Bay Regional Park District

EBRPD provides and manages the regional parks for Alameda and Contra Costa Counties, and publishes their policies and guidelines relating to parks and resource management in the EBRPD Master Plan. The most recent plan was adopted in 1997. Quarry Lakes Regional Recreation Area, located within the Fremont city limits, is one of nine EBRPD regional recreation areas. The 1997 Master Plan defines regional recreational area as a park that provides "a variety of outdoor recreational experiences on a site that is particularly well suited to the type of recreational activities that the District provides." The Alameda Creek Trail, which runs along both banks of the Alameda Creek Flood Control Channel in the project alignment, is an EBRPD facility, listed in the Master Plan's inventory of existing, completed regional trails. Regional trails are defined in the Master Plan as providing "non-motorized, multiple-use, pedestrian, equestrian, and bicycling connections between District parks, thus encouraging alternative modes of transportation and helping to reduce pollution. They also link District parks with other local parks, open spaces, trails, transportation and employment centers, and urban communities." The Alameda Creek Trail connects San Francisco Bay in the west to an area in Niles Canyon (east of the Mission Boulevard/SR 84 intersection), southeast of the terminus of the project alignment. According to a trail map published by EBRPD (available at the EBRPD maps website: http://www.ebparks.org/parks/maps), the unpaved trail on the Alameda Creek Flood Control Channel's north bank is shown as a hiker, horse, and bicycle trail; and the paved trail on the southern bank is shown as a hiker, bicycle paved trail.

Quarry Lakes Regional Recreation Area, located east of the project alignment and accessed by Quarry Lakes Drive, is also listed as an existing facility. Figure 3 of the 2007 Master Plan lists one potential project in the project vicinity, showing the generalized alignment of a potential trail connection between Quarry Lakes Regional Recreation Area and Ardenwood Historic Farm. Ardenwood is an EBRPD regional preserve located southwest of the project alignment, on the opposite side of I-880. There is no specific project information detailing plans for constructing this trail.

3.8.3 Impact Analysis

This section describes the impact analysis relating to land use and planning for the proposed project. It describes the methods used to determine the impacts of the proposed project and lists the criteria used to conclude whether an impact would be significant. Measures to mitigate (i.e., avoid, minimize, rectify, reduce, eliminate, or compensate for) significant impacts accompany each impact discussion.

Methodology

Baseline conditions were determined by conducting site visits, and reviewing aerials photographs and maps and relevant planning documents. Impacts related to land use and planning were determined by reviewing relevant plans and policies and then identifying any potential conflicts or inconsistencies between the proposed project and the goals, policies, objectives, or implementation items published in those plans, or between the proposed project and any potential projects that are identified in those plans. Potential conflicts with existing or planned land uses were also considered.

Significance Criteria

For this analysis, an impact pertaining to land use was considered significant under CEQA if it would result in any of the following environmental effects, which are based on professional practice and State CEQA Guidelines Appendix G (14 CCR 15000 *et seq*.). A significant impact is identified if the proposed project would:

- physically divide an established community;
- conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect;
- conflict with any applicable habitat conservation plan or natural community conservation plan; or
- result in a substantial conflict with existing or planned land uses.

Project Impacts and Mitigation Measures

There are no habitat or natural community conservation plans specifically applicable to the proposed project or the project alignment. Therefore, these impacts are not discussed further and no mitigation is required.

Impact LUP-1: Division of an Established Community (Less than Significant)

The project proposes widening two existing roadways, Decoto Road and Paseo Padre Parkway, in the City of Fremont. This portion of the project alignment is proposed within existing roadways, and would not divide an established community. The existing roads do not divide established communities, as intersecting roadways maintain vehicular access across the roads and crosswalks maintain pedestrian access across the roads. The widening proposed for Decoto Road and Paseo Padre Parkway is very minimal, and would not substantially increase any divisions these roads currently provide. All existing intersection access and crosswalks along the project alignment would be maintained, and some would be improved. The proposed project would not divide an established community in this area of Fremont.

The project proposes a new roadway through an undeveloped corridor. In the portion of the corridor between Paseo Padre Parkway and Alvarado-Niles Road, there are two residential communities—one in Union City on the north and one in Fremont on the south— on opposite sides of this undeveloped corridor. These communities are already divided by the corridor, which has long been reserved for a roadway, and Old Alameda Creek, which extends through the corridor. The presence of a new road through the corridor could introduce a perceived barrier between the communities, but these communities are currently divided by Old Alameda Creek, and the new road would not create any newly divided conditions. Existing connection between the two established communities is currently limited to Quarry Lakes Drive, which would be realigned as part of the proposed project, and the connection between the two communities would remain. All existing trails would be maintained by the proposed project. Therefore, the project would not divide an established community.

There are Union City residential areas on both sides of the corridor between Alvarado-Niles Road and Mission Boulevard. The corridor, which includes two detention basins, already divides this area of Union City. The builders of recent Union City developments along the corridor were informed of the corridor's purpose and the potential for the roadway's construction; accordingly, much of the newer residential developments on each side feature soundwalls, constructed in anticipation of the new roadway, and these existing soundwalls serve to divide this area. The proposed project would not further divide these residential developments. Therefore, the proposed project would not divide an established community.

Additionally, the right-of-way for a new roadway (formerly called Route 84, or the historic alignment) has been reserved for many years, as evidenced on the aerial photographs presented in Figures 2-1a to 2-1d. Fremont and Union City residents have been aware of the potential for a new roadway in this corridor since 1986, when voters approved a ballot initiative to construct the road.

This impact is considered less than significant. No mitigation is required.

Impact LUP-2: Potential Conflict with the Fremont General Plan (Less than Significant)

Table 3.8-3 provides a summary of the proposed project in the context of relevant goals, policies, and objectives of the Fremont General Plan, focusing on the proposed project's potential to conflict with existing policies.

Table 3.8-3. Consistency of the Proposed Project with the Fremont General Plan

Goal/ Policy No.	Text	Project Consistency Discussion
LAND USE ELEMENT		
Goal LU-4	Conservation of the City's open space resources	The project proposes to construct a road on land designated Institutional Open Space in the Fremont General Plan, but the area is also shown as a Transportation Corridor in General Plan Figure 8.9. ~~A roadway is not typical "development" like houses or commercial uses, but it also is not a specifically compatible use. However,~~ The proposed project has been designed to preserve the open space character of the surrounding land to the greatest extent feasible. The ~~the~~ new roadway is low profile, and the proposed project includes a landscape plan which would screen the roadway, as well as providing bike lanes~~,~~ and separate paved trails to provide recreation opportunities, which makes the roadway more compatible with the open space environment. Further, the project alignment constitutes land that has been reserved for roadway development for several decades. The project alignment itself is not an open space resource of the City of Fremont, and the potential for roadway development is acknowledged in the General Plan. Therefore, the proposed project is not considered to conflict with these general plan policies.
Policy LU-4.3	Development on land designated Institutional Open Space is limited to compatible recreational and community uses.	
Policy LU-4.4	Development of recreational or other public facilities on open space lands should conserve the open space character of the site and minimize impacts on mature landscaping and environmentally sensitive areas.	
OPEN SPACE ELEMENT		
Goal OS-2	Recognition, protection, and enhancement of significant natural areas and wildlife habitats in the city, including Bay tidal, seasonal, and freshwater wetlands, and open meadows and fields	Potential environmental impacts on biological resources in open space areas are addressed in Section 3.3, Biological Resources. Significant impacts are identified, and mitigation is proposed to reduce these impacts to less-than-significant levels, including habitat enhancement in Old Alameda Creek and a wetland mitigation strategy to compensate impacts on riparian habitat, wetlands, and open space resources. By so doing, the proposed project would recognize, protect, and enhance biological resources to the greatest extent feasible. Therefore, the proposed project does not conflict with these policies.
Objective OS-2.2	Protection and enhancement of wetlands within the city.	
Policy OS-2.2.1	The City shall take an active role in protecting wetlands. There shall be no net loss of wetlands as a result of development in Fremont.	

Goal/ Policy No.	Text	Project Consistency Discussion
Implementation 1	Early assessment of environmental constraints and resources should be conducted and submitted with applications for development of projects in or adjacent to wetland areas. Early consultation with the City regarding the implications of the environmental assessment for proposed development is recommended. See Land Use Chapter discussion and P-3.11 in the Land Use Chapter.	
Implementation 2	Conditions of development approval shall include measures to protect wetlands, including long-term monitoring and maintenance programs as appropriate. Off-site mitigation should be used only if on-site mitigation is not feasible and if the loss of on-site wetlands is out-weighed by a specific public purpose. The replacement off-site mitigation site should be nearby.	
Implementation 3	Require that proposed development be compatible with wetlands, both in terms of the allowed uses, and in the arrangement of the buildings, parking, landscaping, access, drainage, runoff, and other facilities on the parcel.	
Objective OS-2.3	Conservation of natural areas within the city	The project alignment and wetlands mitigation site are ~~is~~ not ~~a~~ unique natural resource ~~area~~areas, as shown in Figure 9-3 of the Fremont General Plan. Therefore, the proposed project does not conflict with this objective of the Fremont General Plan.
Policy OS-2.3.1	Publicly owned unique natural areas remaining in the flatland area of the city (see Natural Resources Chapter, Figure 9-3) shall be managed to protect and enhance wildlife habitats to the degree feasible (See Biological Resources Section of the Natural Resources Chapter for implementation measures).	
Objective OS-2.5	A comprehensive system of trails connecting destinations within Fremont	Existing and proposed public trails in Fremont are incorporated into the Fremont Pedestrian Master Plan and the Fremont Bicycle Master Plan. The project is proposed in the vicinity of existing trails shown in these plans, but would maintain access to and from these trails. Therefore, the proposed project does not conflict with this objective and policies.
Policy OS-2.5.1	Develop a system of trails shown on the General Plan trails map, as funding permits. Effort shall be concentrated on trails that link major destinations and are accessible to a large number of people.	

Goal/ Policy No.	Text	Project Consistency Discussion
Policy OS-2.5.2	Provide public access to major trails, with appropriate staging areas and parking where feasible. Public access points shown on the General Plan are approximate locations. … Where access is provided, (either as required or as part of project designs), site and building design adjacent to the access point or trail shall also provide for sufficient privacy and a clear boundary between public access and private uses.	
Goal OS-4	Distinctive gateways and roadway landscaping for Fremont	The project proposes landscaping on the edges and the median of the proposed roadway, light fixtures for roadway illumination, and may include fencing between the road and the separated pedestrian path in certain areas. ACTA would continue to coordinate project design with Fremont representatives to ensure that their concerns for landscaping and the aesthetics of other infrastructure components are addressed. Specific plans for gateway signs have not yet been proposed for the proposed project, but future coordination between ACTA and Fremont would ensure that design and location of any gateway signs and potential lighting and accent planting proposed within Fremont are acceptable to the City. Therefore, the proposed project would not conflict with this goal, objective, and policies.
Objective OS-4.1	Clear identification of Fremont’s boundaries with special gateways at all major entrances to the city (this section focuses on man-made gateways; natural gateways are addressed in the Visual Resources section of the Natural Resources Chapter)	
Policy OS-4.1.1	The city’s major entrances, including freeway offramps and BART stations, should be clearly marked with signs and landscaping where space permits.	
Policy OS-4.1.2	Maintain city street standards that call for broad rights-of-way and abundant landscaping.	
NATURAL RESOURCES ELEMENT		
Goal NR-1	Biological resources protected and enhanced	See the response to LU Goal 4 and its related policies, Goal OS-2, Objective OS-2.3, and Policy OS-2.3.1 above.
Goal NR-2	Protection and conservation of natural resources in the planning, design and management of the City’s landscape	
Goal NR-7	Development sensitive to surface water resources	
Goal NR-12	Air quality meeting State standards	A complete air quality analysis is provided in Section 3.2, Air Quality. The proposed project would not generate emissions that would cause Fremont to exceed state standards. Furthermore, the proposed project would reduce existing and future traffic congestion on parts of the local roadway system, which would generally have the beneficial air quality effect of reducing concentrated emissions at busy intersections. Therefore, the proposed project would not conflict with this goal.

Goal/ Policy No.	Text	Project Consistency Discussion
Goal NR-13	An open space frame to the City	Section 3.1, Aesthetics, addresses the proposed project's compatibility with this goal and objective. A significant aesthetics impact would occur as a result of the proposed project's potential to encroach on a scenic vista that encompasses hillside views and open space (refer to Impact AES-8 in Section 3.1, Aesthetics). Mitigation is proposed in the form of providing a landscape plan that omits extremely tall trees in the undeveloped corridor to maintain the scenic vista (refer to Mitigation Measure AES-5 in Section 3.1, Aesthetics), thereby maintaining this aspect of the City's open space frame and preserving the area's visual character to the greatest extent practicable. The proposed project would not damage or otherwise alter any Fremont-designated "unique visual elements." Therefore, the proposed project would not conflict with this goal and objective.
Objective NR-13.1	Preservation of the visual character of the City's Open Space frame and other unique natural visual elements of Fremont. The Frame includes the Hill Face, Bay lands, Alameda Creek flood control channel and adjacent publicly owned open space areas (Ardenwood Regional Park, Alameda Creek Quarries). Other unique natural elements include Central Park and Lake Elizabeth and Landmark Trees. (See the Land Use and Open Space Chapters for many policies and implementation measures related to the Open Space Frame)	
Goal NR-14	A distinctive, positive visual image for Fremont	For a response addressing Goal NR-14, see the discussion of Goal OS-4 and its related objectives and policies, and the discussion of Goal NR-13 and its related objective above. With respect to Policy NR-14.1.3, 14.1.4, and 14.1.5, Paseo Padre Parkway is designated as a scenic route. The project does not propose soundwalls that would be highly visible from that road, and proposes landscaping within the median to enhance the scenic character. Therefore, the proposed project would not conflict with these policies.
Policy NR-14.1.3	The impacts of soundwall development on the scenic character of scenic routes and on visual access to scenic resources shall be considered prior to approval of soundwalls along scenic routes.	
Policy NR-14.1.4	Maintain adequate landscaping for scenic roads to enhance their scenic character.	
Policy NR-14.1.5	Evaluate and consider the impacts of any significant roadway modification (including any grade separations) on the scenic character of scenic routes and on visual access to scenic resources.	
TRANSPORTATION ELEMENT		
Goal T-1	Efficient use of roadway system to provide convenient travel, reduce congestion, and improve air quality	The proposed project would use the existing roadway (widening Decoto Road and Paseo Padre Parkway) and the new roadway to provide more convenient east-west travel. It also would reduce congestion at several locations and improve air quality by reducing emissions at these same intersections. Therefore, the proposed project would not conflict with this goal.

Goal/ Policy No.	Text	Project Consistency Discussion
Goal T-2	Convenient alternatives to the automobile to conserve energy, reduce congestion, improve air quality and provide a variety of transportation choices to meet a variety of needs	The proposed project would improve bicycle and pedestrian facilities along the parts of Decoto Road and Paseo Padre Parkway that are proposed for widening, and proposes ample bicycle and pedestrian facilities in the new road. This would enhance the City of Fremont's system of alternative transportation options. The proposed project would reduce existing and future traffic congestion on the local roadway system, which would generally have the beneficial air quality effect of reducing concentrated emissions at busy intersections. Therefore, the proposed project would not conflict with this goal.
Goal T-3	Transportation facilities and corridors that enhance the City's historic, visual, natural resources	See the discussion of Goal NR-13 and its related objective above. The proposed project would not conflict with this goal.
Implementation 4	Preserve a transportation corridor under study from I-880 and Decoto Road to Mission Boulevard to meet the future transportation needs of Fremont residents.	The proposed project represents the most recent iteration of this referenced corridor. Therefore, the proposed project would not conflict with this implementation item.
Policy T-1.2.2	Limit access to parkways and arterials to maintain capacity, efficiency and safety of traffic flow.	The project proposes to widen existing arterials in Fremont, with no major changes to access points. Intersection modifications would be minor. The new roadway would be accessed by existing roadways (i.e., Paseo Padre Parkway and Quarry Lakes Drive); it would not provide access from individual driveways, which would be considered unsafe and inefficient~~have minor access points from adjacent residences~~. No new access roads are proposed as part of the project, but the project would not preclude future access roads determined efficient and safe. Therefore, the proposed project would not conflict with this policy.
Policy T-1.2.3	Coordinate traffic signals to provide smooth vehicular flow on arterials.	The proposed project would install new signals and modify signals in coordination with the City of Fremont's existing system, in conformance with this policy. The proposed project would not conflict with this policy.
Policy T-1.2.4	Work closely with other jurisdictions responsible for roadways within Fremont and those which feed directly into Fremont's street network.	ACTA has coordinated planning for proposed project with representatives of the Cities of Fremont and Union City and with Caltrans. The parties signed a memorandum of understanding (MOU) specifying the roles and responsibilities of each agency. ACTA is the lead agency for CEQA compliance, and Caltrans, Fremont, and Union City are responsible agencies. Together, they are part of the project development team that coordinates regularly and has monthly meetings.
Implementation 1	Work with CALTRANS and the Alameda County Transportation Authority to achieve timely construction of programmed freeway and interchange improvements.	

Goal/ Policy No.	Text	Project Consistency Discussion
Implementation 2	Work cooperatively with neighboring jurisdictions to ensure comparable plans and roadway development standards, and ensure sufficient capacity on the mutual roadway network.	After construction, ongoing operation of the road would be assigned to the relevant jurisdiction, and the Cities would be responsible for continued coordination to maintain acceptable traffic flow. Therefore, the proposed project would not conflict with this policy and implementation item.
Policy T-1.2.6	Discourage through traffic on local streets.	The project proposes to widen existing arterials (Decoto Road and Paseo Padre Parkway) in Fremont and to create a new roadway extending from Paseo Padre Parkway. New access points to these arterials are not proposed, nor are closures of existing access points. Although there would be access from Quarry Lakes Drive, the new roadway would not have additional access points from adjacent residential areas. Therefore, the proposed project would not affect through traffic on local streets in Fremont, and would not conflict with this policy.
Objective T-1.5	Participation in efforts to reduce regional traffic congestion	As described above, this proposed project represents a multi-jurisdictional effort to reduce regional traffic. ACTA has coordinated planning for this roadway with representatives of the Cities of Fremont and Union City and with Caltrans. Therefore, the proposed project would not conflict with this policy and implementation items.
Policy T-1.5.1	Coordinate local transportation planning with regional and other local plans.	
Policy T-1.5.2	Work with other jurisdictions to develop solutions to regional congestion.	
Objective T-2.1	A level of bus service providing a convenient and accessible alternative to the automobile	The proposed project would generally not hinder public transportation in Fremont. The project proposes improvements to Alvarado-Niles Road, 7th Street, and Mission Boulevard, all of which accommodate fixed bus routes of AC Transit. The new roadway may include a bus route, thereby expanding bus service. ACTA would coordinate with AC Transit to limit the project's impacts on bus routes during construction, and to replace any stops that may be temporarily removed during construction. Therefore, the proposed project would not conflict with this goal.
Objective T-2.4	A safe and convenient bicycle network that facilitates bicycle travel for commuting to work, school, shopping and for recreation	See the discussion of the proposed project's consistency with the Fremont Bicycle Master Plan and the Fremont Pedestrian Master Plan below. The project generally proposes enhancement of the City's bicycle network, and therefore would not conflict with this objective and these policies.
Policy T-2.4.1	Complete the bicycle route system identified on the Planned Bicycle Route, Horse and Foot Trails map (Figure 8-13).	
Policy T-2.4.2	To increase bicycle safety, the bicycle system shall consist of on-road striped bicycle lanes and off-road bicycle trails, whenever feasible.	

Goal/ Policy No.	Text	Project Consistency Discussion
Objective T-2.6	A pedestrian walkway system in community commercial centers, in the Central Business District, neighborhood shopping centers and serving major transit facilities	
Policy T-2.6.1	Develop convenient, continuous walkway systems in the community commercial centers.	
Objective T-3.1	Transportation facilities and corridors that enhance community and City identity	See the response to Goal OS-4 and its associated policies above. The proposed project would not conflict with this objective and these policies.
Policy T-3.1.1	Provide street improvements and facilities that enhance neighborhood, district and City identity.	
Policy T-3.1.2	Require transportation facilities that aesthetically complement their built and natural environment.	

Table 3.8-3 shows that the proposed project would not conflict and would generally be consistent with the goals and policies of the Fremont General Plan.

The widening of Decoto Road and Paseo Padre Parkway to three lanes in each direction is consistent with the City of Fremont's plans for future roadway expansion, as shown in Figure 8-10 of the Fremont General Plan. As discussed under Regulatory Setting, a major transportation corridor between I-880 and Mission Boulevard (called SR 84 Realignment Project, historic alignment of SR 84, new SR 84, freeway, or major arterial, freeway extension of SR 84) is mentioned throughout the Fremont General Plan, with the City voicing its concern for the road's construction. References to the project include the statement that building the alignment along the historic alignment near Decoto Road would result in major changes to the Centerville planning area, which is located east of the project alignment's southern portion, and the Niles planning area, which is located east of the project alignment's northern portion. Concerns about the impact of a freeway have led the City to recommend consideration of alternatives for the route, including the possibility of no road in the historic alignment or the development of a parkway rather than a freeway. (Refer to page 8-29 and Figure 8-9 of the Transportation Element in the Fremont General Plan.) The proposed project is the result of the City working with ACTA, Caltrans, and Union City to develop an alternative that does not follow the entirety of the historic alignment and that is a four-lane parkway, not a freeway or expressway. Since the right-of-way for a new roadway was reserved, the City has informed residential developers and new residents along the reserved right-of-way that the roadway could be constructed sometime in the future, and this has been included in deed restrictions.

In summary, this impact is considered less than significant. No mitigation is required.

Impact LUP-3: Potential Conflict with the Fremont Pedestrian Master Plan (Beneficial)

The proposed project is consistent with the Fremont Ped Plan because it would close the sidewalk gaps along Decoto Road and enhance the pedestrian facilities along Fremont Boulevard at the intersection of Decoto Road, two priority projects listed in the plan. Additionally, the proposed project would enhance and add pedestrian trails along Old Alameda Creek and the new roadway. The wetlands mitigation site would entail relocating the trail located along the southern banks of Old Alameda Creek further south of its present location, but trail access would be fully maintained. Therefore, this impact is considered beneficial. No mitigation is required.

Impact LUP-4: Potential Conflict with the Fremont Bicycle Master Plan (Less than Significant with Mitigation)

The proposed project is generally consistent with the Fremont Bike Plan because it would enhance bicycle facilities along existing streets and provide Class I bike paths along the new roadway, but it has the potential to be inconsistent with one specifically identified bike plan project, as discussed below. As part of conforming to the Decoto Road right-of- way, the project proposes to complete the Class II bike lanes along this roadway, as shown in the Fremont Bike Plan. Any bike lanes removed for project construction within Decoto Road and Paseo Padre Parkway would be replaced as the road way is completed. The proposed project would maintain the Class I bike path along the south bank of the Alameda Creek Flood Control Channel, as shown in the plan. As part of the Decoto Road/Fremont Boulevard intersection improvements, the proposed project would implement Class II bike lanes along the project-related segment of Fremont Boulevard, as shown in Figure 5-2 of the Fremont Bike Plan.

One specific project identified in the Fremont Bike Plan recommends that bike lanes in Paseo Padre Parkway between Decoto Road and Thornton Avenue, including the project-related segment between Decoto Road and Isherwood Way, provide adequate width from gutter pans and sewer grates. Because design-level roadway plans have not yet been prepared, this aspect of the proposed project cannot be examined for consistency with this identified bike lane project. Therefore, the proposed project has the potential to result in a significant inconsistency with the Fremont Bike Plan.

This impact is considered significant. Implementation of the following mitigation measure would reduce this impact to a less-than-significant level.

Mitigation Measure LUP-1: Ensure Compatibility of Gutter Pans and Sewer Grates with Bicycle Traffic along Paseo Padre Parkway

Throughout the project-related stretch of Paseo Padre Parkway, ACTA will ensure that bicycle lanes do not contain incompatible gutter pans and grates. Paseo Padre Parkway will either provide adequate width for bike lanes so as to avoid any gutter pans and grates that are present, or will feature gutter pans and grates that are compatible with bicycle traffic. ACTA will consult the engineering guidelines presented in Appendix A of the Fremont Bike Plan, and show the width on final plans, to the satisfaction of the Fremont Department of Public Works.

Impact LUP-5: Potential Conflict with the Alameda Countywide Bicycle Plan (Beneficial)

The proposed project is consistent with the Alameda Bike Plan because it would maintain Class II bike lanes along Paseo Padre Parkway, as shown in the plan, enabling it to become a cross-county corridor. Additionally, the proposed project would complete Class II bike lanes along Decoto Road and provide Class I bike paths along the new roadway. Therefore, this impact is considered beneficial. No mitigation is required.

Impact LUP-6: Potential Conflict with the Union City General Plan (Less than Significant)

Table 3.8-4 provides a discussion of the proposed project's potential conflict with the Union City General Plan.

Table 3.8-4. Consistency of the Proposed Project with the Union City General Plan

Goal/Policy No.	Text	Project Consistency Discussion
YOUTH, FAMILY, SENIORS, AND HEALTH ELEMENT		
Goal YFSH-E.1	To provide parks and facilities that serve the diverse needs of the city's growing population.	The proposed project would encroach on two Union City parks: Arroyo Park located near the proposed realignment of Quarry Lakes Drive, and Drigon Park, located near the project alignment's eastern terminus at Mission Boulevard. Therefore, the proposed project would reduce the size of these parks, and conflict with Policy YFSH-E1.3. Arroyo Park would only be affected by the Quarry Lakes Drive realignment Option 2, which includes a four-way intersection with the new roadway that would extend Quarry Lakes Drive to Osprey Drive, encroaching on a corner of Arroyo Park. The total square footage that would be affected has not yet been determined. The Drigon Park impact area is estimated at approximately 15,600 square feet. Drigon Park was planned and developed with setbacks taking into consideration the future presence of SR 84, and the proposed project's encroachment would be less than was previously planned. Impacts on both of these parks would occur on the fringes of the parks and would not substantially affect activities or facilities available
Policy YFSH-E.1.3	The City shall commit to increasing the number and /or size of neighborhood and/or citywide parks.	
Policy YFSH-E.1.11	The City shall prepare a capital improvements program for parks acquisition and development.	

Goal/Policy No.	Text	Project Consistency Discussion
		for recreation at the two locations. ACTA would continue to coordinate with the Union City Department of Public Works and Planning Department as project design progresses, and would identify appropriate compensation for any parkland that is taken by the project alignment. Therefore, this is not a significant conflict with this policy. There are no specific capital improvements for these parks listed in the UC General Plan. Therefore, the proposed project would not conflict with policy YFSH-E.1.11.
Implementation YFSH-E.4	The City shall produce a trail and bike route map for public distribution.	The paved trail that fronts the current alignment of Quarry Lakes Drive is shown as a Union City trail facility on Figure TR-5 of the General Plan. The proposed project would realign Quarry Lakes Drive, which would move this trail from its current alignment. However, it would be replaced along the realigned road, and the proposed project would not be inconsistent with this feature of the General Plan. The project alignment is shown as a future component of the City's bike network on this map, and the project proposes to construct ample bicycle facilities on the project roadway; therefore, implementing the proposed project is consistent with this map. 7th Street, 11th Street, and Mission Boulevard are also shown as components of the bike network. Project-related construction of 11th Street, realignment of 7th Street, and widening of Mission Boulevard near their respective intersections with the project roadway would include the proper bicycle facilities, providing connections to the project roadway's bike and trail facilities.
LAND USE ELEMENT		
Goal LU-A.7	To achieve maximum jurisdictional and agency coordination in all aspects of physical and social planning.	The design and environmental review for the proposed project has involved a great deal of coordination between ACTA and Union City; therefore, the proposed project is consistent with this goal and its related policies.
Policy LU-A.7.1	The City shall coordinate growth and development with surrounding jurisdictions, the Local Agency Formation Commission, Congestion Management Agency, transit providers, and other regional agencies as appropriate to promote common goals.	
Policy LU-A.7.2	The City should continue to coordinate with special districts such as the Alameda County Water District, Union Sanitary District, and East Bay Regional Park District, as part of the land use decision-making process.	

Goal/Policy No.	Text	Project Consistency Discussion
Goal LU-B.2	To establish landscape and other buffer zones between potentially incompatible uses.	The project proposes landscaping along the edges of the roadway, providing a physical and visual buffer to adjacent residential and park land uses. Therefore, the proposed project is consistent with this goal.
Goal LU-I.1	To create a community park site that serves as a gateway to Union City along SR 84.	The proposed project represents a revised version of the SR 84 Realignment Project referenced in this goal and its related policies, indicating that the project road has been assumed in Union City's comprehensive land use planning process. Constructing the proposed project would not prevent the City from implementing this potential park acquisition and residential development. However, Quarry Lakes Drive realignment Option 2 would include a four-way intersection with the new roadway and encroach on the park. Therefore, the proposed project could conflict with the policy to expand Arroyo Park eastward. However, the proposed project does not preclude expanding the park southward and westward toward Old Alameda Creek. The proposed project would improve the link from Arroyo Park to Quarry Lakes Regional Park by realigning Quarry Lakes Drive close to Arroyo Park. Therefore, the proposed project would not conflict with this goal and its related policies.
Policy LU-I.1.1	The City shall make efforts to purchase the Caltrans property and expand Arroyo Park.	
Policy LU-I.1.2	The City shall ensure that Arroyo Park is functionally linked to Quarry Lakes (in the city of Fremont) by park and open space areas along Alameda Creek.	
Policy LU-I.1.3	The City shall strive to design the park so that it buffers residential uses from SR 84 and provides recreation facilities to serve the neighborhood and the community as space allows.	
Policy LU-I.1.4	The City shall allow single-family residential to develop on the remainder of the Caltrans property, if any, that is not utilized for park or SR 84.	
COMMUNITY DESIGN ELEMENT		
Goal CD-C.1	To create distinct and attractive corridor environments along Union City's major roadways and transit lines.	Within Union City, the project proposes landscaping on the edges and the median of the project alignment, light fixtures for roadway illumination, and may include fencing between the road and the separated pedestrian path in certain areas. Union City has not prepared an "overall streetscape master plan" or a "citywide sign program," as referenced in these policies, but ACTA would continue to coordinate project design with Union City representatives to ensure that their concerns for landscaping and the aesthetics of other infrastructure components are addressed. Landscaping and a unified visual concept would help make the corridor distinct and attractive, would prevent the road from being visually monotonous, and would also serve to calm traffic and prevent speeding. Specific plans for gateway signs have not yet been proposed for this project, but future coordination between ACTA and Union City would ensure that design and location of any
Policy CD-C.1.1	The City shall prepare an overall streetscape master plan for the entire city that identifies various improvements such as providing a variety of light fixture styles, accent landscaping, street furniture, decorative signage, landscape medians, and bollards.	
Policy CD-C.1.2	The City shall create a citywide sign program that places "icon" signs along major corridors to help distinguish Union City from Fremont and Hayward. The sign program shall also address standards for signs within the public right-of-way.	
Policy CD-C.1.3	Whenever possible, the City shall avoid road alignments that result in long stretches that encourage speeding by motorists and that are visually monotonous.	

Goal/Policy No.	Text	Project Consistency Discussion
Goal CD-D.1	To create positive first impressions for motorists/pedestrians entering the city through enhancement of the city's gateways.	gateway signs and potential lighting and accent planting proposed within Union City are acceptable to the City. Therefore, the proposed project would not conflict with these goals and their related policies.
Policy CD-D.1.1	The City shall enhance all city gateways by providing city identification signs, additional lighting, and accent planting.	
Policy CD-D.1.2	The City shall provide attractive landscaping that reduces the visual impact of sound walls near gateways into Union City.	As discussed in Section 3.1, Aesthetics, and 3.9 Noise and Vibration, soundwalls are required to reduce noise impacts. The soundwall design has not yet been determined, but future design would involve coordination between ACTA and Union City, with input from affected residents. A significant impact was identified in Section 3.1, Aesthetics as a result of the potential change in visual quality occurring in the undeveloped corridor between Paseo Padre Parkway and Alvarado-Niles Road, including as perceived from Union City residences and parks. Mitigation has been identified in the form of providing a vegetated buffer (Measure AES-2) and incorporating aesthetically sensitive design into the proposed sound walls (Measure AES-3), which would reduce Impact AES-5 to a less-than-significant level, and prevent any significant conflict with this policy.
Goal CD-E.3	To enhance creeks as visual and trail resources and make connections between community parks, schools, residential, and commercial destinations.	The proposed project would be located along the Alameda Creek Flood Control Channel and Old Alameda Creek in the vicinity of Union City. Union City does not have any specific trail facilities along these water bodies. The project proposes to maintain the alignment of the Alameda Creek Regional Trail along the Alameda Creek Flood Control Channel, including underpasses on both banks, and an at-grade crossing on the southern bank. The project also entails biological mitigation within Old Alameda Creek, which would enhance and restore the natural setting along that creek. Therefore, the proposed project would not conflict with this goal and its associated policies.
Policy CD-E.3.1	Where feasible, the City should restore the natural edges along the city's creek system by planting natural vegetation.	
Policy CD-E.3.3	The City shall in collaboration with Alameda County Flood Control prepare a creek system master plan that identifies potential improvements to the creek system.	
TRANSPORTATION ELEMENT		
Goal TR-A.1	To establish a safe, convenient, and efficient roadway system that minimizes peak hour traffic congestion.	In conformance with this goal, one of the proposed project's primary objectives is to reduce existing and future traffic congestion, including within Union City. As discussed above, the proposed project represents a revised version of the SR 84 road referenced in these policies. By constructing the new roadway, re-aligning the 7th Street intersection, and extending 11th Street, the
Policy TR-A.1.6	The City shall establish truck routes that will minimize noise impacts and safety hazards on the community. … The City shall discourage the use of Alvarado-Niles Road as a truck route.	

Goal/Policy No.	Text	Project Consistency Discussion
Policy TR-A.1.9	The City shall support the timely construction of the SR 84 extension as a partially depressed and at-grade parkway through the Station District to Mission Boulevard in order to resolve current circulation deficiencies, improve the area's regional access and visibility, and stimulate the market for region-serving retail, light industrial/service commercial, and office uses.	proposed project would addressing these policies and Union City planning assumptions that the SR 84 road be implemented. Access points to the new road way have been proposed and located as dictated by proper traffic planning methods, and have been coordinated with Union City Public Works Department representatives. Traffic signals proposed as part of the project would be equipped with audible signal devices, traffic signal timing and coordination, and signal emergency vehicle preemption. Because Union City would take ownership of the portion of the roadway within its borders upon the road's completion, Union City would maintain the right to restrict truck access as they deem necessary. Therefore, the proposed project would not conflict with these goals and their associated policies.
Policy TR-A.1.10	The City shall ensure that the design of SR 84, 7th Street, and 11th Street is completed in such a manner that the industrial uses in the Station District can gain direct access to the facility with minimum disturbance to other uses in the area.	
Policy TR-A.1.13	The City shall control the number of direct access points to SR 84, Mission Boulevard, Decoto Road, Union City Boulevard, Alvarado Boulevard, Dyer Street, Whipple Road, and Alvarado-Niles Road to maintain traffic flow and minimize potential for accidents.	
Policy TR-A.1.15	All new traffic signals should be equipped with audible signal devices, traffic signal timing and coordination, and signal emergency vehicle preemption. The City shall investigate new technologies which will improve movement of pedestrians, bicyclists, public transit, and emergency vehicles.	
Goal TR-A.2	To keep the transportation system in balance with the land uses in Union City	
Policy TR-A.2.1	The City shall work with the City of Fremont, Caltrans, and the Alameda County Transportation Agency (ACTA) to complete the SR 84 extension between I-880 and Mission Boulevard.	
Goal TR-A.3	To protect neighborhood integrity and livability and improve safety by minimizing through traffic in residential neighborhoods.	Access points to the new road have been proposed at existing locations (i.e., Quarry Lakes Drive, Alvarado-Niles Road) and located to minimize through traffic in residential neighborhoods. However, there are two options under consideration for the Quarry Lakes Drive realignment. Option 2 would create a four-way intersection with the new roadway that would extend Quarry Lakes Drive to Osprey Drive at a location where there is currently a residential cul-de-sac. This ~~would have an adverse impact on the neighborhood integrity and safety, it~~ could result in more cut-through traffic on Osprey ~~Avenue~~ <u>Drive</u> through this Union City residential neighborhood

Goal/Policy No.	Text	Project Consistency Discussion
		north of the new roadway. The opportunity for cut-through traffic currently exists, and the amount of additional traffic due to the proposed project would not be great enough to compromise neighborhood integrity and livability significantly, and a significant traffic impact is not identified in Section 3.12 of this Draft EIR. Therefore, the proposed project could conflict with this goal if Option 2 were selected, but not to the extent that a significant land use impact would be identified. Option 1 would not result in cut-through traffic and would not conflict with this goal.
Goal TR-B.1	To provide an efficient, convenient public transportation system for residents and workers in Union City.	The proposed project would generally not hinder public transportation within Union City. The project proposes improvements to Alvarado-Niles Road, 7th Street, and Mission Boulevard, all of which accommodate fixed bus routes of Union City Transit. ACTA would coordinate with Union City Transit to limit the proposed project's impacts on bus routes during construction, and to replace any stops that may be temporarily removed during construction. Because the Union City Transit vehicles are parked at the depot located on 7th Street just north of the new roadway alignment, it is anticipated that the Union City Transit vehicles will use the new roadway for "dead heading" (going to and from the depot) to improve operations and efficiencies. It is not known at this point if Union City Transit would use the new roadway as a revenue-generating route because their planning horizon is 6 months to 2 years. Use of the new roadway would be evaluated closer to the operating year.
Goal TR-C.1	To create an institutional framework that supports bicycle and pedestrian travel through policy development, city staff and committee actions, and capital project implementation.	See the response to Implementation YFSH-E.4 above regarding bicycle and trail features of the project and their consistency with general plan goals and policies. The proposed project would not conflict with these goals and their associated policies.
Policy TR-C.1.1	The City shall consider the needs of bicyclists and pedestrians in all future road construction or widening projects and development projects.	
Goal TR-C.2	To develop a comprehensive signed bicycle route network composed of Class I (paved off-street paths and multi-use trails), Class II (bicycle lanes), and Class III (shared-use roadways) facilities connecting all of Union City's neighborhoods and adjacent communities.	

Goal/Policy No.	Text	Project Consistency Discussion
Policy TR-C.2.1	The City shall develop a planned bicycle route network that conveniently and efficiently links residential neighborhoods, parks and open space areas, transit centers, schools, shopping areas, public facilities, major employment centers, and the regional bicycle network.	
Policy TR-C.2.9	The City shall encourage the development of easily accessible and safe bike paths along the SR 84 extension.	
Goal TR-C.3	To develop Union City's local trail system and integrate local trails with regional trail systems whenever possible.	
Policy TR-C.3.1	The City shall continue to improve its local trail system and ensure that all local trails meet the design requirements set forth in the bicycle and/or pedestrian design guidelines.	
Policy TR-C.3.2	The City shall support regional efforts to implement trails (such as the Bay Trail and Bay Area Ridge Trail), and shall identify opportunities to connect local trails with regional trails.	
Policy TR-C.3.3	The City shall seek opportunities to connect existing and planned trails to the bicycle route network.	
Goal TR-C.4	To create a continuous pedestrian network that meets ADA standards and allows pedestrians to safely and conveniently access parks and open space areas, transit centers, schools, shopping areas, public facilities, major employment centers, and other significant destinations.	The project proposes ample pedestrian facilities within the roadway, including sidewalks along the new roadway and separate trail on the north side of the roadway, separated from the road by grade and fencing. There would be pedestrian improvements on all intersecting streets to ensure a safe and integrated system is provided. Pedestrian improvements would meet ADA standards, in accordance with federal law. The proposed project's pedestrian and bicycle facilities would be continuous with those in the Fremont portion of the project roadway. Therefore, the proposed project would not conflict with this goal and its associated policies.
Policy TR-C.4.5	The City shall prioritize safety in the design of sidewalk improvements along major arterials, including separating sidewalks from motor vehicle travel lanes where possible.	
Implementation TR-C.3	The City shall work with the Cities of Fremont and Hayward to ensure bicycle and pedestrian facilities are continuous between neighboring jurisdictions.	
PUBLIC FACILITIES ELEMENT		
Goal PF-E.1	To collect and dispose of stormwater in a manner that minimizes inconvenience to the public, minimizes potential water-related damage, and enhances the environment.	As discussed in Section 3.7 Hydrology and Water Quality, the proposed project entails major revision to the stormwater system in the Union City portion by removing the 2C Basin and New

Goal/Policy No.	Text	Project Consistency Discussion
Policy PF-E.1.4	The City shall improve the quality of runoff from urban and suburban development through use of appropriate and feasible mitigation measures including, but not limited to, artificial wetlands, grassy swales, infiltration/sedimentation basins, riparian setbacks, oil/grit separators, and other best management practices.	Basin, installing a diversion pipeline for the Line M Channel, and creating a comprehensive wetlands mitigation site along Old Alameda Creek. Plans for this mitigation site have not yet been finalized, but are being prepared by qualified professionals with multi-jurisdictional input to minimize the impacts on the flow and content of local stormwater, and to enhance the drainage system when compared to its current state. The project's design goal is to maintain pre-construction storm water discharge flows by metering or detaining these flows to pre-construction rates prior to discharge to a receiving water body, and operation of the proposed project would not generate an increase in runoff flows such that it would result in significant flooding or soil erosion impacts. Section 3.7, Hydrology and Water Quality, does identify a significant impact resulting from the increased potential for polluted runoff (Impact HWQ-3), with mitigation proposed in the form of incorporating site-specific water quality treatment devices into site drainage plans to meet water quality standards. Implementing this measure would reduce the polluted runoff impact to a less-than-significant level. Therefore, the proposed project would not conflict with this goal and its associated policies.
Policy PF-E.1.8	The City shall allow stormwater detention facilities to mitigate drainage impacts and reduce storm drainage system costs. To the extent practical, stormwater detention facilities should be designed for multiple purposes, including environmental, recreational and/or stormwater quality improvement.	
NATURAL AND HISTORICAL RESOURCES ELEMENT		
Goal NHR-A.1	To protect, restore, and enhance important biological habitats and their associated plant, wildlife, and fish species throughout Union City and to educate people as to this need.	As discussed in Section 3.3, Biological Resources, the proposed project entails impacts on habitat communities along Old Alameda Creek. Mitigation has been identified in the form of habitat creation along the creek, which would enhance the value of the habitat, and limit impacts on plant and wildlife species. Therefore, the proposed project would not conflict with this goal and its associated policies.
Policy NHR-A.1.3	On sites that have the potential to contain critical or sensitive habitats, or special-species, or are within 100 feet of such areas, the City shall require the project applicant to survey the site by a qualified biologist at the proper time of year. A report of the findings of this survey shall be submitted to the city as part of the application process. Appropriate mitigation measures will be incorporated into the project as necessary to protect the resources.	
Policy NHR-A.1.4	On sites with the potential to contain wetland resources, the City shall require that a wetland delineation be prepared using the protocol defined by the U.S. Army Corps of Engineers.	

Goal/Policy No.	Text	Project Consistency Discussion
Policy NHR-A.1.13	The City shall continue to require a burrowing owl study on all development projects that incorporate vacant, unpaved parcels, or parcels adjacent to possible owl habitat.	As discussed in Section 3.3, Biological Resources, biological habitat and wildlife surveys conducted for project review included a reconnaissance-level survey for burrowing owls and their habitat. No owls were observed along the project alignment during the nesting or wintering period, and Section 3.3, Biological Resources, concluded that the project impacts on nesting, wintering, or foraging western burrowing owls would be less than significant. Because a survey was conducted and impacts were determined to be less than significant, the proposed project would not conflict with this policy.
Goal NHR-B.1	To protect and enhance the natural qualities of Union City's groundwater, surface water, and streams, and to ensure sufficient water supplies of good quality for all beneficial uses.	See the response to Goal PF-E.1 above. Section 3.7 identifies a significant impact resulting from the increased potential for polluted runoff (Impact HWQ-3), and mitigation is proposed that would reduce the impact to a less-than-significant level. Project construction and work plans within the Alameda Creek Flood Control Channel and Old Alameda Creek would be coordinated with the ACFCWCD and follow that agency's protocol. Therefore, the proposed project would not conflict with this goal and its associated policies.
Policy NHR-B.1.1	The City shall work with Alameda County Flood Control in an effort to ensure protection of the natural conditions along stream and creek corridors. a. In areas already disturbed, efforts should be made to restore the natural character to the extent possible. b. The development of trails along the corridors should be encouraged, and streamside rest areas should be provided that include indigenous streamside vegetation. c. New projects for flood and erosion control should be designed to preserve the natural creekside condition where possible. Alteration of streambeds and adjacent vegetation is to be permitted only as a means of erosion or flood control as permitted by the City and in such a manner as to enhance the area within the city.	
Policy NHR-B.1.2	The City shall require that an erosion control plan be prepared and approved prior to the issuance of a grading permit. This plan shall be prepared in keeping with standards for non-point source pollutants applied by the Regional Water Quality Control Board.	
Policy NHR-B.1.3	The City shall take or encourage actions to protect the Niles Cone water-bearing aquifers. Particular attention shall be paid to the use of recharge wells, salt water barriers, and importation of water necessary to maintain the water levels at surface elevations adequate to prevent salt water intrusion. Efforts should ensure maximum opportunity for surface runoff	

Goal/Policy No.	Text	Project Consistency Discussion
	to recharge groundwater basins, including the use of checkdams, ponding, or retention basins, where compatible with policies for stream and creek protection.	
Policy NHR-B.1.4	The City shall evaluate public and private development projects, including golf courses, to determine the effects of the projects on on-site and downstream drainage patterns and associated ecological systems.	
Policy NHR-B.1.5	Within its authority, the City shall ensure that flood control facilities built in natural areas be designed to use "soft" channel structures (i.e., avoid lined channels and culverts) that maintain to the greatest extent possible natural vegetation and infiltration.	
Goal NHR-C.1	To protect, to the extent possible, the City's significant archeological and historical resources.	As discussed in Section 3.4, Cultural Resources, the project alignment ~~does~~ and wetlands mitigation site do not contain any known archaeological resources. The proposed project would incorporate mitigation measures to ensure that any previously undiscovered resources that are unearthed during project construction would be adequately managed. The project alignment includes the Peterson farmhouse, which has been identified as a potentially significant historical resource, although it is not included on the City's inventory. The proposed project would not have any significant impacts on the Peterson farmhouse. The project alignment does not contain the city's Landmark and Historic Overlay Zone, and does not contain any other historical resources. Therefore, the proposed project would not conflict with this goal and its associated policies.
Policy NHR-C.1.5	The City shall support public and private efforts to preserve, rehabilitate, and continue the use of historic structures and sites.	
Policy NHR-C.1.6	The City shall support efforts to protect and recover archeological resources.	
Policy NHR-C.1	The City shall maintain and publish a historical resource inventory.	
Policy NHR-C.4	The City shall apply the Landmark and Historic Overlay Zone to noteworthy resources.	
Goal NHR-D.1	To provide for a continuous system of open spaces for the preservation, enhancement and protection of open space land.	The project alignment includes land with the Union City General Plan designation of OS that has been identified for future park development, and that also assumes the construction of the project alignment. Constructing the project alignment would not prevent the City from implementing this potential park project. Therefore, the proposed project is consistent with this goal and its related policy.
Policy NHR-D.1.16	The City shall protect open space from intrusion by public projects. Planned open space is to be protected from intrusion by massive public works projects such as freeways and utility systems wherever possible. When protection is not possible, such projects shall be designed to permit compatible recreational development.	

Table 3.8-4 shows ~~one inconsistency~~ two inconsistencies with the Union City General Plan (Policy YFSH-E.1.3 and Goal TR-A.3). ~~, which~~ The first results from the proposed project's encroachment into two public parks in Union City,

conflicting with the City's policy of increasing park area. Because impacts on both of these parks would occur on the fringes of the parks and would not substantially affect activities or facilities available for recreation at the two locations, and because ACTA would coordinate with the Union City Department of Public Works and Planning Department to identify appropriate compensation for any parkland that is taken by the project alignment, this is not a significant conflict with this policy, and this inconsistency does not represent a significant land use impact. The inconsistency with Goal TR-A.3 results from the potential for Option 2 to generate cut-through traffic on Osprey Drive; however, the amount of increased traffic is not anticipated to significantly compromise neighborhood integrity and livability. Therefore, this is not a significant inconsistency with this general plan goal. Option 1 would not conflict with this goal.

In addition to the specific goals and policies in Table 3.8-4, the Union City General Plan includes several references supporting the proposed project, including reference to the proposed project as an important component of developing the Caltrans property and to the development potential of the Station District, which the proposed alignment would access via the 11th Street extension. Last, the City has informed residential developers and new residents along the right-of-way reserved for a new roadway (i.e., the historic alignment) that the roadway could be constructed sometime in the future, and this has been included in deed restrictions.

The wetlands mitigation site would be constructed on land that is partially designated as OS and partially designated as PI. This aspect of the proposed project would be consistent with the OS designation, but not with the PI designation; however, the area designated as PI is part of the Caltrans property, which, as stated above, is identified in the Union City General Plan as an area with potential for development of park and residential uses. The wetlands mitigation site would be consistent with the intended park uses for this site. Therefore, constructing the wetlands mitigation site in this area would not be inconsistent with the Union City General Plan.

In summary, this impact is considered less than significant. No mitigation is required.

Impact LUP-7: Consistency with the Union City Pedestrian and Bicycle Master Plan (Beneficial)

The proposed project would be consistent with the Pedestrian and Bicycle Master Plan because it would implement the Pedestrian Improvement Corridor," as shown along the project alignment in Figure 5-2 of the plan, and would construct Class I and II bike paths within the project alignment, integrating the project alignment into the city's bike network shown in Figure 5-3 of the plan. Therefore, this impact is considered beneficial. No mitigation is required.

Impact LUP-8: Consistency with the East Bay Regional Park District Master Plan (Less than Significant)

The proposed project would temporarily disrupt the Alameda Creek Trail during construction of the bridge over Alameda Creek Flood Control Channel. However, the proposed project is consistent with the EBRPD Master Plan because it would not have a permanent effect on the Alameda Creek Trail, a completed regional trail that runs along both banks of the Alameda Creek Flood Control Channel in the project alignment. The project proposes a new bridge over the trail, but would maintain adequate access along the trail by providing underpasses on both banks of the channel and an at-grade crossing on the southern bank. The proposed project is also consistent with the EBRPD Master Plan because it would implement part of the connection between Quarry Lakes Regional Recreation Area and Ardenwood Historic Farm, listed as a potential project in the Master Plan. The project proposes bike and trail facilities through the undeveloped corridor, which would link up with the trail maintained along the realigned Quarry Lakes Drive, which provides direct access to the Quarry Lakes Regional Recreation Area.

This impact is considered less than significant. No mitigation is required.

Section 3.9

Noise and Vibration

Section 3.9
Noise and Vibration

3.9.1 Introduction

This section describes the affected environment and regulatory setting for noise and vibration. It also describes the impacts on noise and vibration that would result from implementation of the proposed project, and mitigation measures that would reduce these impacts. Discussion of noise impacts presented in this section includes a summary of the Noise Technical Report for the East-West Connector Project (hereafter referred to as the Noise Report) (ICF Jones & Stokes 2008), which examines the increases in vehicular noise that would result from project implementation and identifies measures necessary to reduce noise levels. The Noise Report is provided as Appendix N. Discussion of vibration impacts summarizes the results of the Vibration Technical Report for the East-West Connector Project (hereafter referred to as the Vibration Report) (Wilson, Ihrig & Associates 2008). The Vibration Report is provided as Appendix O.

Noise Definitions

Noise is generally defined as unwanted sound. The response of individuals to similar noise events is diverse and influenced by the type of noise, the context of the noise in a particular setting, the time of day and type of activity during which the noise occurs, and the sensitivity of the individual. Although exposure to high noise levels causes discomfort, pain, and hearing loss, the principal human response to environmental noise at lower levels is annoyance.

Sound is emitted and perceived in waves, and a sound's loudness can be measured by measuring the waves' intensity, using decibels (dBs). The method commonly used to quantify environmental sounds consists of evaluating all the frequencies of a sound according to a weighting system that reflects human hearing, which is less sensitive at low frequencies and extremely high frequencies than at the mid-range frequencies. This is called A-weighting, indicated by the A-weighted decibel (dBA). A sound level of 0 dBA is approximately the threshold of human hearing and is barely audible under extremely quiet listening conditions. Normal speech has a sound level of approximately 60 dBA, and sound levels approaching 120 dBA begin to be felt inside the human ear as discomfort.

In general, human sound perception in a community environment is such that a change in sound level of 3 dB is just barely noticeable, a change of 5 dB is more clearly noticeable, and a change of 10 dB is highly noticeable, perceived as doubling or halving the sound level. Because of the logarithmic scale of the decibel unit, sound levels cannot be added or subtracted arithmetically. A simple rule of thumb is useful in dealing with sound levels. If a sound's physical intensity is doubled, the sound level increases by 3 dB, regardless of the initial sound level. For example, 60 dB plus 60 dB equals 63 dB. A perception of sound doubling in level requires about a 10-decibel increase.

Equivalent sound level (L_{eq}) is used to describe a sound's average level when measured over a particular period of time. Although the A-weighted sound level may adequately indicate the level of environmental noise at any instant in time, community noise levels vary continuously, and this descriptor is useful in estimating the general effect of environmental noise.

Maximum and minimum sound level measured over a period of time (L_{max} and L_{min}) describe the range of noise levels (loudest and quietest, respectively) measured over a period of time.

Day-Night Average Sound Level (L_{dn}) is a noise descriptor commonly used to help determine noise and land use compatibility. The L_{dn} noise metric represents a 24-hour period and applies a time-weighted factor designed to penalize noise events that occur during nighttime hours, allowing a prediction of community reaction to adverse noise conditions when people are most sensitive. Noise occurring during the daytime hours between 7:00 a.m. and 10:00 p.m. receives no penalty. Noise occurring between 10:00 p.m. and 7:00 a.m. is penalized by adding 10 dB to the measured level.

In California, the use of the **Community Noise Equivalent Level (CNEL)** descriptor is also common. CNEL is similar to L_{dn}, but adds an additional 5-dB penalty for noise occurring during evening hours between 7:00 p.m. and 10:00 p.m.

Vibration Definitions

Vibration is energy transmitted in waves through the ground that, at various levels, can cause a range of response ranging from human annoyance to structural damage. When quantified, it is typically described by its peak amplitude or peak particle velocity (PPV), and by its root-mean-square (RMS) amplitude, both measured in inches per second (in/sec). PPV is the maximum instantaneous positive or negative peak of the vibration signal, and PPV is used to assess the potential for damage to buildings and structures. The RMS value is an average value over a given time interval, and is usually used for assessing human response. Because PPV measures the energy's peak, its value is always higher than RMS.[1]

[1] Noise caused by vibration propagated through soil and building structures is called groundborne noise. Groundborne noise is generally not a concern in the presence of airborne noise. Airborne noise usually dominates

Vibration waves generally dissipate with distance from the vibration source, making vibration less perceptible with increased distance. Vibration attenuates at a rate of approximately 50% for each doubling of distance from the source. Responses of human receptors and structures are influenced by a combination of factors, including soil or rock type, distance, duration, and the number of perceived events. Energy transmitted through the ground as vibration can reach levels that can cause structural damage; however, humans are very sensitive, and the vibration amplitudes that can be perceived by humans are well below the vibration amplitude that could potentially cause architectural or structural damage.

Figure 3-1 of the Vibration Report (Appendix O) shows a diagram of typical vibration levels emitted by various sources, and typical responses to these various levels. The threshold of human perception for continuous vibration is approximately 0.006 in/sec PPV. People are less aware of short-duration events than events of longer duration; transient vibration (with a duration of 30 seconds or less) is barely perceptible at 0.03 in/sec PPV, whereas short duration vibrations of 0.13 in/sec PPV are distinctly perceptible.

3.9.2 Setting

Sources of Information

As noted above, this section primarily relies on information presented in the Noise Report (ICF Jones & Stokes 2008) and the Vibration Report (Wilson, Ihrig & Associates 2008). Additional information was obtained from aerial images of the project area and its surrounding vicinity available on Google Maps (maps.google.com).

Existing Conditions

Existing conditions were determined by conducting separate noise and vibration monitoring surveys, which established baseline conditions and identified noise-and vibration-sensitive receptors in the vicinity of the project alignment. The noise survey involved five long-term (LT) measurements (24+ hours) and 26 short-term (ST) measurements (10 to 20 minutes) at representative locations along the project alignment, as shown in Figures 3.9-1a through 3.9-1d. Noise at other locations was estimated using computer modeling, (indicated on Figures 3.9-1a through 3.91d by “M”), as determined by the existing volume of roadway

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the groundborne noise at locations where the cause is surface activity. Groundborne noise is typically of concern for highly sensitive buildings and uses (e.g., recording studio) or for projects which involve construction deep underground where there is little or no project airborne noise component and when airborne noise levels are less (i.e., less traffic noise). For this project, it is assumed that any source that is causing vibration (and therefore groundborne noise) would also be causing airborne noise, and therefore groundborne noise would be of minimal consequence. Therefore, groundborne noise is not specifically addressed in this EIR.

traffic. The vibration monitoring survey encompassed 10 measurements at seven points (indicated on Figures 3.9-1a through 3.9-1d as "V").

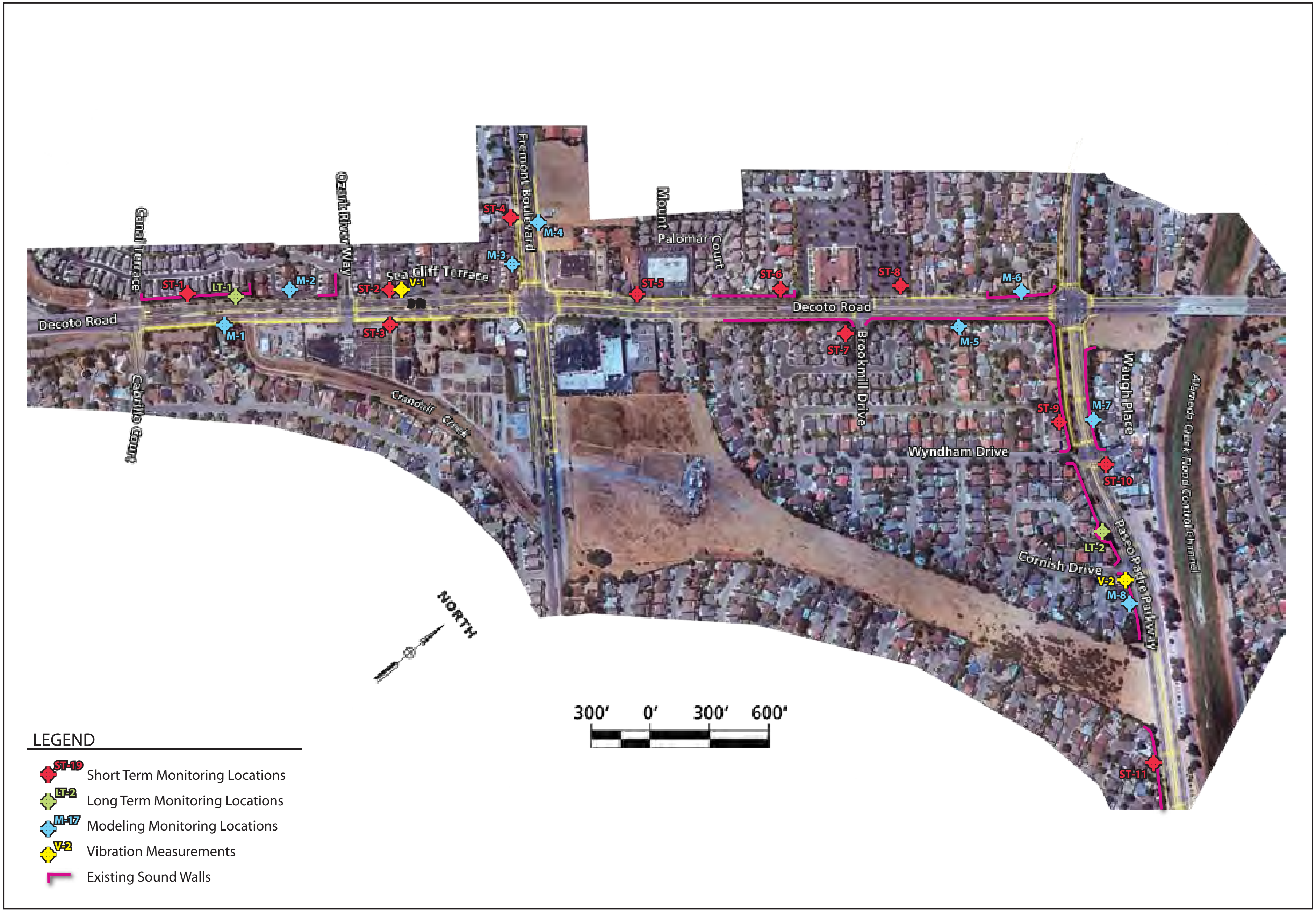
Noise Sources and Noise Levels

Because of the urban, developed nature of the project area and the overlap of the project alignment along existing roads, automobile and truck traffic is the predominant source of noise received by the project area. Noise in areas near the railroad tracks is dominated by train activity, including frequent BART train pass-bys (about one train every 4 minutes during daytime hours) and less-frequent—but noisier—freight and passenger trains on the UPRR lines. Land uses around the project area consist primarily of residential development, with some vacant areas and a park within the undeveloped corridor. Some commercial development surrounds parts of Decoto Road, and a church is also located along this part of the project alignment. The eastern segment of the project alignment includes a mixture of residential and industrial development, and also features three sets of railroad tracks that cross the project alignment and a public park near the alignment's eastern terminus. Sensitive receptors in the project area include residences and park users.

The LT and ST measurements provide a representative range of noise conditions in the project area, and are summarized in Table 3.9-1. Because soundwalls are located between many of the residences and the existing roadway, information on any acoustical shielding that may have affected the measurements is provided in the table.

Table 3.9-1. Existing Noise Levels at Measurement Locations

ID	Receiver Location	Existing Acoustical Shielding	Primary Noise Source	Existing dBA L_{dn}/L_{eq}[1]
LT-1	90 feet from center of Decoto Road	None	Traffic on Decoto Road	72
LT-2	90 feet from center of Paseo Padre Parkway	None	Traffic on Paseo Padre Pkwy	68
LT-3	Undeveloped area near Clover Drive	None	Distant construction, train horns, and airplanes; birds and rustling foliage	55
LT-4	40 feet from BART tracks	8-foot wall	BART and freight trains	60
LT-5	110 feet from UPRR tracks	8-foot wall	Freight trains, distant traffic and aircraft	66
ST-1	Backyard of 4318 Calypso Terrace	7-foot wall	Traffic on Decoto Road	60
ST-2	Setback of 4194 Decoto Road	None	Traffic on Decoto Road	69
ST-3	Setback of 34930 Seal Rock Terrace	3-foot wall	Traffic on Decoto Road	63
ST-4	Setback of 34821 Fremont Blvd	None	Traffic on Fremont Blvd	61
ST-5	Setback of 3853 Decoto Road	None	Traffic on Decoto Road	70



00703.07 EIR (10-08)

ICF Jones & Stokes
an ICF International Company

Figure 3.9-1a
Noise Measurement Locations
ACTA East-West Connector Project

00703.07 EIR (10-08)

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Figure 3.9-1b
Noise Measurement Locations
ACTA East-West Connector Project

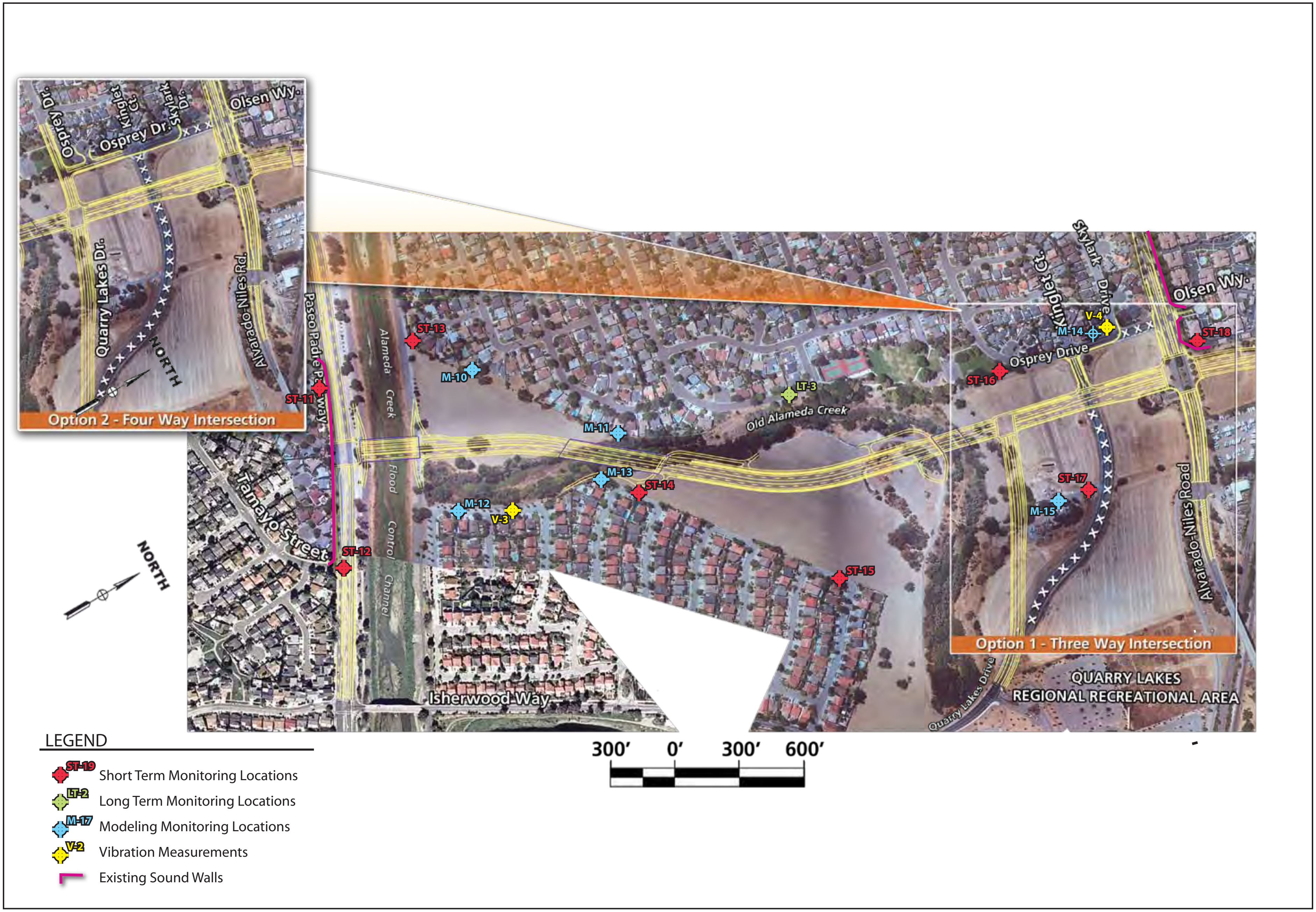

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Figure 3.9-1c
Noise Measurement Locations
ACTA East-West Connector Project

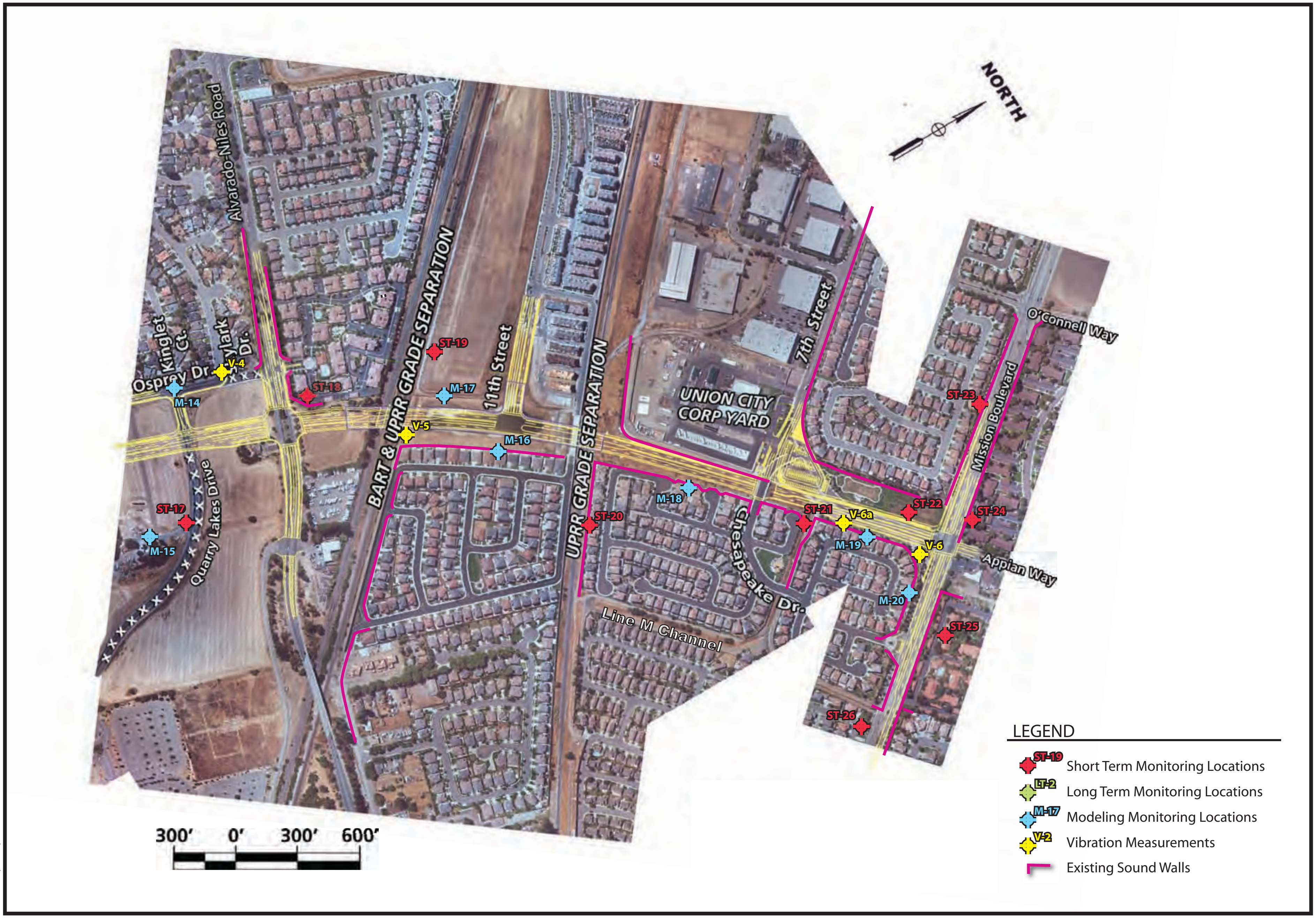

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Figure 3.9-1d
Noise Measurement Locations
ACTA East-West Connector Project

ID	Receiver Location	Existing Acoustical Shielding	Primary Noise Source	Existing dBA L_{dn}/L_{eq}[1]
ST-6	Backyard of 34996 Silverlock Court	10-foot wall	Traffic on Decoto Road	57
ST-7	Backyard of 35120 Ramblewood Ct	8-foot wall	Traffic on Decoto Road	58
ST-8	Setback of 3425 Decoto Road	None	Traffic on Decoto Road	64
ST-9	Backyard of 3255 Cade Drive	5-foot wall	Traffic on Paseo Padre Parkway	57
ST-10	Setback of 3198 Waugh Place	None	Traffic on Paseo Padre Parkway	63
ST-11	Backyard of 35540 Dee Place	5-foot wall	Traffic on Paseo Padre Parkway	53
ST-12	Paseo Padre Parkway	None	Traffic on Paseo Padre Parkway	70
ST-13	Backyard of 2723 Oaktree Court	None	Traffic on Paseo Padre Parkway	48
ST-14	Side of 35583 Chaplin Drive	None	Aircraft, birds, residential noises	50
ST-15	Side of 35607 Barnard Drive	None	Distant traffic, aircraft, roosters, residential noises	53
ST-16 (park)	Arroyo Park	None	Distant/local traffic, aircraft, train horns, residential noises	50
ST-17	Quarry Lakes Drive	None	Distant traffic, aircraft, roosters, residential noises	59
ST-18	Setback of 35509 Monterra Circle	7-foot wall	Traffic on Alvarado-Niles Road	54
ST-19	Setback of 1071 Tourmaline Terrace	12-foot berm	Distant traffic, BART	44
ST-20	Backyard of 34770 Klondike Drive	7-foot wall	Aircraft, BART	60
ST-21	End of Chesapeake Court	8-foot wall	Distant traffic, aircraft, construction, birds	48
ST-22 (park)	Dog Park off 7th Street	None	Traffic on Mission Boulevard and 7th Street	58
ST-23 (park)	Park off Wildflower Lane	10-foot wall	Traffic on Mission Boulevard, aircraft, residential noises	57
ST-24	Apartments off Mission Boulevard	7-foot wall	Traffic on Mission Boulevard, aircraft, residential noises	63
ST-25	34864 Mission Boulevard, Bldg M	6-foot wall	Traffic on Mission Boulevard	58
ST-26	Setback of 149 Black Mountain Circle	None	Traffic on Mission Boulevard	69

[1] LT measurements in L_{dn}; ST measurements in L_{eq}.

Source: ICF Jones & Stokes 2008.

The primary noise source in the project area is roadway traffic. The monitoring locations listed in the table are mostly residences, and are subject to the residential noise thresholds of their respective cities, as fully explained in the Regulatory Setting section, below. The non-residential monitoring locations are parks, which are subject to a different noise threshold. Both Union City and Fremont maintain an exterior residential noise threshold of 60 dBA and a parks threshold of 70 dBA.

Train Schedules and Railroad Noise

A total of 266 BART trains pass through the project area on a typical weekday; with 188 trains during daytime hours (7:00 a.m. to 7:00 p.m.), 28 trains during evening hours (7:00 p.m. to 10:00 p.m.), and 50 trains during nighttime hours (10:00 p.m. to 7:00 a.m.). There are no BART trains scheduled between the hours of 1:15 a.m. and 4:05 a.m. Maximum noise levels generated at measurement location LT-4 during BART train pass-bys typically ranged from 65 to 75 dBA L_{max}. Approximately two train operations occurred per hour on the UPRR Oakland Subdivision tracks (adjacent to BART), including nighttime and early morning hours. Freight trains at LT-4 generated similar maximum noise levels and passed by during all hours, including late night and early morning hours, but generated higher levels at measurement site LT-5 (70 to 80 dBA L_{max}).

Vibration Sources and Vibration Levels

Common background sources of vibration in the project area include truck traffic, trains, and occasional earthquakes. There are no sources of permanent vibration located in the project area, and all vibration is considered transient. Table 3.9-2 shows measured or estimated values recorded during the vibration survey. As the table shows, there are no locations where the measured RMS exceeded the human perceptibility threshold of 0.03 in/sec. However, BART pass-bys (recorded) and UPRR pass-bys (estimated) generated higher levels at measurement site V-5; these levels would be perceptible to residents in the vicinity.

Table 3.9-2. Existing Vibration Levels at Measurement Locations

ID	Receiver Location	Primary Vibration Source	Typical RMS Range (in/sec)	Typical PPV Range[1] (in/sec)
V-1	Curb on Decoto Road	Traffic on Decoto Road	0.0001–0.008	0.0025–0.0225
V-1	Property setback on Decoto Road	Local traffic on side street	0.0003–0.01	<0.03
V-2	Curb on Paseo Padre Parkway	Traffic on Paseo Padre	0.0001–0.005	0.0025–0.007
V-2	Property setback on Paseo Padre	Traffic on Paseo Padre	0.0001–0.003	<0.009
V-3	Runckel Lane	None	<0.0001	<0.003
V-4	Skylark/Osprey	Traffic on Alvarado-Niles	<0.00018	<0.0007
V-5	Gold Street	BART/UPRR[2]	0.00003–0.004	0.0025–0.009 0.063 (estimated freight)[2]
V-6	Curb Mission Boulevard	Traffic on Mission	0.0003–0.015	0.003–0.025
V-6	Property setback on Mission	Traffic on Mission	0.0006–0.007	0.003–0.009
V-6A	7th Street	Traffic on 7th Street	0.00003–0.002	0.0025–0.004

[1] The estimated PPV values are based on the observed relationships between RMS and PPV at other locations.
[2] Data measured for BART only. UPRR trains estimated as none were measured during the survey.
Source: Wilson, Ihrig & Associates 2008.

Regulatory Setting

Federal and State

Because there is no state or federal funding associated with this proposed project, ~~T~~there are no federal or state noise or vibration regulations that apply to the project area. Although a portion of the proposed project would be on the state highway system (Mission Boulevard), analysis of noise impacts under the requirements of 23 CFR 772 and the Caltrans Traffic Noise Analysis Protocol is not required because there is no federal or state funding associated with the proposed project (Andrews pers. comm.).

Local

Union City General Plan, Health and Safety Element

The Health and Safety Element of the Union City General Plan includes noise policies to “protect public health and welfare by minimizing excessive noise” (City of Union City 2002). Noise exposure is considered “normally acceptable” if exterior noise levels do not exceed 60 dBA CNEL at residences or transient lodgings, and 70 dBA CNEL at playgrounds or neighborhood parks. The interior noise standard for residences is specified as 45 dBA CNEL. This element also includes policies that call for inclusion of “noise mitigation measures in the design of new roadway projects in Union City” (Policy HS-C.1.6) and states the City’s desire to “minimize potential transportation noise through the proper design of street circulation, coordination of routing, and other traffic control measures” (Policy HS-C.1.5). Policy HS-C.1.7 states the same construction time limits as those specified in their noise ordinance, below.

Union City Community Noise Ordinance

Section 9.40.053 of the Union City Municipal Code addresses noise from construction. Construction operations that occur between the hours of 8:00 a.m. and 8:00 p.m. on Monday through Friday, 9:00 a.m. and 8:00 p.m. on Saturdays, and 10:00 a.m. and 6:00 p.m. on Sundays and holidays are exempt from the provisions of the Noise Ordinance, if they meet at least one of the following noise limitations.

A. No individual piece of equipment shall produce a noise level exceeding 83 dBA at a distance of 25 feet. If the device is housed within a structure on the property, the measurement shall be made outside the structure at a distance as close to 25 feet from the equipment as possible.

B. The noise level at any point outside the property plane of the project shall not exceed 86 dBA.

Union City does not have any requirements that would limit vibration from construction or the operation of a new roadway.

City of Fremont General Plan, Health and Safety Element

The Health and Safety Element of the City of Fremont General Plan includes noise policies to provide "an acceptable noise level throughout the community". Policy HS 8.1.1 states the maximum acceptable noise level for new residential areas where outdoor use is a major consideration (e.g., backyards in single-family housing developments and recreation areas in multi-family housing projects) is 60 dBA L_{dn}. An L_{dn} of 65 dBA may be permitted at the discretion of the City Council, and an outdoor noise exposure criterion of 70 dBA L_{dn} is established in areas where the noise source is a railroad.[2] The interior noise standard for new housing units is specified as 45 dBA L_{dn}. Policy HS 8.1.6 states that the city will "design city streets to reduce noise levels in adjacent areas," and "continue to require soundwalls, earth berms, setbacks and other noise reduction techniques as conditions of development approval."

Policy HS 8.1.2 requires the evaluation of mitigation measures for projects that would:

- cause the L_{dn} to increase by 3 dBA or more,
- cause the L_{dn} to increase to greater than 60 dBA,
- have an L_{dn} already in excess of 60 dBA, or
- have the potential to generate significant adverse community responses.

City of Fremont Municipal Code

Section 8-2205 of the Fremont Municipal Code establishes limitations in construction hours occurring within the City. For projects located within 500 feet of residences, lodging facilities, nursing homes, or inpatient hospitals, construction is limited to occurring between 7:00 a.m. and 7:00 p.m., Monday through Friday, and between 9:00 a.m. and 6:00 p.m. on Saturdays and holidays. Sunday construction is not allowed.[3] The City has the authority to modify these hours under several circumstances, including "when the project is located in a right-of-way or easement or on publicly-owned property, and such modified hours, on balance, will minimize disruption to the community as a whole, such as to facilitate the orderly flow of traffic or to reduce negative impacts on commercial or residential activity."

For zoning and land use purposes, Fremont maintains a policy on perceivable vibration levels generated within industrial areas and received by adjacent properties, but does not maintain any requirements limiting vibration from construction or operation of a new roadway. There are no Fremont vibration policies that would apply to the proposed project.

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[2] All railroad-related aspects of the proposed project are located within Union City; therefore, this 70-dBA limit does not apply. Union City maintains no railroad-specific noise regulation.

[3] For projects located beyond 500 feet of the facilities named above, weekday construction hours are limited to between 6:00 a.m. and 10 p.m., and Saturday, Sunday, and holiday work hours are limited to between 8:00 a.m. and 8:00 p.m. All project-related construction occurring within the boundaries of the City of Fremont would occur within at least 500 feet of residences. Therefore, the more restrictive limitations of construction hours would apply.

3.9.3 Impact Analysis

This section describes the impact analysis relating to noise for the proposed project. It describes the methods used to determine the impacts of the proposed project and lists the thresholds used to conclude whether an impact would be significant. Measures to mitigate (i.e., avoid, minimize, rectify, reduce, eliminate, or compensate for) significant impacts accompany each impact discussion.

Methodology

Noise and vibration analysis for this proposed project was conducted by predicting noise and vibration levels generated by construction and operation of the proposed project and comparing predicted levels to the applicable significance threshold. Project noise and vibration conditions resulting from vehicle traffic were estimated using modeling software that predicts the levels generated by this source. Noise and vibration modeling considered a traffic mixture, including percentages of automobiles and medium and heavy trucks, that reflect existing conditions. Because significant impacts were identified for vehicular noise, mitigation analysis was conducted using similar modeling techniques that examined the heights and locations of soundwalls that would provide adequate noise reduction for the affected areas. Interior noise level analysis and mitigation was based the exterior levels determined through this modeling. Project vibration conditions from construction activity and railroad pass-bys were also determined by modeling, while noise from these sources was analyzed on a qualitative level. A complete description of the noise and vibration modeling methodologies can be found in Appendices N and O.

Significance Criteria

Quantitative thresholds were established for use in this noise analysis based on the established policies of the Cities of Union City and Fremont and on Appendix G of the CEQA Guidelines (14 CCR 15000 *et seq*.). A significant impact is identified if the proposed project would:

- expose persons to or generate noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies;
- expose persons to or generate excessive groundborne vibration or groundborne noise levels;
- result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;
- result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;

- be located within an airport land use plan area or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport and expose people residing or working in the project area to excessive noise levels; or
- be located in the vicinity of a private airstrip and expose people residing or working in the project area to excessive noise levels.

The first four guidelines are applicable to the proposed project and were considered in the analysis presented in this section. The latter two are not applicable because the project area is not located in the vicinity of any public airport or private airstrip. These guidelines are not addressed in this section. Groundborne noise, referenced in the second guideline above, is also not specifically addressed in this section. The reason for this exclusion is described above, under Vibration Definitions, in the first footnote to this section.

Noise Criteria—Construction

- Where construction is proposed within the borders of Union City, the proposed project would result in a significant impact if construction occurs outside the following hours: Monday through Friday, 8 a.m. to 8 p.m.; Saturday, 9 a.m. to 8 p.m.; Sunday and holidays, 10 a.m. to 6 p.m.
- Where construction is proposed within the borders of Union City and within the hours stated above, the proposed project would result in a significant impact if project construction emits noise exceeding 83 dBA when measured at 25 feet, or exceeding 86 dBA when measured at the nearest property line.
- Where construction is proposed within the borders of Fremont, the proposed project would result in a significant impact if construction occurs on Sundays, or outside the following hours on other days: Monday through Friday, 7 a.m. to 7 p.m.; Saturday and holidays, 9 a.m. to 6 p.m.
- The proposed project would result in a significant impact if increased train noise associated with temporary track locations could interfere with conversations in backyards and inside homes or cause sleep disturbance.

Noise Criteria—Operation

- Where exterior noise levels do not exceed the noise and land use compatibility thresholds (60 L_{dn} for residences and 70 L_{dn} for parks), the proposed project would result in a significant impact if it would cause noise levels to exceed those thresholds.
- Where exterior noise levels exceed the noise and land use compatibility thresholds (60 L_{dn} for residences and 70 L_{dn} for parks), the proposed project would result in a significant impact if it would increase noise levels by 3 dBA or more.

- Where interior residential noise levels do not exceed 45 L_{dn}, the proposed project would result in a significant impact if it would cause interior noise levels to exceed that threshold.
- Where interior residential noise levels exceed 45 L_{dn}, the proposed project would result in a significant impact if it would increase interior noise levels by 3 dBA.

Section 15126 of the CEQA Guidelines provides that the Environmental Setting, which consists of existing physical conditions, will normally be the baseline by which a lead agency determines whether impacts are significant. For this project, however, the Draft EIR uses a future no-project scenario as the baseline for the traffic noise analysis, rather than using existing conditions. The reason for using this alternative baseline is that project conditions can only be reasonably described under a future design year condition. An existing-plus-project condition would never occur because it would be several years before the proposed project is operational. A comparison of the future-with-project condition to existing conditions overstates the impact because it includes the effect of the proposed project plus the effect of background growth. In order to characterize the direct impact of the proposed project, changes in noise are evaluated by comparing project conditions to no-project conditions in the same time frame (i.e., design year conditions). To remove the effect of background growth from the direct impact assessment, project and no-project conditions must be compared in the same time frame. The traffic analysis, upon which this noise analysis relies, considers traffic operations and project impacts during two future years, 2015 and 2035. However, this noise analysis focuses on impacts in the 2035 timeframe only. It is standard practice to evaluate traffic noise impacts under design year conditions (in this case 2035) rather than opening year conditions. This is the approach required by Caltrans and FHWA for state and federal highway projects. Predicted noise levels under opening year conditions would clearly be less than under design year conditions. Accordingly, it is not appropriate to evaluate impacts or mitigation under the opening year condition because both impacts and mitigation would be understated relative to the ultimate design condition. Impacts and mitigation identified for the design year will address any impacts and mitigation that would be identified under the opening year.

Vibration Criteria—Construction and Operation

- The proposed project would result in a significant impact if project construction activity or project-related vehicle traffic would result in vibration levels of 0.3 in/sec PPV or greater, as received by commercial structures.[4]
- The proposed project would result in a significant impact if project construction activity or project-related vehicle traffic would result in vibration levels of 0.2 in/sec PPV or greater, as received by residential structures.

[4] These criteria are based on thresholds for cosmetic building damage published in the Federal Transportation Administration Construction Vibration Guidelines (Federal Transportation Administration 2006).

- The proposed project would result in a significant impact if project-related changes to railroad operations result in nighttime vibration exceeding 0.083 in/sec PPV, as received by residents in the vicinity of the railroad tracks.

Project Impacts and Mitigation Measures

The proposed project would result in significant construction and operational impacts as a result of increases in noise and vibration. Mitigation has been identified that would reduce the impacts to less-than-significant levels. However, it may not be feasible to implement all of the identified mitigation measures for project construction, and some construction-phase impacts would remain significant and unavoidable.

Existing Roadway (Decoto Road and Paseo Padre Parkway)

Impact NOI-1: Exposure of Off-Site Noise-Sensitive Land Uses to Short-Term Construction Noise from Roadway Widening (Significant and Unavoidable)

Widening the existing roadway segments of Decoto Road and Paseo Padre Parkway and implementing proposed improvements at intersections along these roads would require the temporary use of heavy equipment such as graders, hauling trucks, and pavers that could generate high noise levels in the immediate project area. This temporary construction noise would result in a temporary increase in ambient noise levels.

Typical noise levels from equipment that may be used in this portion of project construction are shown in Table 3.9-3.

Table 3.9-3. Typical Construction Noise Levels

Equipment	Typical Noise Level (dBA) 50 feet from Source
Grader	85
Bulldozers	85
Truck	88
Loader	85
Roller	74
Air Compressor	81
Backhoe	80
Pneumatic Tool	85
Paver	89
Concrete Pump	82

Source: Federal Transportation Administration 2006.

Based on the types of construction activities and equipment required for the proposed project, noise levels at 50 feet from the center of construction activities would generally range from 80 to 85 dBA during peak periods. However, because not all of the equipment would be operating at the same time or for the entire day, the hourly average L_{eq} from project construction would be lower. Hourly average noise levels during active construction periods would typically range from 75 to 80 dBA L_{eq} at a distance of 50 feet. Some construction would occur closer than 50 feet to receptors, and noise could exceed those levels. Noise produced by construction equipment typically attenuates over distance at a rate of about 6 dB per doubling of distance; construction noise levels would be highest at receptors closest to the roadway under construction. Many of the residences located along this existing roadway segment currently feature soundwalls that would attenuate this noise, typically by 5 to 10 dBA depending on the location of the source and the wall. Hourly average construction noise levels could reach more than 10 dBA above ambient noise levels at some locations, particularly at locations adjacent to the new roadway segment, where existing ambient noise levels are low. Noise levels would be as high as 55 dBA L_{eq} inside homes (assuming the windows are shut), with maximum interior noise levels of up to 60 dBA at the closest residences. The noise levels could be high enough to interfere with conversation in backyards and possibly inside homes.

The entire roadway widening would occur over the span of approximately 18 months, but the duration would be much more limited at individual locations along the project alignment because construction would move from place to place as progress occurs. Construction would generally occur between the hours of 8:00 a.m. and 6:00 p.m., Monday through Friday. Weekend, holiday, and nighttime work would generally not occur, but may be necessary at busy intersections in order to minimize traffic disruption. This portion of the project alignment is located entirely within Fremont's jurisdiction; pursuant to the Fremont Municipal Code, the City has the authority to approve of this after-hours work where deemed necessary, as it "will minimize disruption to the community as a whole" by limiting traffic disruption. Because of the potential for construction to occur outside the hours specified in the City of Fremont noise ordinance, this impact is considered significant.

Implementation of the following mitigation measures would reduce this impact. However, because it may not be feasible in all cases to reduce noise to a less-than-significant level, this impact is considered significant and unavoidable.

Mitigation Measure NOI-1: Employ Measures to Reduce Construction Noise to Comply with Applicable Construction Noise Standards

ACTA will require the construction contractor to employ measures to reduce construction noise so that it does not violate applicable construction noise standards. Measures that can be implemented to reduce construction noise to acceptable levels include, but are not limited to, the following.

- For construction occurring within the City of Fremont, limit construction to between 7:00 a.m. to 7:00 p.m. Monday through Friday, and to 9:00 a.m. to 6:00 p.m. on Saturdays and holidays, and prohibit construction on Sunday, as stated in the Fremont Municipal Code. If deviation from these limitations is necessary in order to minimize disruption of traffic on existing roads, coordinate with the Fremont City Manager's Office to gain official approval for such work, as allowed in the Fremont Municipal Code.

- For construction occurring within the City of Union City, limit all construction activities, including loading and unloading of materials and on-site truck movements, to between 8:00 a.m. and 8:00 p.m.., Monday through Friday; 9:00 a.m. to 8:00 p.m. Saturday; and 10:00 a.m. to 6:00 p.m. Sunday and holidays, as stated in the Union City Municipal Code.
- Use available noise suppression devices and techniques, including:
  - equipping all internal combustion engine-driven equipment with mufflers, air-inlet silencers, and any other shrouds, shields, or other noise-reducing features that are in good operating condition and appropriate for the equipment;.
  - using "quiet" models of air compressors and other stationary noise sources where such technology exists;
  - using electrically powered equipment instead of pneumatic or internal combustion powered equipment, where feasible;
  - using of noise-producing signals, including horns, whistles, alarms, and bells, for safety warning purposes only;
  - locating stationary noise-generating equipment, construction parking, and maintenance areas as far as reasonable from sensitive receptors when sensitive receptors adjoin or are near the construction project area;
  - prohibiting unnecessary idling of internal combustion engines (i.e., in excess of 5 minutes);
  - placing temporary soundwalls or enclosure around stationary noise-generating equipment when located near noise sensitive areas;
  - ensuring that project-related public address or music systems are not audible at any adjacent receptor; and
  - notifying adjacent residents in advance of construction work.

Mitigation Measure NOI-2: Prepare a Community Awareness Program for Project Construction

In consultation with the representatives of Fremont and Union City, ACTA will prepare and maintain a program to enhance community awareness of project construction issues, including noise, vibration, nighttime noise, nighttime lighting, and park or trail closures. Initial information packets will be prepared and mailed to all residences within a 1,000-foot radius of project construction, with updates prepared as necessary to indicate new scheduling or processes. A project liaison will be identified who will be available to respond to community concerns regarding noise, vibration, and light.

Impact NOI-2: Exposure of Off-Site Vibration-Sensitive Land Uses to Short-Term Construction Vibration from Roadway Widening (Less than Significant with Mitigation)

Equipment and activities for this part of project construction, as described above under Impact NOI-1, would produce temporary vibration along the project alignment. Road work along Decoto Road would require preparation of the subsoil conditions, which would require vibratory compaction by means of a roller. Construction would also entail movement of heavily loaded trucks transporting excavated soils, asphalt, and other material and equipment, which could also produce detectable levels of vibration.

Vibration modeling was performed for structures at locations along Decoto Road and Paseo Padre Parkway to examine the potential levels that could be received by construction-related vibration in this area. Table 3.9-4 shows the results of this modeling. The locations are representative of receptors along the project alignment, considering various distances from the proposed construction, but it should be noted that receipt of construction vibration would not be limited to these specific locations.

Table 3.9-4. Project-Related Construction Vibration, Roadway Widening

Modeled Receptor	Nearest Monitoring Location	Existing PPV Range of Nearest Monitoring Location	Structure's Distance from Construction	Estimated PPV (in/sec)	
				Heavy Trucks	Ground Compaction
Decoto Road near Canal Terrace (WB[1] direction)	V-1	<0.03	125	0.02	0.04
Decoto Road near Ozark River Way (WB direction)	V-1	<0.03	100	0.02	0.05
Decoto Road near Seal Cliff Terrace (WB direction)	V-1	<0.03	100	0.02	0.05
Decoto Road between Cabrillo Court and Ozark River Way (EB direction) (Commercial)	V-1	<0.03	13	0.17	**0.40**
Decoto Road between Ozark River Way and Fremont Blvd (EB direction) (Commercial)	V-1	<0.03	25	0.09	0.21
Decoto Road near Fremont Blvd (EB direction) (Commercial)	V-1	<0.03	20	0.11	0.26

Note: Residential receptors unless otherwise noted

Bold entry indicates where vibration would exceed the 0.3 in/sec PPV threshold for building damage.

[1] WB = westbound; EB = eastbound.

As shown in Table 3.9-4, construction vibration is highest when the structures are closest to the roadway. Construction vibration during this phase may be perceptible to residents and occupants of commercial structures, because vibration is predicted to exceed the 0.03 in/sec PPV at most locations. Ground compaction activity at one modeled commercial location is predicted to result in vibration of approximately 0.40 in/sec PPV. This exceeds the 0.3 PPV significance threshold. Older residences located along parts of Decoto Road that are proposed for widening would also be close to required compaction activity and could be exposed to ground vibration that exceeds the 0.2 PPV residential threshold. Therefore, construction activity required for roadway widening is considered to result in a significant vibration impact. Implementation of the following mitigation measures would reduce this impact to a less-than-significant level.

Mitigation Measure NOI-3: Conduct Structural Conditions Survey for Areas Where Vibratory Compaction is Proposed

Prior to construction, ACTA will survey all structures within 50 feet of proposed vibratory compacting activities to document the structural composition of structures and note the presence and condition of existing cosmetic or structural cracks or defects that may be sensitive to vibratory compaction. Any sensitive conditions will be reported to the contractor conducting the vibration.

Mitigation Measure NOI-4: Limit Extent of Vibratory Compaction Activity and Vibratory Pile Driving

ACTA will restrict all soil compaction using large, truck-mounted compactors and all vibratory sheet pile driving to areas beyond 50 feet of residential structures or wood-framed buildings, and to areas 20 feet or more from commercial buildings. Wherever feasible, soil compaction within these limits will be performed with hand-operated vibratory rollers.

Mitigation Measure NOI-5: Limit Vibration Levels Received at Structures

ACTA will ensure that construction specifications include the following restrictions on vibratory compaction. Vibration at all residential and non-engineered wood frame buildings should be limited to 0.2 in/sec PPV. Vibration at commercial, concrete, and engineered buildings should be limited to 0.3 in/sec PPV. ACTA will require contractors conducting high-vibration activities to monitor their vibration levels and ensure that the stated levels are not exceeded.

Impact NOI-3: Exposure of Noise-Sensitive Land Uses to Increased Traffic Noise from Roadway Widening (Less than Significant)

This portion of the existing roadway is already developed and already accommodates traffic that generates noise received by adjacent residences and businesses. In areas along Decoto Road where roadway widening would require extension into new right-of-way, the project-related widening would place vehicular traffic in closer proximity to residences and businesses, thereby resulting in an increase in noise levels received there. For Paseo Padre Parkway and other areas of Decoto Road where new right-of-way is not required because the expansion would occur within the roads' existing medians, traffic would not be placed closer to receptors. The proposed project is also anticipated to increase traffic along these roads, which would be accompanied by a slight increase in ambient noise. Most residences along Decoto Road and Paseo Padre Parkway are currently shielded from traffic noise by soundwalls, and would also be shielded from project-related traffic noise.

Table 3.9-5 summarizes the traffic noise modeling results. The locations shown are representative of receptors along the project alignment, but it should be noted that receipt of operational noise would not be limited to these specific locations.[5]

Table 3.9-5. Project-Related Increases in Traffic Noise, Roadway Widening

ID	Receiver Location	Existing Peak-Hour dBA	2035 Peak-Hour dBA, Without Project	2035 Peak-Hour dBA, With Project	Project-Related Increase
LT-1	90 feet from Center of Decoto Road	72	74	75	1
LT-2	90 feet from Center of Paseo Padre Parkway	68	70	72	2
ST-1	Backyard of 4318 Calypso Terrace	64	65	66	1
ST-2	Setback of 4194 Decoto Road	73	74	76	2
ST-3	Setback of 34930 Seal Rock Terrace	71	73	74	1
ST-4	Setback of 34821 Fremont Blvd	65	67	68	0
ST-5	Setback of 3853 Decoto Road	74	76	78	2
ST-6	Backyard of 34996 Silverlock Court	61	63	64	1
ST-7	Backyard of 35120 Ramblewood Ct	64	66	67	1
ST-8	Setback of 3425 Decoto Road	70	72	73	1
ST-9	Backyard of 3255 Cade Drive	63	65	67	2
ST-10	Setback of 3198 Waugh Place	67	69	71	1
ST-11	Backyard of 35540 Dee Place	60	62	63	2
ST-12	Paseo Padre Parkway	71	73	73	1
M-1	Front of residence on Decoto Road	73	74	76	2
M-2	Front of residence on Belvedere Terrace	71	73	74	1
M-3	Backyard of residence on Fremont Boulevard	64	65	66	1
M-4	Front of residence on Fremont Boulevard	71	73	73	1

[5] For LT and ST locations, existing noise levels are based on the measurements recorded and stated in Table 3.9-1, but are modeled to estimate peak-hour traffic conditions, thus allowing analysis of worst-case conditions. Therefore, existing noise levels may differ from those listed in Table 3.9-1.

ID	Receiver Location	Existing Peak-Hour dBA	2035 Peak-Hour dBA, Without Project	2035 Peak-Hour dBA, With Project	Project-Related Increase
M-5	Backyard of residence on Decoto Road	66	68	69	1
M-6	Backyard of residence on Decoto Road	66	68	69	1
M-7	Side of residence on Paseo Padre Parkway	63	65	67	2
M-8	Backyard of residence on Paseo Padre Parkway	64	66	67	2
M-9	Backyard of residence on Paseo Padre Parkway	71	73	73	1

As Table 3.9-5 shows, traffic noise at all the receptors currently exceeds and will continue to exceed the 60 L_{dn} land use compatibility standards for residential uses. Accordingly, there are no locations where implementation of the proposed project would to increase from below 60 L_{dn} to greater than 60 L_{dn}. The table also shows that project-related increases in noise levels are in the range of 1 and 2 dBA for this portion of the proposed project. Because the roadway widening portion of the proposed project is not anticipated to increase traffic noise by 3 dBA or more at any of these receptors, this impact is considered less than significant. No mitigation is required.

Impact NOI-4: Exposure of Vibration-Sensitive Land Uses to Increased Traffic Vibration from Roadway Widening (Less than Significant)

In areas along Decoto Road where roadway widening would require extension into new right-of-way, the project-related widening would place vehicular traffic in closer proximity to residences and businesses, thereby leading to some degree of increase in vibration generated by vehicular traffic, as received by adjacent buildings. For Paseo Padre Parkway and other areas of Decoto Road where new right-of-way is not required, traffic would not be placed closer to receptors. The proposed project is also anticipated to result in an increase in traffic along these roads, which would be accompanied by a slight increase in traffic-related vibration received by adjacent residences and businesses.

Table 3.9-6 shows the existing vibration levels estimated at receptors located along the existing roadway segment and the levels that would be generated by project-related traffic, as received at these receptors, in addition to the distance between the receptor and the road under project conditions.

Table 3.9-6. Project-Related Traffic Vibration, Roadway Widening

Modeled Receptor	Nearest Monitoring Location	Existing PPV Range of Nearest Monitoring Location	Structure's Distance from Road	Estimated PPV (in/sec.) Vibration From Local Traffic
Decoto Road near Canal Terrace (WB[1] direction)	V-1	<0.03	125	0.013
Decoto Road near Ozark River Way (WB direction)	V-1	<0.03	100	0.023
Decoto Road near Seal Cliff Terrace (WB direction)	V-1	<0.03	100	0.023
Amour and Silverlake off Decoto Road (near WB direction)	V-1	<0.03	35	0.016
Church along Decoto Road	V-1	<0.03	40	0.014
Decoto Road near Gladstone (WB direction)	V-1	<0.03	25	0.023
Decoto Road between Cabrillo Court and Ozark River Way (EB direction) (Commercial)	V-1	<0.03	13	0.044
Decoto Road between Ozark River Way and Fremont Blvd (EB direction) (Commercial)	V-1	<0.03	25	0.023
Decoto Road near Fremont Blvd (EB direction) (Commercial)	V-1	<0.03	20	0.029
Decoto Road (Brookmill) between Fremont and Paseo Padre (EB Direction)	V-1	<0.03	35	0.016
Cornish and residences off Paseo Padre	V-2	<0.01	35	0.016

Note: Residential receptors unless otherwise noted.

[1] WB = westbound; EB = eastbound.

As Table 3.9-6 shows, the project-related increased traffic along the existing roadway segment would not create conditions that would exceed the established residential or commercial thresholds for building damage. Vibration would be highest at the commercial property on Decoto Road between Cabrillo Terrace and Ozark River Way because of its projected proximity to the widened roadway, and levels may exceed the 0.03 PPV threshold for human perception, but these levels are anticipated to remain far below the commercial threshold for building damage. Levels received at older residences along Decoto Road may be similar to those received by this commercial receptor and may be perceptible, but would remain below the threshold for building damage. Overall implementation of the proposed project is not predicted to result in substantial changes in traffic-induced vibration at adjacent land uses. This impact is considered less than significant. No mitigation is required.

New Roadway (Paseo Padre Parkway to Mission Blvd)

Impact NOI-5: Exposure of Off-Site Noise-Sensitive Land Uses to Short-Term Construction Noise from New Roadway and Wetlands Mitigation Site Construction (Significant and Unavoidable)

As with the existing roadway segment discussed above in Impact NOI-1, constructing the new roadway segment would require the temporary use of heavy equipment such as graders, hauling trucks, and pavers that could generate high noise levels in the immediate project area. Construction of the wetlands mitigation site (Mitigation Measure BIO-7), as well as construction of the infiltration basins (Mitigation Measure HWQ-5), would entail operation of graders and hauling trucks. Construction of the new roadway would also require pile driving, which generates high noise levels. This temporary construction noise would result in a temporary increase in ambient noise levels received at residences and parks.

Estimated noise levels involved with roadway and wetlands mitigation construction are shown above in Table 3.9-3. These would be similar for the new roadway segment, but this portion also includes major features that would generate noise far beyond that generated during the roadway widening phase: the Alameda Creek Flood Control Channel bridge and the railroad grade separation.

Construction of the proposed bridge over the Alameda Creek Flood Control Channel would require pile driving, which would potentially last 2 months. Construction of both bridges over Old Alameda Creek would require pile driving, with pile driving activity anticipated to last 5 weeks for the western location and 2 weeks for the eastern location. Impact pile driving generates a typical noise level of 101 dBA and vibratory pile driving generates a 96-dBA noise level, as perceived at a distance of 50 feet from the source. The closest residential receptors to the pile driving would be approximately 150 feet away; residences on both sides of the channel would receive pile driving noise during daytime construction, as pile driving would be limited to weekday daytime hours, generally occurring between the hours of 8:00 a.m. and 6:00 p.m., Monday through Friday.

Construction of the grade separations would require extensive excavation to prepare the below-grade roadway surface, pile driving to construct the grade separation structures, and nighttime work to construct the grade separations. Excavation and pile driving in these locations would each potentially last several weeks, and noise from these activities would be received by residences located adjacent to the new roadway alignment. A final construction schedule has not yet been prepared, but it is expected that nighttime, weekend, and holiday work—potentially spanning several weeks—would be required to construct the grade separations to avoid disrupting the freight, passenger, and transit providers' schedules. Required nighttime work would be the most extensive while building the BART grade separation, because of the limited time available during BART non-revenue hours. Residences located in the vicinity of the grade separations generally feature noise walls constructed to reduce the noise from train pass-bys. However, noise-generating activities would occur close to these residences, and nighttime noise would be received during nighttime construction.

This phase of project construction straddles the border of Fremont and Union City, with the shooflies and grade separation—the aspect of project construction generating the highest noise levels and proposing a considerable amount of nighttime work—occurring within Union City. Because construction activity could occur outside the hours allowed by the City of Fremont and Union City and because noise could exceed 83 dBA at a distance of 25 feet from the source and 86 dBA (at the property line), this impact is considered to be significant.

Implementing Mitigation Measures NOI-1 and NOI-2 would reduce noise from construction activity. However, because it may not be feasible to reduce below applicable noise standards in all cases and because some construction may be required at night, this impact is considered significant and unavoidable.

Mitigation Measure NOI-1: Employ Measures to Reduce Construction Noise to Comply with Applicable Construction Noise Standards

Mitigation Measure NOI-2: Prepare a Community Awareness Program for Project Construction

Impact NOI-6: Exposure of Off-Site Vibration-Sensitive Land Uses to Short-Term Vibration from New Roadway Construction (Less than Significant with Mitigation)

The roadway construction, pile driving, and excavation described above under Impact NOI-5 would also result in vibration on a temporary basis.

Table 5-1 of the Vibration Report (Appendix O) shows the estimated construction vibration levels at various receptors along this portion of the new roadway resulting from heavy truck activity and ground compaction. Along the new roadway segment, vibration levels are anticipated to be similar to those predicted along the existing roadway segment but slightly lower at receptors because of the greater distance from construction activity. These vibration levels along the new roadway segment for these activities are not predicted to exceed the established residential and commercial thresholds. The realignment of Quarry Lakes Drive would place the realigned road approximately 60 feet southwest of the Peterson Farm barn and approximately 200 feet southwest of the Peterson farmhouse. At these distances, the barn is anticipated to receive vibration levels as high as 0.10 in/sec PPV, and the house is anticipated to receive levels as high as 0.03 in/sec PPV. These both fall below the 0.2 in/sec PPV threshold; therefore, construction impacts at the Peterson Farm structures would be less than significant (Jue pers. comm.).

Table 3.9-7 below summarizes predicted pile driving vibration levels at residences near the Alameda Creek Flood Control Channel bridge and the two grade separations.

Table 3.9-7. Project Pile Driving Levels, New Roadway

	Distance to Construction (feet)		Expected Vibration (PPV, in/s)	
Receiver (all residences)	**Nearest**	**Farthest**	**Nearest**	**Farthest**
Alameda Creek Flood Control Channel Bridge				
Dee Court	250	500	0.2	0.10
UPRR (Oakland Subdivision) and BART Grade Separation				
Monterra Terrace	240	395	0.16	0.10
Monterra Terrace closest to BART	115	235	**0.33**	0.16
Platinum Street and Gold Street	120	245	**0.32**	0.15
UPRR (Niles Subdivision) Grade Separation				
Platinum Street and Green Street	780	910	0.05	0.04
Sanburg Drive and Klondike Drive	65	185	**0.58**	**0.21**
Chesapeake Drive and Project Roadway	985	1005	0.04	0.04
Cascades Circle near Arroyo Drive	1340	1350	0.03	0.03

Bold entries indicate potential exceedance over the 0.2 in/sec PPV criterion.

The results in Table 3.9-7 indicate that pile driving for the grade separation is anticipated to result in vibration levels that exceed the 0.2 PPV thresholds for structural damage at residences. Pile driving for the Alameda Creek Flood Control Channel bridge is not anticipated to cause vibration in excess of the residential threshold. Because of the potential for the residential threshold to be exceeded at the grade separation, this impact is considered significant. Implementation of the following mitigation measures would reduce this impact to a less-than-significant level.

Mitigation Measure NOI-2: Prepare a Community Awareness Program for Project Construction

Mitigation Measure NOI-3: Conduct Structural Conditions Survey for Areas Where Pile Driving is Proposed

Mitigation Measure NOI-4: Limit Extent of Vibratory Compaction Activity and Vibratory Pile Driving

Mitigation Measure NOI-5: Limit Vibration Levels Received at Structures

Impact NOI-7: Exposure of Off-Site Noise-Sensitive Land Uses to Short-Term Increases in Railroad Noise during Construction of the New Roadway Grade Separation (Significant and Unavoidable)

Constructing the grade separation would require building shooflies to divert rail traffic during construction. Final shoofly plans have not yet been prepared, and preliminary plans were used for this analysis. According to these preliminary plans, the temporary shooflies would mostly be closer to homes than the existing tracks, but in some cases the shooflies would be farther away. Placing the shooflies closer to residences would increase the noise levels received at neighboring residences, including during the night.

The noise-sensitive receptors currently located closest to the subject railroad lines are within 50 to 100 feet on either side of the existing alignments, and despite the presence of 7- to 8-foot noise walls, these homes experience train noise under existing conditions. The temporary realignments of the UPRR Niles Subdivision track and UPRR Oakland Subdivision track would place the tracks approximately 15 feet from residences.

As a result of the temporary track realignment, freight train noise levels are predicted to increase temporarily by 4 to 10 dBA at these residences, and BART noise levels are predicted to increase temporarily by about 7 dBA at the closest residence. Maximum exterior noise levels of 80 to 100 dBA L_{max} would be anticipated at the closest residences, with maximum noise levels of 55 to 75 dBA L_{max} inside homes (assuming standard California construction with windows closed). Noise levels at ground level in areas that are shielded behind soundwalls would be lower. Although railroad movements are relatively infrequent and short in duration, the results of this analysis indicated that maximum noise levels generated during pass-bys are high and have the potential to interfere with conversations in backyards and inside homes.

This impact is therefore considered to be significant. Implementation of the following mitigation measures would reduce this impact. However, it may not be feasible to implement all treatments. Accordingly, this impact is considered significant and unavoidable.

Mitigation Measure NOI-2: Prepare a Community Awareness Program for Project Construction

Impact NOI-8: Exposure of Off-Site Noise-Sensitive Land Uses to Short-Term Increases in Railroad Vibration during Construction of the New Roadway Grade Separation (Significant and Unavoidable)

Constructing the grade separation would require temporary shooflies to divert rail traffic during construction. Preliminary shoofly plans were used for this analysis and indicate that the tracks would move closer to some residences as compared to current conditions; but in some cases the tracks would be farther away. Placing the shooflies closer to residences would increase the vibration levels received at neighboring residences and ~~causing an~~result in vibration levels in excess of the identified thresholds.

Table 3.9-8 compares existing and with-project train vibration levels, assuming that BART would maintain its existing operational speed of 80 miles per hour and that UPRR would maintain its existing operational speed of 79 miles per hour.

Table 3.9-8. Shoofly Vibration Levels, New Roadway

	Distance (ft)		Vibration (in/sec PPV)		Distance (feet)		Vibration (in/sec PPV)	
Location	**BART Existing**	**BART Shoofly**	**BART Existing[1]**	**BART Shoofly[1]**	**UPRR Existing**	**UPRR Shoofly**	**UPRR Existing[2,3]**	**UPRR Shoofly[3]**
BART and UPRR (Oakland Subdivision)								
Monterra Terrace closest to BART	50	112	0.029	0.013	125	90	0.040	0.055
Platinum Street and Gold Street	110	50	0.013	0.029	50	25	**0.100**	**0.174**
UPRR (Niles Subdivision)—Alternative 1 (worst case distances)								
Platinum Street and Green Street	NA	NA	NA	NA	95	65	0.052	0.077
Sanburg Drive and Klondike Drive	NA	NA	NA	NA	60	75	0.083	0.066
Residential under construction	NA	NA	NA	NA	100	75	.0050	0.066
UPRR (Niles Subdivision)—Alternative 2 (worst case distances)								
Platinum Street and Green Street	NA	NA	NA	NA	95	55	0.052	**0.090**
Sanburg Drive and Klondike Drive	NA	NA	NA	NA	60	40	0.083	**0.118**
Residential under construction	NA	NA	NA	NA	100	70	0.050	0.071
UPRR (Niles Subdivision)—Alternative 3 (worst case distances)								
Platinum Street and Green Street	NA	NA	NA	NA	95	50	0.052	**0.100**
Sanburg Drive and Klondike Drive	NA	NA	NA	NA	60	25	0.083	**0.118**
Residential under construction	NA	NA	NA	NA	100	70	0.050	0.071

Bold vibration values indicate potential exceedance over nighttime disturbance criterion of 0.083 in/sec PPV.

1 Existing and shoofly operational speed of 80 miles per hour assumed.

2 Existing vibration based on Federal Transportation Administration freight train curve, adjusted for speed.

3 Existing and shoofly operational speed of 79 miles per hour on UPRR assumed.

As shown in Table 3.9-8, vibration from BART operations on the shoofly at most locations would be less than existing conditions as a result of increased distance between the track and adjacent residences. The exception would be homes near the intersection of Platinum and Gold Streets, which are predicted to experience an increase in vibration from BART shoofly operations, but not to the extent that the identified threshold of 0.083 in/sec PPV would be exceeded. For trains on the UPRR tracks, operations on shooflies for the Oakland or Niles Subdivisions would be higher at most residences, and are predicted to exceed the nighttime disturbance criterion of 0.083 in/sec PPV at several homes.

This impact is considered significant. Speed reductions or maintaining a greater separation distance between homes and the shooflies are not possible beyond the alternatives already presented above for the UPRR (Niles) shoofly. Implementation of the following mitigation measures would reduce this impact, but not to a less-than-significant level. Accordingly, this impact is considered significant and unavoidable.

Mitigation Measure NOI-2: Prepare a Community Awareness Program for Project Construction

Mitigation Measure NOI-6: Maximize Distance between Shoofly and Residences to Extent Allowed by UPRR

ACTA will maximize the distance between the shoofly and residences to the extent allowed by UPRR.

Impact NOI-9: Exposure of Noise-Sensitive Land Uses to Operational Noise from Vehicles on New Roadway (Less than Significant with Mitigation)

With implementation of the proposed project a new roadway would be constructed in proximity to existing residences.

Table 3.9-9 summarizes traffic noise modeling results for existing conditions and 2035 conditions with and without the proposed project. Existing noise levels along the new roadway alignment are lower than existing noise levels along the existing roadway segment because there is no existing roadway in this area. As the table shows, existing noise levels at many locations are below the residential land use compatibility noise standard of 60 L_{dn}.

Table 3.9-9. Traffic Noise Levels, New Roadway

ID	Receiver Location	Existing Peak-Hour dBA	2035 Peak-Hour dBA, without Project	2035 Peak-Hour dBA, with Project	Project-Related Increase	Significant Impact?
LT-3	Undeveloped area near Clover Drive	55	56	57	2	No
ST-13	Backyard of 2723 Oaktree Court	59	60	61	2	No
ST-14	**Side of 35583 Chaplin Drive**	**56**	**56**	**61**	**5**	**Yes**
ST-15	Side of 35607 Barnard Drive	55	56	57	1	No
ST-16 (park)	Arroyo Park	56	56	60	4	Yes
ST-17	Quarry Lakes Drive	63	65	58	-7	No
ST-18	Setback of 35509 Monterra Circle	58	59	61	2	No
ST-19	Setback of 1071 Tourmaline Terrace	55	56	58	2	No
ST-20	Backyard of 34770 Klondike Drive	56	57	57	1	No
ST-21	**End of Chesapeake Court**	**57**	**57**	**61**	**4**	**Yes**
ST-22 (park)	**Dog Park off 7th Street**	**65**	**67**	**70**	**3**	**No**
ST-23 (park)	Park off Wildflower Lane	61	62	62	0	No
ST-24	Apartments off Mission Boulevard	68	70	70	0	No
ST-25	34864 Mission Boulevard, Bldg M	64	65	65	0	No
ST-26	Setback of 149 Black Mountain Circle.	72	74	74	0	No
M-10	Backyard of Residence on Daisy Street	56	57	59	2	No
M-11	**Backyard of Residence on Begonia Street**	**56**	**56**	**68**	**12**	**Yes**
M-12	Front of Residence on Dominici Drive	58	59	61	2	No
M-13	**Side of Residence on Chaplin Drive**	**56**	**56**	**66**	**9**	**Yes**
M-14	Side of Residence on Osprey Drive	57	58	61	2	No
M-15	35261 Alvarado-Niles Road[5]	56	57	58	2	No
M-16	Backyard of Residence on Gold Street	55	56	59	3	No
M-17	Setback of Townhomes on Tourmaline Terrace	55	56	58	2	No
M-18	**Backyard of Residence on Sandburg Drive**	**56**	**57**	**60**	**4**	**Yes**
M-19	Backyard of Residence on Cascades Circle	59	60	62	2	No
M-20	Backyard of Residence on Cascades Circle	63	65	65	0	No

The results in Table 3.9-9 indicated that project-related traffic noise at several residential receptors is predicted to exceed the 60 L_{dn} residential threshold and result in a 3-dBA increase. Most of the residential receptors where impacts are identified are located adjacent to the undeveloped area along Old Alameda Creek, with backyards abutting the undeveloped area (see receptor locations ST-14, M-11, and M-13 on Figures 3.9-1a through 3.9-1d above). Traffic noise impacts at these locations are therefore considered to be significant.

A noise increase of 4 dBA is predicted at Arroyo Park as a result of traffic noise on the new roadway. However, noise at this location is predicted to remain 10 dBA below the 70 L_{dn} park noise compatibility standard. Accordingly, the noise impact at this location is considered to be less than significant.

Significant impacts were also identified at two additional residential receptors along the new roadway alignment in the vicinity of the 7th Street intersection (ST-21 and M-18), where project noise would bring noise levels to the 60 L_{dn} standard and cause an increase of 4 dBA. The impact would not be limited to the specific location of these receptors, and would also occur at adjacent residences abutting the new roadway. These receptors are currently shielded by 8-foot soundwalls.

In addition to these exterior noise impacts, the proposed project would increase interior noise levels received by residences in the vicinity of the new roadway. Standard California residential construction typically provides about 15 dBA of exterior-to-interior noise reduction with windows partially open, and about 25 dBA of exterior-to-interior noise reduction with windows closed, assuming typical California residential construction. As a result, the interior noise standard of 45 dBA L_{dn} for residences would typically be met if the exterior noise levels do not exceed the exterior noise and land compatibility threshold of 60 dBA L_{dn}. The incorporation of forced-air mechanical ventilation systems (air conditioning) in residential units is considered sufficient to allow occupants the option of maintaining windows in the closed position, which would allow residences exposed to exterior levels of up to 70 dBA L_{dn} to achieve the interior noise standard. For residences exposed to exterior noise levels exceeding 70 dBA L_{dn}, sound-rated construction methods could be needed to reduce interior noise levels to 45 dBA L_{dn}.

Soundwalls are proposed as mitigation to reduce exterior noise levels at residential development along the proposed alignment between Paseo Padre Parkway and Alvarado-Niles Road (Figures 3.9-2 and 3.9-3), but would not be effective at reducing noise levels at upper level facades of buildings. A soundwall is only effective in reducing noise if the wall breaks the line of sight between the source and receiver. In this case, the source is traffic on the roadway, and the receiver is the second story location. As a result of the proposed project, exterior noise levels are predicted to exceed 60 dBA L_{dn} at upper stories in the vicinity of the three receptors identified between Paseo Padre Parkway and Quarry Lakes Drive (ST-14, M-11 and M-13), and two receptors along the south side of the new roadway between Alvarado-Niles Road and Mission Boulevard (ST-21 and M-18). Exterior noise levels for these homes are predicted to range from 60 to 68 dBA L_{dn}. Because exterior noise levels are not predicted to exceed

70 dBA L_{dn}, forced air ventilation would be adequate to allow windows to be kept closed at the occupant's discretion to control interior noise levels to meet the 45 dBA L_{dn} interior threshold. Additional sound-rated construction methods, such as the installation of double-pane windows, would not be necessary to meet the interior noise threshold. However, it is not known if these residences currently have forced air mechanical ventilation systems, and a survey would need to be conducted to make this determination. This impact is therefore considered significant.

In addition to this operational roadway noise, the proposed project entails moving the existing paved trail that extends alongside Old Alameda Creek to Quarry Lakes Drive southwestward, closer to residences, to accommodate the wetlands mitigation plan (Mitigation Measure BIO-7). The newly aligned trail is shown above in Figure 3.3-1b. Recreational traffic would be moved closer to the residences, but recreational uses would not generate noise that would be substantial enough to be considered a significant noise impact on the adjacent residences. The trail may be used for occasional maintenance access to the mitigation site, but this traffic would not be frequent enough or substantial enough to be considered a significant impact. No mitigation is necessary to reduce impacts from this aspect of the project.

In summary, ~~this~~ the impact related to operational roadway noise is considered significant, but operational noise related to the wetlands mitigation plan is less than significant. Implementation of the following mitigation measures would reduce ~~this~~ the roadway noise impact to a less-than-significant level.

Mitigation Measure NOI-7: Implement Traffic Noise Reduction Treatments (Soundwalls and Quiet Pavement) along the New Roadway between Paseo Padre Parkway and Alvarado-Niles Road

ACTA will implement noise reduction measures, including soundwalls at required locations and a quieter pavement type, along the new roadway segment. These specific measures are described below based on the preliminary traffic noise modeling conducted for the Draft EIR. These measures may be further refined when ACTA performs a detailed noise study, conducted by a qualified acoustical professional, during the final design stage of the proposed project to define reasonable and feasible noise mitigation for the residences along the new roadway segment between Paseo Padre Parkway and Alvarado-Niles Road. ~~Mitigation measures may include, but are not limited to, the following.~~ The final specifications for noise reduction measures will be determined after the detailed noise study is complete and with approval from the Cities of Fremont and Union City, and will be implemented by ACTA.

- Construct soundwalls or berms to protect existing residential land uses from noise levels that exceed established thresholds. Based on preliminary traffic noise modeling, 8- to 10-foot-high soundwalls would be sufficient to reduce noise levels below the exterior noise significance thresholds if soundwalls are constructed within the new roadway alignment (Figure 3.9-2). Alternately, 8-foot-high soundwalls relative to the elevation of the terrain at the residential property lines (Figure 3.9-3) would also be sufficient to reduce noise levels below the exterior noise significance thresholds. To be effective,

LEGEND

8 feet — Proposed sound barriers

* Based on preliminary modeling results

** Indicated barrier heights are relative to the adjacent roadway elevation

NORTH

300′ 0′ 300′ 600′

00703.07 EIR (9-08)

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an ICF International Company

Figure 3.9-2
Noise Wall Location and Height if Sited at Edge of Roadway
ACTA East-West Connector Project

00703.07 EIR (9-08)

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an ICF International Company

Figure 3.9-3
Noise Wall Location and Height if Sited at Edge of Adjacent Property
ACTA East-West Connector Project

soundwalls must be constructed with a solid material with no gaps in the face of the wall or at the base. Openings or gaps between soundwall materials or the ground substantially decrease the effectiveness of the soundwall. Suitable materials for soundwall construction should have a minimum surface weight of 4 pounds per square foot (such as 1-inch-thick wood, masonry block, concrete, or metal).

- Pave the new roadway with "quiet" pavement types such as porous open-grade asphalt concrete with fine aggregate size.

Mitigation Measure NOI-8: Implement Traffic Noise Reduction Treatments (Soundwalls and Quiet Pavement) at the Affected Residences along the New Roadway between Alvarado-Niles Road and Mission Boulevard

ACTA will implement noise reduction measures, including retrofitting existing soundwalls at required locations and a quieter pavement type, along the new roadway segment. These specific measures are described below based on the preliminary traffic noise modeling conducted for the Draft EIR. These measures may be further refined when ACTA performs a detailed noise study, conducted by a qualified acoustical professional, during the final design stage of the proposed project to define reasonable and feasible noise mitigation for the residences near ST-21 (located along the new roadway between Alvarado-Niles Road and Mission Boulevard). ~~Mitigation measures may include, but are not limited to the following.~~ The final specifications for noise reduction measures will be determined after the detailed noise study is complete and with approval from the City of Union City, and will be implemented by ACTA.

- Retrofit existing ~~or construct new~~ soundwalls to protect existing residential land uses from noise levels that exceed established thresholds. Based on preliminary traffic noise modeling, an increase in the existing soundwall height from 8 feet to 10 feet would be sufficient to maintain noise levels below the exterior noise and land compatibility thresholds. To be effective, soundwalls must be constructed with a solid material with no gaps in the face of the wall or at the base. Openings or gaps between soundwall materials or the ground substantially decrease the effectiveness of the soundwall. Suitable materials for soundwall construction should have a minimum surface weight of 4 pounds per square foot (such as 1-inch- thick wood, masonry block, concrete, or metal).
- Paving the new roadway with "quiet" pavement types such as porous open-grade asphalt concrete with fine aggregate size.

Mitigation Measure NOI-9: Conduct Survey for Presence of Air Conditioning at Residences Adjacent to the New Roadway

ACTA will perform a survey of existing residences adjacent to the new roadway alignment to identify residences that currently do not have forced air mechanical ventilation systems. The survey will include residences located in the first row of homes and within 300 feet of the center of the new roadway alignment between Paseo Padre Parkway and Quarry Lakes Drive, and residences located in the first row of homes along the south side of the new roadway segment between Alvarado-Niles Road and Mission Boulevard. For locations found to lack air conditioning, and which would thus be unable to maintain closed-window conditions, reasonable and feasible noise mitigation measures will be identified during the final design stage of the project in coordination with and approval from the Cities of Fremont and Union City. Mitigation measures that reduce the proposed project's significant impacts to less-than-significant levels will be incorporated into the proposed project. These measures ~~Measures~~ may include, but are not limited to, providing forced air ventilation systems to residences, so that windows may be kept closed at the occupant's discretion to control noise. Where appropriate and needed to meet noise requirements, ACTA will provide funding for double-pane windows.

Impact NOI-10: Exposure of Vibration-Sensitive Land Uses to Increased Traffic from the New Roadway (Less than Significant)

By constructing the new roadway between Paseo Padre Parkway and Mission Boulevard, the proposed project would be placing a new source of vibration in the vicinity of residential receptors. As shown in Table 5-1 of the Vibration Report, traffic-generated vibration would be at very low levels and would not generally exceed the threshold for human perception. Thus, this vibration would also not exceed the 0.2 PPV threshold for residential building damage. This impact is considered less than significant. No mitigation is required.

Section 3.10

Population and Housing

Section 3.10
Population and Housing

3.10.1 Introduction

This section describes the affected environment and regulatory setting for population and housing in the project area. It also describes the impacts on population and housing that would result from implementation of the proposed project, and mitigation measures that would reduce these impacts.

3.10.1 Environmental Setting

Sources of Information

The key sources of data and information used in the preparation of this population and housing section are listed described below.

- California Department of Finance Population Estimates between January 1, 2007 and January 1, 2008 (California Department of Finance 2008)
- City of Fremont General Plan (City of Fremont 1991)
- City of Union City General Plan (City of Union City 2002)

Existing Conditions

This section discusses the existing conditions related to population and housing relative to the proposed project.

The project alignment is located in Alameda County, the second largest county in the Bay Area. The population of Alameda County on January 1, 2008 was 1,543,000 (California Department of Finance 2008). Fremont and Union City account for approximately 19% of the population of the County.

The City of Fremont had a population of 211,162 on January 1, 2007, and 213,512 on January 1, 2008, which constitutes an annual percentage increase of 1.1%. During this same time, the City of Union City had a population of 72,124 on January 1, 2007, and 73,402 on January 1, 2008, which constitutes an annual percentage increase of 1.8% (California Department of Finance 2008).

The City of Fremont is 57,020 acres (90 square miles) in size. By the year 2010, the City plans for 45,400 single-family residences and 26,700 multi-family residences. Between the years 2000 and 2020 the population of Fremont is expected to grow by 25,800 people (City of Fremont 1991).

The City of Union City is 11,520 acres (18 square miles) in size. The City includes 18,642 households, of which 15,700 are inhabited by families. The total population of Union City was 72,124 residents in 2007. Between the years of 1997 and 2007, Union City saw an average growth rate of 4.43% per year (City of Union City 2002). One area that has been identified to accommodate a substantial amount of future housing in Union City is the industrial redevelopment area located near the BART station, north of the project alignment's eastern portion.

Regulatory Setting

Federal and State

There are no federal or state regulations for population and housing that apply to the project alignment.

Local

California Planning and Zoning Law (Government Code 65000 *et seq*.) requires each city and county to adopt a general plan for the physical development of the land within its planning area. The housing element of a local general plan must incorporate policies and programs that will allow sufficient housing to be built to meet the community's share of the region's projected housing need. These policies and programs must provide for housing for all economic sectors, including very low-, low-, and moderate-income residents.

Fremont General Plan

The Fremont General Plan Housing Element 2001–2006 (Freitas and Freitas 2003) was last updated in 2003, and guides housing development in the City. The Housing Element mainly addresses construction of new housing, and is not specifically related to the proposed project (City of Fremont 1991). One policy in the Housing Element that does relate to the proposed project is Policy 1B, which states that the City will "identify and program the construction of basic neighborhood improvements (sidewalks, street trees, etc.) and public facilities (roads, lighting, etc.) in areas where they are lacking or substandard."

Union City General Plan

The City of Union City General Plan includes goals and policies to guide housing and overall development throughout the City (City of Union City 2002). These policies and goals center on addressing construction needs and requirements for new housing and are not related specifically to the conditions of the proposed project. However, the project alignment includes a large area of land owned by Caltrans north of Old Alameda Creek. A City goal is to purchase this land and develop additional residences in this area, and to preserve open space and recreational opportunities for residents of the City.

3.10.2 Impact Analysis

This section describes the impact analysis relating to population and housing for the proposed project. It describes the methods used to determine the impacts of the project and lists the significance criteria used to conclude whether an impact would be significant.

Methodology

Population and housing impacts were identified by reviewing existing and proposed housing conditions for the project alignment and its vicinity. This included the examination of the Cities' respective housing elements in relation to how the proposed project would align with existing and future conditions within both Cities.

Significance Criteria

For this analysis, an impact pertaining to population and housing was considered significant under CEQA if it would result in any of the following environmental impacts, which are based on professional practice and State CEQA Guidelines Appendix G (14 CCR 15000 *et seq*.). A significant impact is identified if the proposed project would:

- induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure);
- displace a substantial number of existing housing, necessitating the construction of replacement housing elsewhere; or
- displace substantial numbers of people, necessitating the construction of replacement housing elsewhere.

Project Impacts and Mitigation Measures

The proposed project was evaluated for potential housing displacement impacts, population growth inducement impacts, and consistency with relevant local plans and policies.

Impact POP-1: Indirect Inducement of Substantial Population Growth (Less than Significant)

The proposed project would not directly increase population or housing in the project alignment or its vicinity, nor would it affect the population or housing needs within the City of Fremont or City of Union City. The project does not propose to add housing. However, by enhancing access to proposed redevelopment areas in Union City, including the industrial redevelopment area near the Union City BART station, and by generally improving access between Interstate 880 and Mission Boulevard, the proposed project has the potential to indirectly induce population growth in both Cities.

The general plans for Fremont and Union City project that additional growth will occur in both Cities in future years. Because additional growth has been projected and planned for in both Cities, the improved transportation corridors between both Cities and within each City would support these growth projections and accommodate planned growth, and would not add additional population or housing needs in either City. Therefore, this impact is considered less than significant. No mitigation is required.

Impact POP-2: Displacement of a Substantial Number of Existing Housing Units or People (Less than Significant)

Widening Decoto Road would encroach on approximately seven residential properties along Decoto Road but would not displace the residents. The new roadway alignment, near Alvarado-Niles Road, would displace one household—the residents of the Silva farmhouse and barn, owned by Caltrans and leased as a single-family residence. Through project implementation, the family that resides in the Silva farmhouse would be relocated, and the residence would be demolished in order to provide right-of-way for the proposed alignment. Relocation of one residence is not considered a substantial displacement of housing units or people. Because the property is currently under lease, and the Silva farmhouse residents would be relocated prior to implementation of the proposed project, this impact is considered less than significant. No mitigation is required.

Section 3.11

Public Services, Utilities, and Recreation

Section 3.11
Public Services, Utilities, and Recreation

3.11.1 Introduction

The section describes the affected environment and regulatory setting for public services, utilities and service systems, and recreational opportunities in the project area. It also describes the impacts on these services that would result from construction and operation of the proposed project, and mitigation measures that would reduce these impacts.

The specific public services, utilities and service systems, and recreation opportunities addressed in this section are listed below.

- Fire
- Police
- Schools
- Natural Gas and Electric Services
- Wastewater
- Stormwater
- Solid Waste
- Parks and Recreational Facilities
- Trail Systems

3.11.2 Environmental Setting

Sources of Information

The following key sources of data and information were used to prepare this section.

- City of Fremont General Plan (City of Fremont 1991)
- Union City General Plan Policy Document (City of Union City 2002)
- Union City Park and Recreation Master Plan (City of Union City 1999)
- East Bay Regional Parks District Master Plan (East Bay Regional Parks District 1997)

Existing Conditions

This section discusses the existing conditions related to public services, utilities, and recreation in the project alignment.

Public Services

Fire

Fire protection services in the project alignment are provided by the City of Fremont Fire Department and the City of Union City Fire Department. In addition, the Public Safety Division of the EBRPD provides fire services through the EBRPD Fire Department for all EBRPD facilities, including 65 parks and 1,150 miles of trails. Quarry Lakes Regional Park is included in this service area.

The City of Fremont Fire Department has 11 stations throughout the City that are staffed by 13 companies. Services provided by the fire department include fire prevention and suppression, paramedic-level emergency medical services, hazardous material spills response and containment, and emergency medical dispatch. There are approximately 160 employees of the City of Fremont Fire Department and they service approximately 13,000 calls per year.

The City of Union City Fire Department has four stations throughout the City. Services provided by the fire department include fire prevention and suppression, paramedic-level emergency medical services, hazardous material spills response and containment, and emergency medical dispatch. There are approximately 50 employees of the City of Union City Fire Department and they service approximately 4,500 calls per year.

For the Quarry Lakes Regional Park, EBRPD provides fire protection through the EBRPD Fire Department. EBRPD supports approximately 50 industrial firefighters, headquartered at Lake Chabot in Castro Valley.

Police

Police protection services in the project alignment are provided by the City of Fremont Police Department and the City of Union City Police Department. In addition, the Public Safety Division of EBRPD provides police services through the EBRPD Police Department for all EBRPD facilities, including 65 parks and 1,150 miles of trails. Quarry Lakes Regional Park is included in this area.

The City of Fremont Police Department is located at 2000 Stevenson Boulevard. The goal of the department is to strive for a response time of 4 minutes or less for Priority 1 calls. In addition, the City strives to provide 1.4 full-time employees for every 1,000 residents. The City is authorized to support 196 officers.

The City of Union City Police Department is located at 34009 Alvarado-Niles Road. The goal of the department is to provide 1.4 full-time employees for every 1,000 residents. The City currently supports 81 officers. There is no information available for response times for the City of Union City.

The EBRPD Police Department provides police services for EBRPD lands, including Quarry Lakes Regional Park. There are 123 full-time employees of the police department, including 67 sworn officers. Services include an air support unit, marine patrol, equestrian patrol, K-9 units, special enforcement units, and investigation units. The EBRPD Police Department is headquartered at Lake Chabot in Castro Valley.

Schools

The Fremont Unified School District and ~~Hew~~ New Haven Unified School District serve the project alignment. The Fremont Unified School District serves the City of Fremont and includes 29 elementary schools, 30 middle schools, 7 high schools, and 1 charter school. The New Haven Unified School District serves the City of Union City and includes 7 elementary schools, 3 middle schools, and 1 high school. There are no school facilities located along the project alignment; however, several schools are within a 1-mile radius of the project alignment.

Schools in the Fremont Unified School District include Warwick Elementary School (located on Warwick Avenue approximately 0.25 mile west of the intersection of Decoto Road and Paseo Padre Parkway); Patterson Elementary School (located one Cabrillo Drive, approximately 0.75 mile south of the project's western terminus); American High School (located on Fremont Boulevard approximately 0.75 mile southeast of the intersection of Fremont Boulevard and Decoto Road); Oliveira Elementary School (located on Alder Avenue approximately 1 mile southeast of the project's western terminus); Ardenwood Elementary School (located at the intersection of Emilia Lane and Macbeth Avenue, approximately 1 mile southwest of the project's western terminus); and Forest Park Elementary School (located on Deep Creek Road, approximately 1 mile west of the project's western terminus).

Schools in the New Haven Unified School District include Emanuele Elementary School (located at the intersection of Decoto Road and Mission Boulevard, approximately 1 mile northwest of the project's eastern terminus); Logan High School (located at the intersection of Alvarado-Niles Road and H Street, approximately 1 mile west of the new road's proposed intersection with Alvarado-Niles Road); and the New Haven Adult School (located at the intersection of G Street and Sixth Street, approximately 1 mile west of the project's eastern terminus).

Utilities and Service Systems

Natural Gas and Electrical Services

Natural gas and electrical services to the Cities of Fremont and Union City are provided by The Pacific Gas and Electric Company (PG&E). Implementation of the proposed project would result in the relocation of utilities throughout the project alignment as new roadways are added and existing roadways are modified. Potential utility relocations include the following locations.

- The widened roadway on the south side of Decoto Road, between Cabrillo Court and Fremont Boulevard, and on the north side of Decoto Road, on the west side of Fremont Boulevard, would require joint utility poles and overhead utilities to be relocated.
- Existing overhead utility lines on the west side of Mission Boulevard (between Holly Leaf Lane and Appian Way) would have to be relocated to the east side of Mission Boulevard to accommodate the inclusion of southbound to westbound right-turn pockets.
- The new roadway segments may include additional utility installations such as water, gas, electricity, and telecommunications facilities if so requested by the franchised utility providers within the two Cities. The locations and extent of these facilities are currently unknown and would be determined by the franchised utility providers.

In addition to these relocations, roadway widening activities would require the installation of various types of poles and foundations to facilitate modifications to existing traffic signals, street lights, relocation of existing overhead utility lines, and the adjustment of covers for existing underground utility vaults and boxes. Existing utilities that run along the railroad lines throughout the project alignment would be supported in place throughout construction activities and placed on the new grade-separated structures upon completion. Interconnect cables would also be installed to connect the traffic signals along the project alignment to enable signal operations to be coordinated and monitored in the future.

Wastewater

The Union Sanitary District provides wastewater collection and treatment services and disposal for the Cities of Fremont and Union City. The wastewater treatment plant operates in Union City. There would be no wastewater generated through project construction or implementation actions.

Stormwater

Stormwater collection in the Cities of Fremont and Union City is provided by the Cities' storm drainage facilities. Along the project alignment, the Alameda Creek Flood Control Channel, Crandall Creek, Line M Channel, Detention Basins 2C and New Basin, and Old Alameda Creek provide the structure for the stormwater management system (see Figure 3.3-2, in Section 3.3, Biological Resources). These project features are discussed below. Following a discussion of each project feature, modifications to the existing stormwater system, as well as additional features that would be added to channel stormwater along the new roadway alignment, are discussed.

Alameda Creek Flood Control Channel

The Alameda Creek Flood Channel is the major hydrologic feature in the project alignment. The trapezoid-shaped channel drains the entire project alignment.

Crandall Creek

Crandall Creek is the second most dominant hydrologic feature in the project alignment. It is a native stream that drains the southwestern portion of the project alignment and flows into Coyote Hills Slough outside of the project alignment. Within the project alignment, Crandall Creek is a channelized stormwater feature, with a box culvert approximately 500 feet north of Cabrillo Court. Implementation of the proposed project would not modify Crandall Creek.

Line M Channel

The Line M Channel is a flood control drainage system (open channel and pipeline) that replaced a natural drainage. It is maintained by the Alameda County Flood Control and Water Conservation District. It drains the hills north and west of the project alignment and flows into the Alameda Creek Flood Control Channel. The new roadway alignment would extend over the Line M channel 250 feet east of Chesapeake Drive as it extends westward between Chesapeake Drive and UPRR tracks (Niles Subdivision). The Line M Channel is undersized and, as a result, the area near Chesapeake Drive experiences overflow conditions during heavy storm events. Some overflow goes to the adjacent detention basins, Basin 2C and New Basin, which would be displaced by the proposed project. The proposed project would modify the Line M Channel in this area to accommodate project features and to provide additional capacity for flood control.

Detention Basins 2C and New Basin

Between Alvarado-Niles Road and Mission Boulevard, the project alignment would extend across Basin 2C and New Basin, two existing detention basins. Basin 2C was constructed in 1999 adjacent to the Line M Channel to serve as a stormwater detention basin and as wetland mitigation for the Park Ridge Phase II and Phase III residential development project. The source of water for the basin is runoff from adjacent residential developments. Should the basin fill, overflow would enter the Line M Channel via a lower section of the berm along the channel.

The New Basin is located between Green Street and the BART tracks and was constructed in 2006 to serve as stormwater detention for the KB Homes development just south of the recently constructed Green Street bridge. During heavy storm events, some of the water from the Line M Channel is diverted into the basin. When the water elevation in the Line M Channel recedes, water is pumped out of the basin back into the Line M Channel.

Old Alameda Creek

The Old Alameda Creek channel is a portion of the ancestral stream channel that no longer experiences stream flow except during periods of high rainfall. Old Alameda Creek provides drainage for a small localized area and overflow drainages for the Quarry Lakes via a 36-inch culvert. Additionally, a weir at the junction with the Alameda Creek Flood Control Channel provides floodwater retention during heavy storm events.

Solid Waste

The Cities of Fremont and Union City administer contracts with Allied Waste Services for the collection and disposal of residential and commercial waste and recycling. The City of Union City also contracts with Tri-CED Community Recycling. The Fremont Recycling and Transfer Station, located at 41149 Boyce Road, is the public waste disposal facility that supports both Cities. Discarded materials, such as yard and wood waste, scrap metal, cardboard, and construction debris are sorted and recycled. Materials that are not recycled are transported from this facility to a landfill. The Fremont Recycling and Transfer Station has been designed to meet increased demand for recycling and waste handling services for both Cities.

Recreation

Parks and Recreational Facilities

The Cities of Fremont and Union City provide a diverse range of recreational opportunities and facilities. Recreational opportunities within the Cities include local and regional parks that support wildlife viewing, hiking, running, biking, swimming, picnic, and barbecue facilities and children's playgrounds. A number of local and regional parks are located adjacent to, or in neighborhoods nearby the project alignment. These parks are described below.

Quarry Lakes Regional Park

Quarry Lakes Regional Park is managed by EBRPD and is located in the City of Fremont south of the project alignment off of Quarry Lakes Drive. This park encompasses 539 acres of land, including 6 lakes, and supports an extensive trail system, wildlife viewing, swimming areas, non-gasoline-powered boating areas, fishing, and biking. Implementation of the proposed project would not affect the amenities of Quarry Lakes Regional Park, and would not change access to the park.

Drigon Park

The Drigon Park is a public dog park located within Union City off of 7th Street, adjacent to the project alignment. The dog park includes a dog-bone-shaped walkway, dog tunnels, climbing platforms, and a plaza area for free play, with benches for owners to relax and enjoy watching their dogs.

Arroyo Park

Arroyo Park is located on Perry Road, adjacent to the Quarry Lakes Drive/Osprey Drive intersection and the project alignment. Arroyo Park includes basketball courts, tennis courts, two children's playgrounds, and picnic and barbeque areas.

Seven Hills and Park Ridge Parks

Seven Hills and Park Ridge Parks are located near, but not adjacent to, the project alignment, and provide a wide range of recreational opportunities. Seven Hills Park is located on Florence Street, east of the project alignment, and is surrounded by pine trees. The park includes basketball courts, playground equipment, and picnic and barbecue facilities. Park Ridge Park is located at the intersection of Chesapeake and Sandburg streets and includes a water fountain, large playground, and picnic facilities. Although located near the project alignment, features of the proposed project may not be viewed from either park, and both facilities would not be affected by project implementation.

Pacific State Steel and Windflower Parks

Pacific State Steel Park and Windflower Park are local neighborhood parks that are located near, but not adjacent to the project alignment. They are located in the Brooks and Foothill Glenn housing developments, respectively. The parks are small in nature, supporting play structures, benches, and picnic tables for the local neighborhoods to enjoy. Both parks would not be affected by project implementation.

Trail Systems

Throughout the project alignment, expansive networks of trails weave throughout the existing roadway system and open space lands (See Figure 2-2, in Chapter 2, Project Description). The existing trail system is described below. The proposed changes and additions to the existing trail system that would occur as a result of project implementation are summarized.

The existing roadway along Decoto Road, a 0.9-mile stretch of the project alignment, supports intermittent sidewalks and bike lanes. The project alignment also includes a 0.8-mile segment of Paseo Padre Parkway, from Decoto Road in the north to Isherwood Way in the south. Gutters and bike lanes are available on both sides of the roadway. In between the roadway and the western bank of the Alameda Creek Flood Control Channel there is a 20-foot right-of way planted with trees and other landscaping and an asphalt-paved trail maintained by EBRPD. An unpaved trail maintained by EBRPD follows the eastern bank of the Alameda Creek Flood Control Channel in the project area. These two facilities are part of EBRPD's Alameda Creek Trail, which connects San Francisco Bay in the west to Niles Canyon in the east, southeast of the terminus of the project alignment. The unpaved trail on the Alameda Creek Flood Control Channel's north bank is intended for hikers, horseback riders, and bicyclists; and the paved trail on the southern bank is intended for hikers bicyclists.

From Paseo Padre Parkway to Alvarado-Niles Road, the undeveloped area includes the Alameda Creek Flood Control Channel and Old Alameda Creek. An asphalt-paved trail maintained by the City of Fremont roughly follows the southern bank of Old Alameda Creek, connecting the Alameda Creek Flood Control Channel's northern trail to Isherwood Way.

Regulatory Setting

Federal

There are no federal laws or regulations pertaining to public services, utilities and service systems, or recreation.

State

California Public Utilities Commission

The California Public Utilities Commission (CPUC) regulates privately owned telecommunications, electric, natural gas, water, railroad, rail transit, and passenger transportation companies. CPUC is responsible for ensuring that California utility customers have safe, reliable utility service at reasonable rates, protecting utility customers from fraud, and promoting the health of California's economy. CPUC establishes service standards and safety rules and authorizes utility rate changes as well as enforcing CEQA compliance for utility construction. CPUC also regulates the relocation of power lines by public utilities under its jurisdiction, such as PG&E.

General Utility Excavation

General excavation activities that could affect utilities are regulated through the California Occupational Health and Safety Administration Construction Safety Orders under Title 8 Section 1541 Excavation, Trenching and Earthwork. Contractors working in the vicinity of utilities, both under-and above-ground, are required by Article 2 of California Code 4216 to contact a regional notification center at least 2 days prior to excavation of any subsurface installations. The center for northern California is the Underground Service Alert. After receiving notification, the Underground Service Alert will notify utilities that may have buried lines within 1,000 feet of the excavation. The excavator is required to probe and expose underground facilities by hand prior to using power equipment for trenching and excavation.

California Integrated Waste Management Act

In 1989, Assembly Bill 939(AB 939), known as the Integrated Waste Management Act, was passed into law. Enactment of AB 939 established the California Integrated Waste Management Board, and set forth aggressive solid waste diversion requirements. Under AB 939, every city and county in California is required to reduce the volume of waste sent to landfills by 50%, through recycling, reuse, composting, and other means. AB 939 requires counties to prepare a Countywide Integrated Waste Management Plan. An adequate Countywide Integrated Waste Management Plan includes goals and objectives, a summary of waste management issues and problems identified in the incorporated and unincorporated areas of the county, a summary of waste management programs and infrastructure, information about existing and proposed solid waste facilities, and an overview of specific steps that will be taken to achieve the goals outlined in the components of the Countywide Integrated Waste Management Plan.

Local

City of Fremont General Plan

The City of Fremont General Plan (City of Fremont 1991) includes the following relevant polices for resources related to public services, utilities and service systems and recreation.

Policy HS 4.1.1: Provide an adequate level of fire equipment and personnel to protect the community.

Policy 5.1.1: Continue to provide emergency response service throughout the City.

Policy 5.1.2: Consider improvements in services and facilities to provide maximum feasible achievement of a 5 minute 30 second response within the City.

Policy PR 2.1.1: Maintain and enhance the City's parks and recreation facilities and resources that significantly contribute to Fremont's image and identify.

Policy PR 2.1.2: Acquire and develop new park lands and recreation facilities consistent with the Parks and Recreation Master Plan.

City of Union City General Plan

The City of Union City 2002 General Plan (City of Union City 2002) includes the following relevant polices for resources related to public services, utilities and service systems and recreation.

Policy PF-E.1.1: The City shall require the maintenance of all drainage facilities, including detention basins and both natural and manmade channels, to ensure that their full carrying capacity is not impaired.

Policy PF-E.1.2: The City shall encourage the use of natural stormwater drainage systems in a manner that preserves and enhances natural features.

Policy PF-F.1.6: The City shall strive to maintain the diversion of 50 percent of all waste generated citywide for recycling and strive to increase the diversion of waste for recycling to 75 percent by 2010.

Policy PF-F.1.8: The City shall encourage the recycling of construction debris.

Fremont Parks and Recreation Master Plan

The Fremont Parks and Recreation Master Plan was developed in 1995 (City of Fremont 1995) to guide parkland acquisition, development, and maintenance. The plan establishes park policies and goals, including open space goals related to the growing population of the City, criteria for selecting new park sites, and facility standards and guidelines. There are no City of Fremont parks located along the project alignment.

Union City Park and Recreation Master Plan

The Union City Park and Recreation Master Plan was developed in 1999 (City of Union City 1999) to guide future park, trail, and open space planning. The master plan provides an inventory of existing facilities as a foundation for future resource planning. Goals and policies are included to maintain existing park, trail, and recreational facilities, and to guide growth, maintenance, and a management of a diverse range of facilities offered for the greater population. City parks located along the project alignment or its vicinity include Drigon Park, Arroyo Park, Seven Hills Park, Pacific State Steel Park, Pride Ridge Park, and Windflower Park.

East Bay Regional Park Master Plan

Facilities leased or owned by EBRPD are governed by the EBRPD Master Plan (East Bay Regional Park District 1997) and its' implementing ordinances. The Master Plan defines the vision and the mission of EBRPD and sets priorities for the future. The goal of the Master Plan is to maintain a balance between protection and conservation of natural resources and maintaining recreational uses within parklands. Quarry Lakes Regional Park, an EBRPD facility, is located off of Quarry Lakes Drive in the City of Fremont, adjacent to the project alignment.

3.11.3 Impact Analysis

This section describes the impact analysis relating to publics services, utilities, and recreation for the proposed project. It describes the methods used to determine the impacts of the proposed project and lists the significance criteria used to conclude whether an impact would be significant. Measures to mitigate (i.e., avoid, minimize, rectify, reduce, eliminate, or compensate for) significant impacts accompany each impact discussion.

Methodology

The analysis of potential impacts on public services, utilities, and recreation is based on a review of policies included in the general plans for the Cities of Fremont and Union City, the Parks Master Plan for Union City and the East Bay Regional Park District Master Plan. In addition, the proposed project was analyzed in terms of its potential to change existing demand on public recreational opportunities, or cause demand to exceed capacities of existing utilities and public service systems that currently support the project alignment.

Significance Criteria

For this analysis, an impact pertaining to public services, utilities, and recreation was considered significant under CEQA if it would result in any of the following environmental effects, which are based on professional practice and State CEQA

Guidelines Appendix G (14 CCR 15000 *et seq*.). A significant impact is identified if the proposed project would:

- require the provision of new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any public services, including fire protection, police protection, schools, parks, or other public facilities;
- exceed wastewater treatment requirements of the San Francisco Bay RWQCB;
- require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- 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;
- require water supplies to serve the proposed project in addition to existing entitlements and resources;

- result in a determination by the wastewater treatment provider that serves or may serve the proposed project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments;
- be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs;
- not comply with federal, state and local statutes and regulations related to solid waste;
- increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated; or
- include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical impact on the environment.

Project Impacts and Mitigation Measures

Impacts that would occur as a result of project implementation are described below. Because the proposed project would not result in the production of wastewater, either through construction activities or following project implementation, there would be no exceedance of wastewater treatment requirements as a result of the proposed project. The proposed project would also not require the construction of new water or wastewater treatment facilities, or change the level of current service by the wastewater treatment provider for the project alignment. Finally, construction and operational activities of the proposed project would not require additional water along the project alignment, and therefore would not affect water supplies to or from the project alignment. Because the project would not affect these resources, these impacts are not further discussed in the impacts section.

The proposed project would not result in the need for additional services or the expansion of existing facilities for any of the public services provided along the project alignment, including fire and police protection, schools, parks or other public facilities. Implementation of the proposed project would improve access throughout the project alignment through the expansion and improvement of existing roadways, and addition of new roadways to improve the flow of traffic throughout the project alignment. However, the proposed project would not increase the population within the Cities of Fremont or Union City, and would not change or affect any existing facilities located in the project alignment. Therefore, there would be no impact on public services. Because the project would not affect these resources, these impacts are not further discussed in the impacts section. Potential impacts on police and fire emergency access are addressed in Section 3.12, Transportation and Traffic. Increased risk of wildland fires that may occur as a result of construction activities on open lands are discussed in Section 3.6, Hazards and Hazardous Materials.

In accordance with the California Integrated Waste Management Act and the Alameda County Integrated Waste Management Plan, the Cities of Fremont and Union City require construction projects within either City to complete a Waste Management Plan prior to the onset of construction activities. The plans would include the estimated volume or weight of project debris, by material type, to be generated, the maximum volume or weight of such materials that can feasibly be diverted via reuse or recycling, the vendors or facilities that the applicant proposes to use to collect or receive that material, and the estimated volume or weight of materials that would be placed in a landfill. Within 30 days after the completion of any covered project, a Waste Management Plan Compliance Report would be submitted to the Cities, documenting that diversion requirements have been met for the proposed project. The proposed project would comply with these guidelines established by the Cities of Fremont and Union City, and therefore there would be no impact on solid waste regulations. Specific information regarding the placement of solid waste generated by project implementation is discussed below under Impact PSR-2.

Impact PSR-1: Interruptions to Stormwater Drainage System during Construction (Less than Significant with Mitigation)

Implementation of the proposed project would improve stormwater drainage throughout the project alignment. Along the project alignment, existing storm drains and drainage inlets may be relocated and modified to accommodate roadway widening and intersection modifications. Covers and lids for existing underground utility facilities would also be adjusted. Where possible, existing utilities and pipelines that run along the various railroad lines would be supported in place during construction and placed on the new grade-separated structures upon completion.

Currently, the Line M Channel is undersized and, as a result, the area near Chesapeake Drive experiences overflow conditions during heavy storm events. The proposed project includes modifying the Line M Channel in this area to accommodate the project features and to provide the additional capacity needed for flood control. At Chesapeake Drive a drainage bifurcation structure would be installed to split the Line M Channel flow so that 50% continues to the downstream segment of the Line M channel and 50% is diverted to a new 84-inch pipeline at Chesapeake Drive. The existing Line M Channel, between Chesapeake Drive and UPRR (Niles Subdivision) just west of the Union City Corporation Yard, would be filled in and replaced by two ~~8~~10-foot by 5-foot box culverts along the north side of the new roadway. The new diversion pipeline would be an 84-inch buried pipeline extending along the south side of the new roadway to Old Alameda Creek. The pipeline would be buried approximately 10 feet deep (measured from the flow line to the finished grade) at the diversion point and would drop to 30 feet deep by the time it reaches Old Alameda Creek. The outfall structure would be likely comprised of a 36-inch outfall pipe and 110-square-foot rock slope protection area.

A separate roadway drainage system would be constructed on the north side of the new roadway between Chesapeake Drive and Alvarado-Niles Road. Stormwater runoff from the new roadway would be collected and conveyed through the use of underground conduits to outfall structures at several locations adjacent to the roadway and into infiltration basins. These basins would provide primary treatment for runoff before it infiltrates into the ground or, during a large storm event, enters Old Alameda Creek. The outfall structures and infiltration basins would be located on existing nonnative grassland areas adjacent to the new roadway between the Old Alameda Creek Flood Control Channel and Alvarado-Niles Road. Infiltration basins would allow water to percolate into the ground. There would be an overflow pipe from the infiltration basins to Old Alameda Creek to provide drainage relief for unusual storm events or to supplement the infiltration at the basin. The proposed project, as designed, includes the infrastructure to ensure that drainage and stormwater infrastructure is built to handle flooding and stormwater runoff adequately. Therefore, this impact is considered less than significant as related to infrastructure demand, and no mitigation is required. Potential water quality issues with stormwater runoff are addressed in Section 3.7 Hydrology and Water Quality.

Construction activities associated with implementing the new stormwater system could affect utility lines (underground and aerial lines, including existing water, electric, gas, telephone, and cable television lines). As described above, conflicts and service interruptions with existing utility lines would be avoided to the extent feasible; however, this may not always be possible. Therefore, this impact is considered significant. The following mitigation measure would reduce this impact to a less-than-significant level.

Mitigation Measure PSR-1: Conduct an Investigation of Utility Line Locations and Maintain Utility Services

A detailed study identifying the locations of utilities along the project alignment will be conducted during the design phase of the proposed project. For areas with the potential for adverse impacts on utility services, the following measures will be implemented.

- Utility excavation or encroachment permits will be required from the appropriate agencies. These permits include measures to minimize utility disruption. ACTA and its contractors will comply with permit conditions. Such conditions will be included in construction contract specifications.
- Utility locations will be verified through a field survey (potholing) and use of the Underground Service Alert services.
- Detailed specifications will be prepared as part of the design plans to include procedures for the excavation, support, and fill of areas around utility cables and pipelines. All affected utility services will be notified of the project construction plans and schedule. Arrangements will be made with these entities regarding the protection, relocation, or temporary disconnection of services.

- Residents and businesses adjacent to the project alignment will be notified of planned utility service disruption 2 to 4 days in advance, in conformance with the Cities of Fremont and Union City and state standards.
- Disconnected cables and lines will be reconnected promptly.
- The proposed project will observe all relevant California Department of Public Health standards for utility modification and construction.
- The proposed project will observe all relevant ACWD Standard Specifications for Water Main Extension.
- The proposed project will observe the California Department of Health Services (DHS) standards, which require:
    - a 10-foot horizontal separation between parallel sewer and water mains, and
    - a 1-foot vertical separation between perpendicular water and sewer line crossings.

In the event that separation requirements cannot be maintained, the project proponent will obtain a DHS variance through provisions of water encasement or other means deemed suitable by the department.

Impact PSR-2: Adverse Effects on the Capacity of Solid Waste Landfills (Less than Significant)

The proposed project would generate solid waste, including asphalt and other materials removed during roadway widening, intersection modifications, Quarry Lakes Drive realignment, demolition of the Silva farmhouse, and trail relocation. This material would be recycled to the extent practicable. Some items, such as signal hardware, may be delivered back to the Cities. Surplus material would become property of the contractor and be disposed of at the Fremont Recycling and Transfer Station. At the station, discarded materials, such as yard and wood waste, scrap metal, cardboard, and construction debris would be sorted and recycled. This facility is permitted to receive up to 2,400 tons of waste per day and operates under a 30-year service contract with the City of Fremont. Material that is delivered to the facility, but not recycled, would be directed to one of two landfills also under contract with the City of Fremont to receive all waste from the transfer station. The Tri-Cities Recycling and Disposal Facility is projected to receive waste through 2010. When this facility reaches its waste acceptance limits, waste materials would then be sent to the Altamont Landfill. The City of Fremont has a 20-year contract for waste disposal at the Altamont Landfill (Pianin pers. comm.).

The proposed project would also excavate approximately 430,000~~200,000~~ cubic yards of dirt (Table 3.11-1). The excavated material would be reused to the greatest extent possible to build roadway embankments and berms. Surplus material would become the property of the contractor and it would likely be reused on other projects requiring embankment material. Excess soil material may also be accommodated at a local landfill that requires a large quantity of dirt to be used as a landfill final cover layer when a facility is formally closed (for example, Tri-Cities Recycling and Disposal Facility).

Table 3.11-1. Excavation Requirements

Segment	Amount of Roadway Excavation (cubic yards)	Amount of Fill (cubic yards)	Approximate Net Volume to be Reused or Off-Hauled (cubic yards)
Segment 1 Decoto (Cabrillo to Fremont)	7,600	0	7,600
Segment 2 Decoto (Fremont to Paseo Padre)	3,100	0	3,100
Segment 3 Paseo Padre (Decoto to Isherwood)	4,000	0	4,000
Segment 4 New Roadway (Paseo Padre to Alvarado-Niles)	107,000	13,000	94,000
Segment 5 New Roadway (Alvarado-Niles to Mission)	130,000	38,000	92,000
Segment 6 Mission (O-Connel to Line M Channel)	1,400	0	1,400
Wetlands Mitigation Site	230,000		230,000

Because the Fremont Recycling and Transfer Station has been designed to meet demands for construction debris, and all materials generated through implementation of the project would not exceed the limits of this facility, this impact is considered less than significant. No mitigation would be required.

Impact PSR-3: Change in Demand for Neighborhood Parks, Regional Parks, or Recreational Facilities (Beneficial)

Implementation of the proposed project would not result in an increase in the local population, or change existing conditions in order to support a greater population along the project alignment or its vicinity. Access to local recreational opportunities along the project alignment would improve; however, the number of visitors using local recreational facilities would not be expected to change as a result of project implementation. The proposed project would increase the trail network throughout the project alignment, expanding bike lanes and providing continuous trail access, and would be in accordance with the goals of the City of Union City Parks Master Plan in further connecting trails throughout the City.

Implementation of the proposed project would include bike lanes along the entire length of the project alignment, from Interstate 880 on the west to Mission Boulevard on the east (see Figure 2-12 in Chapter 2, Project Description). Decoto Road would include a sidewalk and a Class 2 bike lane or shoulder on both sides of the roadway along the entire length of the roadway within the project alignment. Paseo Padre Parkway, from Decoto Road on the north to Isherwood Way on the south, would include a 5- to 8-foot Class 2 bike lane or outside shoulder in each direction within the project alignment.

Along the new roadway alignment, 8-foot bike lanes or outside shoulders would be provided in each direction. Additionally, there would be a Class I bike and pedestrian trail on the north side of the road that would be physically separated from the roadway by a landscaped buffer or other barrier and would connect with the existing trails in the area. When completed, the path would be maintained by either Fremont or Union City, depending on where it is located.

From Paseo Padre Parkway, the new roadway would cross the Alameda Creek Flood Control Channel. The bridge would be designed to maintain the existing pedestrian and bicycle trails that extend along the western and eastern channel banks and are part of the Alameda Creek regional trail system operated by EBRPD. The trail on the eastern bank would be lowered to cross beneath the proposed bridge, similar to the trail crossing beneath Isherwood Way. The path on the channel's western bank would split, with one trail remaining at its present grade and connecting to a new crosswalk and another trail lowered to cross beneath the proposed bridge. Lowering the elevation of the trails would subject them to potential flooding during heavy storm events. During these events, users could use the surface trail and crosswalk adjacent to Paseo Padre Parkway. The trail would be maintained by EBRPD. Construction of this project feature would be coordinated with EBRPD.

The paved trail extending along the south side of Old Alameda Creek would be relocated to pass under the proposed bridges of the new roadway alignment over Old Alameda Creek, and reconnect to the existing dirt path east of the new roadway alignment and south of Old Alameda Creek. In addition, the paved trail extending along the west side of Quarry Lakes Drive would be reconstructed on the west side of the realigned Quarry Lakes Drive, and would continue to provide connectivity to other local trails in this location.

The proposed wetland mitigation plan would also include a trail that would border the planned mitigation site in an appropriate manner to both protect wildlife enhancements while allowing recreational viewing of wildlife. The exact alignment of this trail has not been determined, as the wetland mitigation plan has not been finalized, but it would connect to the existing trail network surrounding this planned mitigation site. A preliminary figure of the wetland mitigation site, including this trail, is shown in Figure 3.3-3.

Because the proposed project would not create an increased demand for recreational facilities but would provide additional recreational facilities, this impact is considered beneficial. No mitigation is required.

Impact PSR-4: Adverse Physical Effects on Existing Recreational Facilities (Less than Significant with Mitigation)

Implementation of the proposed project would result in temporary construction-related impacts on existing bicycle and pedestrian trails along Alameda Creek Flood Control Channel and Old Alameda Creek, as well as portions of existing park facilities at Drigon Park and Arroyo Park. These impacts would be mitigated by informing the public of park and trail closures through the "community awareness program during construction" and implementing the traffic control plan. Both these mitigation measures are described below.

The proposed project entails modifying the Alameda Creek Trail where it intersects with the proposed roadway. The trail on the eastern bank would be lowered to cross beneath the proposed bridge, similar to the trail crossing beneath Isherwood Way to the south. The path on the channel's western bank would split, with one leg remaining at street grade and connecting to a new crosswalk along the proposed roadway, and the other leg lowered to cross beneath the proposed bridge. The street-level leg of the bifurcated trail would remain serviceable under all weather conditions. The lowered legs of the trail would be constructed to provide minimum headroom of 10 feet to provide access for maintenance vehicles and equestrian users. The lowered legs of the trail would be subject to flooding during heavy storm events, as are nearby lowered crossings at the Decoto Road crossing to the north and the Isherwood Way crossing to the south. The proposed trail crossing would be closed during major storm events to maintain safety to trail users, as it is at the nearby crossings. The design details of the lowered trail would be developed in consultation with EBRPD to ensure that concerns regarding design and storm closure are addressed. Because the proposed project would maintain adequate access at these EBRPD trail facilities and enable closure when necessary to maintain safety, this impact is considered less than significant.

The proposed project would require minor right-of-way extensions into Drigon Park and Arroyo Park. Between 7th Street and Mission Boulevard, the new roadway alignment would require minor right-of-way extension into the southern fringe of Drigon Park, which would take approximately 15,627 square feet from the park. This would include the removal of some vegetation at the edge of the park, but would entail no modification of any physical features inside the park, including the existing fence and surrounding pathway. ACTA would continue to coordinate with the Union City Department of Public Works and Planning Department as project design progresses, and would identify appropriate compensation for any parkland that is taken by the project alignment. The park would also be located at the end of a cul-de-sac off of the reconfigured 7th Avenue. Existing parking would be affected by the proposed project through the removal of some parking spaces located adjacent to the park. However, additional parking would be provided across the street on 7th Avenue to compensate for this loss. Therefore, this impact is considered less than significant.

Under the Quarry Lakes Drive Option 2, Quarry Lakes Drive would extend across the new roadway alignment and connect to Osprey Drive, creating a four-way intersection. This alignment would encroach on the eastern limits of Arroyo Park. Approximately 21,353 square feet of parkland would be acquired for roadway right-of-way. ACTA would continue to coordinate with the Union City Department of Public Works and Planning Department as project design progresses, and would identify appropriate compensation for any parkland that is taken by the project alignment. This area includes an area of open grass, including several trees and shrubs. The new roadway would be highly visible to park users, and would encroach on recreational users both visually and through an increase in traffic-generated noise. This impact is considered significant. Implementation of Mitigation Measure AES-4 would reduce this to a less-than-significant level.

Mitigation Measure AES-4: Provide Landscape Plan for Arroyo Park
ACTA will prepare a landscape plan for the affected portion of Arroyo Park that provides a buffer area at the park's edge. The landscape plan will include a physical barrier separating the new roadway from the park for safety and noise reduction, and a vegetation buffer planted with dense shrubs and trees to eliminate views of the new roadway from the park. Vegetation must be "Bay-friendly landscaping" in that it is native, drought-tolerant, and thrives in the Bay Area. The plan must be submitted for approval to the Union City Public Works Department.

Mitigation Measure NOI-2: Prepare a Community Awareness Program for Project Construction
In consultation with the representatives of Fremont and Union City, ACTA will prepare and maintain a program to enhance community awareness of project construction issues, including noise, vibration, nighttime noise, nighttime lighting, and park or trail closures. Initial information packets will be prepared and mailed to all residences within a 1,000-foot radius of project construction, with updates prepared as necessary to indicate new scheduling or processes. A project liaison will be identified who will be available to respond to community concerns regarding noise, vibration, and light.

Mitigation Measure TRA-1: Develop and Implement a Traffic Control Plan for Project Construction

In accordance with the City of Fremont and Union City policies on street closures and traffic diversion for arterial and collector roadways, the construction contractor will prepare a traffic control plan (to be approved by the City engineers) before construction. The traffic control plan will include:

- a street layout showing the location of construction activity and surrounding streets to be used as detour routes, including special signage;
- a tentative start date and construction duration period for each phase of construction;
- the name, address, and emergency contact number for those responsible for maintaining the traffic control devices during the course of construction; and
- written approval to implement traffic control from other agencies, as needed.

Additionally, the traffic control plan will address the following stipulations required of the proposed project.

- Provide access for emergency vehicles at all times.
- Avoid creating additional delay at intersections currently operating at or approaching congested conditions, either by choosing routes that avoid these locations, or restricting construction-related trips to and from the site to ~~constructing during~~ nonpeak times of day.
- Maintain access for driveways and private roads, except for brief periods of construction, in which case property owners will be notified.
- Provide adequate off-street parking areas at designated staging areas for construction-related vehicles.
- Maintain pedestrian and bicycle access and circulation during proposed project construction where safe to do so. If construction encroaches on a sidewalk or recreation trail, a safe detour will be provided for pedestrians at the nearest crosswalk. If construction encroaches on a bike lane, warning signs will be posted that indicate bicycles and vehicles are sharing the roadway.
- Provide detours as necessary throughout project construction to maintain safe access to the Quarry Lakes Regional Recreation Area.
- Identify the location of all project-related detours of EBRPD trail facilities through coordination with and approval of EBRPD planning staff, and provide detour signage approved by EBRPD to minimize hazards to trail users.
- Control traffic with flag persons wearing Occupational Safety and Health Administration–approved vests and using a Stop/Slow paddle to warn motorists of construction activity.
- Maintain access to transit services and ensure that public transit vehicles are detoured.

- Post standard construction warning signs in advance of the construction area and at any intersection that provides access to the construction area.
- Notify police and fire departments of both Cities of construction locations to ensure that alternative evacuation and emergency routes are designed to maintain response times during construction periods, if necessary during lane closures.
- Provide written notification to contractors regarding appropriate routes to and from construction sites, and weight and speed limits for local roads used to access construction sites. Submit a copy of all such written notifications to the City of Fremont and City of Union City planning departments.
- Repair or restore the road rights-of-way to their original condition or better upon completion of the work.

Section 3.12

Transportation and Traffic

Section 3.12
Transportation and Traffic

3.12.1 Introduction

This chapter describes existing transportation infrastructure and services in the project area, reviews applicable laws and regulations, and assesses potential impacts based on stated significance criteria. Mitigation measures are identified for potentially significant impacts, where they are feasible; and significant unavoidable impacts have been identified where mitigation is not feasible.

3.12.2 Setting

Sources of Information

The key sources of data and information used in the preparation of this section are listed and briefly described below.

- City of Fremont General Plan (City of Fremont 1991), environmental and regulatory setting information.
- 2002 Union City General Plan Policy Document (City of Union City 2002), environmental and regulatory setting information.
- Technical Memorandum, Existing Conditions Intersection Level of Service Analysis Results (Dowling Associates 2008a), methodology and existing conditions analysis (Appendix P).
- Technical Memorandum, I-880–SR 238 East-West Connector Traffic Forecasts (Dowling Associates 2008b), methodology for travel demand forecasting (Appendix Q).
- Operational analysis of roadways under future no project and proposed project conditions based on level of service (LOS) reports provided by Dowling and Associates.

Transportation Study Area

The transportation study area consists of roadways potentially affected by the proposed project, and is shown in Figure 1-1 in Chapter 1 of the Draft EIR.

The transportation study area was defined in collaboration with Caltrans, the Cities of Fremont and Union City. At the outset of this study, the limits of the study area were identified, as well as the specific study intersections to be evaluated. A draft memorandum that identified the proposed forecasting methodology was issued on August 30, 2007. The project team met with staff from Fremont and Union City on September 19, 2007, to discuss the approach and study area limits. A list of intersections proposed for study was circulated in October 2007, and additional comments (including requests for additional intersections to be studied) were received in late October 2007. A final memorandum identifying the agreed-upon forecasting methodology, study area, and the specific study intersections was issued on November 16, 2007 (Dowling Associates 2008b). On November 19, 2008, a Supplemental Technical Memorandum for: I-880 –SR238 East-West Connector Traffic Forecasts– Truncated Alternative was prepared to discuss the traffic forecasting methodology and results for Alternative 1 (analyzed in Chapter 5 and Appendix E).

The transportation study area is bounded by Whipple Road to the north, Mowry Avenue to the south, Interstate 880 (I-880) to the west, and Mission Boulevard to the east (Figure 3.12-1). Table 3.12-1 summarizes the 31 existing intersections and 5 new intersections that would result from the project that were identified for evaluation. The analysis intersections are all located within the cities of Union City and Fremont. I-880 ramps are under the jurisdiction of the California Department of Transportation (Caltrans). All other intersections are under the jurisdiction of the cities in which they are located.

Table 3.12-1. Analysis Intersections

Intersection		Location	Jurisdiction
EXISTING INTERSECTIONS			
1	Decoto Road/Mission Boulevard	Union City	Union City
2	Decoto Road/7th Street	Union City	Union City
3	Decoto Road/11th Street	Union City	Union City
4	Decoto Road/Union Square	Union City	Union City
5	Decoto Road/Alvarado-Niles Road	Union City	Union City
6	Decoto Road/Perry Road	Union City	Union City
7	Decoto Road/Paseo Padre Parkway	Fremont	Fremont
8	Decoto Road/Brookmill Drive	Fremont	Fremont
9	Decoto Road/Fremont Boulevard	Fremont	Fremont
10	Decoto Road/Ozark River Way	Fremont	Fremont
11	Decoto Road/Canal Terrace-Cabrillo Drive	Fremont	Fremont
12	Decoto Road/I-880 northbound ramps	Fremont	Caltrans
13	Decoto Road/I-880 southbound ramps	Fremont	Caltrans
14	Mission Boulevard/Appian Way-7th Street	Union City	Union City

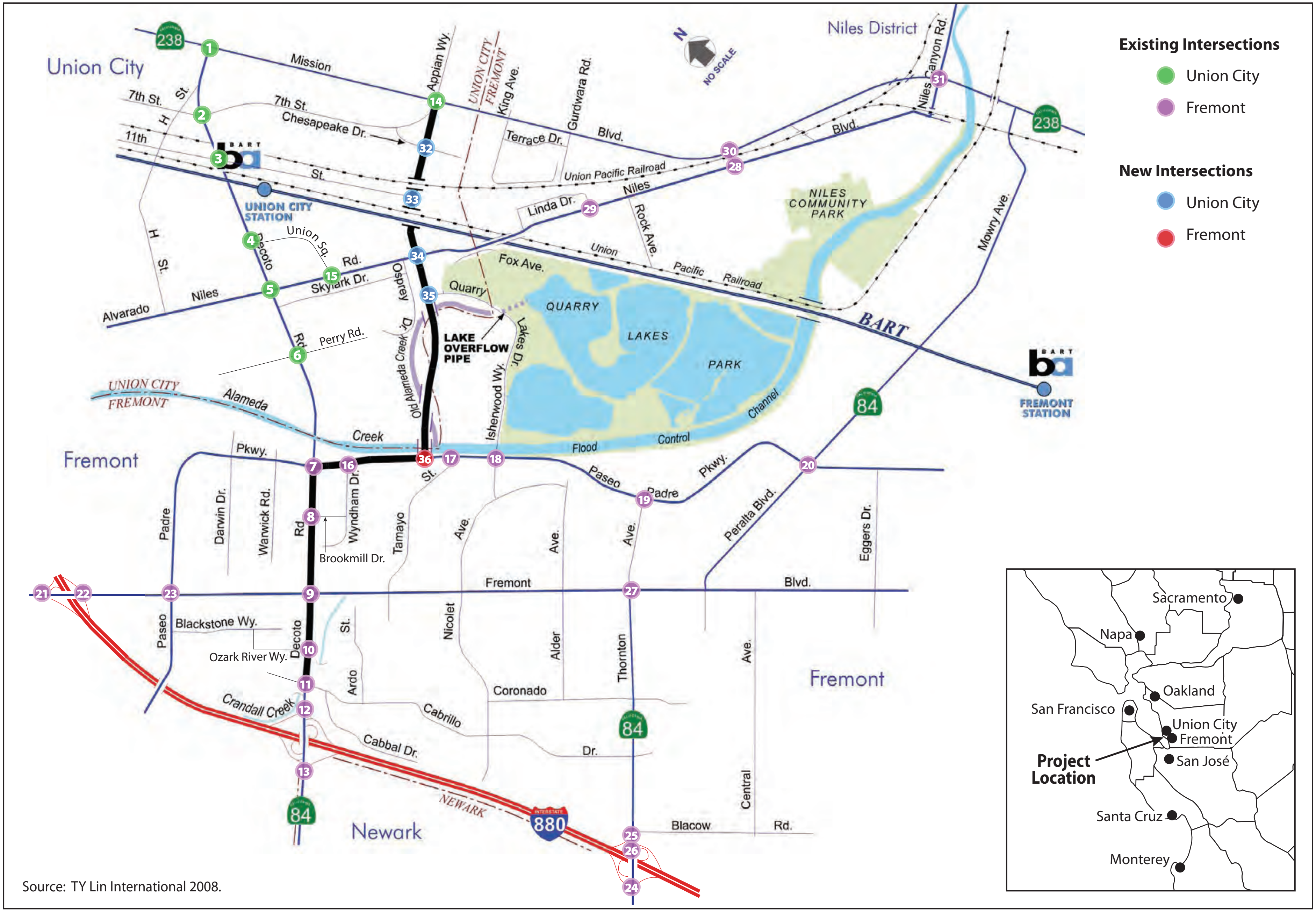

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Figure 3.12-1
Traffic Analysis Intersections
ACTA East-West Connector Project

Intersection		Location	Jurisdiction
15	Alvarado-Niles Road/Mann Avenue-Union Square	Union City	Union City
16	Paseo Padre Parkway/Wyndham Drive	Fremont	Fremont
17	Paseo Padre Parkway/Tamayo Street	Fremont	Fremont
18	Paseo Padre Parkway/Isherwood Way	Fremont	Fremont
19	Paseo Padre Parkway/Thornton Avenue	Fremont	Fremont
20	Paseo Padre Parkway/Peralta Boulevard	Fremont	Fremont
21	Fremont Boulevard/I-880 southbound ramps-Deep Creek Road	Fremont	Caltrans
22	Fremont Boulevard/I-880 northbound ramps	Fremont	Caltrans
23	Fremont Boulevard/Paseo Padre Parkway	Fremont	Fremont
24	Thornton Avenue/I-880 southbound ramps	Fremont	Caltrans
25	Thornton Avenue/I-880 northbound ramps	Fremont	Caltrans
26	Thornton Avenue/I-880 northbound ramp-Blacow Road	Fremont	Caltrans
27	Thornton Avenue/Fremont Boulevard	Fremont	Fremont
28	Niles Boulevard/Nursery Avenue	Fremont	Fremont
29	Niles Boulevard/Linda Drive	Fremont	Fremont
30	Mission Boulevard/Nursery Avenue	Fremont	Fremont
31	Mission Boulevard/Niles Canyon Road-Niles Boulevard	Fremont	Fremont
NEW INTERSECTIONS UNDER PROPOSED PROJECT			
32	New Roadway/7th Street	Union City	Union City
33	New Roadway/11th Street	Union City	Union City
34	New Roadway/Alvarado-Niles Road	Union City	Union City
35	New Roadway/Osprey Drive-Quarry Lakes Drive	Union City	Union City
36	New Roadway/Paseo Padre Parkway	Fremont	Fremont
Note: Intersection locations are shown in Figure 3.12-1.			

Existing Conditions

This section presents the existing transportation facilities, services, and operating conditions within the transportation study area.

State Highways

The following freeways provide regional access to the project alignment.

- I-880 connects Fremont to much of the rest of the East Bay, extending from Oakland to San Jose. It extends generally northwest-southeast, through the western portion of the project alignment.
- I-680 connects Fremont to the Livermore/Amador Valley and then to Contra Costa County, the Central Valley and Sacramento. It extends generally north-south to the east of the project alignment.
- The SR 84 freeway extends from I-880 west to the Fremont border and the Dumbarton Bridge leading to San Mateo and Santa Clara Counties.

In addition, the following State Routes function as arterial roadways in the study area.

- SR 84 extends to the south from I-880, through the southern portion of the study area. From the east this route connects the Livermore Valley through Niles Canyon, proceeds west on Mowry to Peralta, follows Peralta to Fremont Boulevard, connects to Thornton, and proceeds west to I-880.
- SR 238 follows Mission Boulevard between Hayward to the north and I-680 to the south.

The Average Annual Daily Traffic (AADT) for the state highways in the study area is summarized in Table 3.12-2.

Table 3.12-2. State Highway Average Annual Daily Traffic (2007)

State Highway	Location	AADT
I-880	Mowry Avenue	188,000
	Decoto Road	205,000
	Fremont Boulevard	201,000
I-680	SR 238 interchange	142,000
SR 238	Nursery Avenue	24,800
	Decoto Road	30,000
SR 84	I-880 interchange	74,000
	Fremont Boulevard/Peralta Boulevard	25,000
	SR 238	21,500

Source: California Department of Transportation 2008.

Local Roadways

Table 3.12-3 summarizes the existing operating conditions of the 31 analysis intersections, as measured by level of service (LOS), and based on traffic counts that were collected in November 2007. LOS is the primary measurement used to determine the operating quality of a roadway segment or intersection. In general, LOS is measured by the ratio of traffic volume to capacity (V/C) or by the average delay experienced by vehicles on the facility. The quality of traffic operation is graded into one of six LOS designations: A, B, C, D, E, or F. LOS A represents the best range of operating conditions and LOS F represents the worst. LOS is discussed in more detail later in this chapter, under Methodology.

Table 3.12-3. Existing Intersection Level of Service

	Intersection	Location	Traffic Control	Peak Hour	LOS[1]	Average Delay (sec/veh)[1]
1	Decoto Road/ Mission Boulevard	Union City	Signal	AM	C	23
				PM	C	32
2	Decoto Road/ 7th Street	Union City	Signal	AM	C	33
				PM	C	31
3	Decoto Road/ 11th Street	Union City	Signal	AM	D	38
				PM	D	49
4	Decoto Road/ Union Square	Union City	Signal	AM	D	36
				PM	D	44
5	Decoto Road/ Alvarado-Niles Road	Union City	Signal	AM	**F**	**157**
				PM	**F**	**179**
6	6. Decoto Road/ Perry Road	Union City	Signal	AM	C	26
				PM	C	33
7	Decoto Road/ Paseo Padre Parkway	Fremont	Signal	AM	D	55
				PM	**E**	**61**
8	Decoto Road/ Brookmill Drive	Fremont	Westbound Stop-control	AM	**F**	**226**
				PM	**F**	**791**
9	Decoto Road/ Fremont Boulevard	Fremont	Signal	AM	**E**	**80**
				PM	**E**	**59**
10	Decoto Road/ Ozark River Way	Fremont	Signal	AM	A	7
				PM	A	8
11	Decoto Road/ Canal Terrace-Cabrillo Drive	Fremont	Signal	AM	C	23
				PM	B	19
12	Decoto Road/ I-880 northbound ramps	Fremont	Signal	AM	D	44
				PM	**F**	**86**
13	Decoto Road/ I-880 southbound ramps	Fremont	Signal	AM	A	5
				PM	**E**	**68**
14	Mission Boulevard/ Appian Way-7th Street	Union City	Signal	AM	C	25
				PM	C	23

	Intersection	Location	Traffic Control	Peak Hour	LOS[1]	Average Delay (sec/veh)[1]
15	Alvarado-Niles Road/ Mann Avenue-Union Square	Union City	Signal	AM	C	23
				PM	C	25
16	Paseo Padre Parkway/ Wyndham Drive	Fremont	Northbound/ Southbound Stop-control	AM	**F**	**238**
				PM	**F**	**226**
17	Paseo Padre Parkway/ Tamayo Street	Fremont	Northbound Stop-control	AM	**F**	**61**
				PM	**F**	**52**
18	Paseo Padre Parkway/ Isherwood Way	Fremont	Signal	AM	B	19
				PM	B	20
19	Paseo Padre Parkway/ Thornton Avenue	Fremont	Signal	AM	C	25
				PM	C	26
20	Paseo Padre Parkway/ Peralta Boulevard	Fremont	Signal	AM	D	40
				PM	**E**	**61**
21	Fremont Boulevard/ I-880 southbound ramps-Deep Creek Road	Fremont	Signal	AM	C	33
				PM	C	25
22	Fremont Boulevard/ I-880 northbound ramps	Fremont	Signal	AM	B	14
				PM	B	15
23	Fremont Boulevard/ Paseo Padre Parkway	Fremont	Signal	AM	C	31
				PM	C	31
24	Thornton Avenue/ I-880 southbound ramps	Fremont	Signal	AM	A	8
				PM	B	15
25	Thornton Avenue/ I-880 northbound ramps	Fremont	Signal	AM	A	6
				PM	B	12
26	Thornton Avenue/ I-880 northbound ramp-Blacow Road	Fremont	Signal	AM	B	18
				PM	C	27
27	Thornton Avenue/ Fremont Boulevard	Fremont	Signal	AM	C	30
				PM	C	32
28	Niles Boulevard/ Nursery Avenue	Fremont	Signal	AM	C	27
				PM	B	15
29	Niles Boulevard/ Linda Drive	Fremont	Southbound Stop-control	AM	C	20
				PM	C	21
30	Mission Boulevard/ Nursery Avenue	Fremont	Signal	AM	C	30
				PM	C	32
31	Mission Boulevard/Niles Canyon Road- Niles Boulevard	Fremont	Signal	AM	D	54
				PM	D	49

1 At signalized intersections, LOS and average delay reflect the average of all vehicles that move through the intersection. At stop-controlled intersections, LOS average delay reflects the average of all vehicles on the stop-controlled leg(s) of the intersection. LOS that exceeds the threshold of LOS D is **shaded**.

Local agencies adopt LOS thresholds that define the level of congestion considered acceptable for roadways under each of their respective jurisdictions. The following LOS thresholds have been adopted by Fremont and Union City.

- Fremont seeks to maintain LOS D or better at major intersections, except where the achievement of such an LOS is demonstrated to conflict with environmental, historic, or aesthetic objectives; where regional traffic is a significant cause of congestion; or where substantial transportation improvements have been required and further mitigation is not feasible because of identified constraints (City of Fremont 1991).
- Union City seeks to maintain LOS D at all signalized intersections on arterial and collector streets, with the exception of intersections along I-880, Mission Boulevard, Decoto Road, and the proposed SR 84/Decoto Road corridor (City of Union City 2002).

Based on these guidelines, LOS D was defined as the acceptable threshold for all analysis intersections. In Table 3.12-3, intersections currently operating below the LOS D threshold are shaded.

The table shows that under existing conditions, the following nine intersections are operating at LOS E or LOS F during one or both of the analysis peak hours.

- (5) Decoto Road/Alvarado-Niles Road (LOS F in AM and PM peaks)
- (7) Decoto Road/Paseo Padre Parkway (LOS E in PM peak)
- (8) Decoto Road/Brookmill Drive (LOS F in AM and PM peaks)
- (9) Decoto Road/Fremont Boulevard (LOS E in AM and PM peaks)
- (12) Decoto Road/I-880 northbound ramps (LOS F in PM peak)
- (13) Decoto Road/I-880 southbound ramps (LOS E in PM peak)
- (16) Paseo Padre Parkway/Wyndham Drive (LOS F in AM and PM peaks)
- (17) Paseo Padre Parkway/Tamayo Street (LOS F in AM and PM peaks)
- (20) Paseo Padre Parkway/Peralta Boulevard (LOS E in PM peak)

The intersection of Decoto Road/Alvarado-Niles Road is located in Union City; and since it is located along the Decoto Road corridor, is exempt by policy from the LOS D threshold. The remaining eight intersections currently operating at LOS E or LOS F are located in Fremont.

Transit

The cities of Fremont and Union City are served by several transit systems, described in the following sections.

Bay Area Rapid Transit District

Bay Area Rapid Transit (BART) provides intra-regional commuter rail service connecting Fremont and Union City to the rest of Alameda County, Contra Costa County, and San Francisco. Union City and Fremont each have a BART station located within their boundaries, and are served by the orange line (Fremont–Richmond) and the green line (Fremont–Daly City). The Union City Station is located in the northwest portion of the study area, at 10 Union Square, just east of Decoto Road. The Fremont Station is located in the northeast portion of the study area, at 2000 BART Way, northeast of the intersection of Peralta Boulevard/Mowry Avenue/Paseo Padre Parkway (Bay Area Rapid Transit District 2008). The project alignment would cross two sets of BART tracks at the east end (Figure 2-1d in Chapter 2 of the Draft EIR).

Alameda Contra Costa Transit

Alameda Contra Costa Transit (AC Transit) provides regional and local bus service for Fremont and regional bus service for Union City. Numerous AC Transit routes run throughout both cities, with each BART station also serving as a major AC Transit hub. AC Transit routes run on most major roadways in the study area, including Decoto Road, Thornton Avenue, Peralta Boulevard/Mowry Avenue, Mission Boulevard, Paseo Padre Parkway, and Fremont Boulevard (Alameda Contra Costa Transit 2008).

Santa Clara Valley Transportation Authority

Santa Clara Valley Transportation Authority (VTA) also provides transit service in both cities. Four VTA routes serve Fremont, but they all run outside the study area, between the Fremont BART Station and destinations to the east and the south. The VTA's Dumbarton Express (SR 971) serves Union City, providing connection between the Union City BART Station and Palo Alto. This route extends through the study area along Decoto Road (Santa Clara Valley Transportation Authority 2008).

Union City Transit

Union City also has a citywide bus system, called Union City Transit. The Union City BART station serves as a hub for five Union City Transit routes that run along roadways within the study area. The Union City Transit routes run on Decoto Road, Mission Boulevard, 7th Street, and Alvarado-Niles Road, in the Union City portion of the study area (City of Union City 2008).

Paratransit

Several paratransit providers operate in the study area. Service is offered to senior and disabled riders who are unable to use fixed-route transit services.

Paratransit provides curb-to-curb transportation services to those residents who qualify. Union City Paratransit serves Union City with limited service to areas of adjacent cities. East Bay Paratransit provides regional service. Both Union City Paratransit and East Bay Paratransit provide service that meets the requirements of the Americans with Disabilities Act (ADA). The City of Fremont also operates a local non-ADA compliant paratransit program (City of Fremont 2008a; Lee pers.comm.).

Bicycle and Pedestrian Traffic

Bicycle and pedestrian facilities are present along segments of the project alignment. Bicycle lanes extend along Decoto Road, Paseo Padre Parkway, and Alvarado-Niles Road; and future bicycle facilities are proposed on most major roadways along the project alignment so there would be a continuous bicycle corridor along its entire length.

Paseo Padre Parkway and parts of Decoto Road feature landscaped sidewalks along the project corridor. Currently, there are gaps in the Decoto Road sidewalk where road right-of-way varies, a condition that is noted in the Fremont Pedestrian Master Plan (City of Fremont 2007). The plan identified connection of these gaps, along with gaps in the Fremont Boulevard sidewalk within the study area, as priorities for improving the City’s pedestrian facilities. The Alameda Creek Trail, an East Bay Regional Park District (EBRPD) facility, extends along both banks of the Alameda Creek Flood Control Channel in the project alignment. These trails accommodate non-motorized recreational traffic. The unpaved trail on the Alameda Creek Flood Control Channel’s north bank is intended for hikers, horseback riders, and cyclists; and the paved trail on the southern bank is intended for hikers and cyclists. A paved recreational trail maintained by the City of Fremont is situated on the southern banks of Old Alameda Creek.

A steady level of pedestrian and bicycle traffic occurs under existing conditions and is expected to continue into the future, especially along the major roadways in the study area. The Union City BART station serves as a major pedestrian generator in the study area, and a bicycle-traffic generator. Businesses on Decoto Road, concentrated at the Fremont Boulevard intersection, and the church on the north side of Decoto Road east of Fremont Boulevard, also generate pedestrian traffic.

Rail

In addition to the BART tracks, there are two railroad corridors in the transportation study area, including one set of Union Pacific Railroad (UPRR) Oakland Subdivision tracks and one set of UPRR Niles Subdivision tracks (Figure 2-1d in Chapter 2 of the Draft EIR). Local freight and passenger trains operate on the UPRR Oakland Subdivision line. Regional and local freight and passenger rail operate on the UPRR Niles Subdivision line. Freight trains are operated by UPRR, and passenger trains by Amtrak. Amtrak operates two intercity rail services along the line—the Coast Starlight, travelling between Seattle and Los Angeles, and the Capitol Corridor, travelling between Sacramento and San Jose. There is a plan to construct an intermodal station in Union City adjacent the BART Station to provide connections to Amtrak, the Altamont Commuter Express, and the planned Dumbarton Rail, which would provide service to the Peninsula and connect to the Caltrain system.

Airports

~~Two~~ Three commercial general aviation airports are located within 20 miles of the project alignment, ~~one~~ in Hayward, Livermore, and ~~the other in~~ San Jose. A fourth airport, the Moffett Federal Airfield, is in Mountain View. The nearest major commercial aviation facilities are located about 20 miles south in San Jose and 25 miles north in Oakland. The Oakland Airport is also served with a shuttle from the nearest BART station (City of Fremont 1991).

Regulatory Setting

Traffic analysis in the State of California is guided by policies and standards set at the state level by Caltrans and by local jurisdictions. Since the proposed project is located in the Cities of Union City and Fremont, the proposed project would be governed by the adopted transportation policies of these Cities.

City of Fremont General Plan

The City of Fremont General Plan (City of Fremont 1991) includes the following relevant polices for resources related to transportation.

Goal T 1: Efficient use of roadway system to provide convenient travel, reduce congestion, and improve air quality.

- **Objective T 1.1**: Completion and maintenance of the designated road network.
  - **Policy T 1.1.3**: Maintain roadways in good condition.
  - **Implementation 4**: Preserve a transportation corridor under study from I-880 and Decoto Road to Mission Boulevard to meet the future transportation needs of Fremont residents.
- **Objective T 1.2**: Smooth traffic flow on most arterials and collectors.
  - **Policy T 1.2.1**: Maintain a Level of Service "D," with a target Volume to Capacity ratio of .85 at major intersections, except where the achievement of such a level of service can be demonstrated to conflict with environmental, historic or aesthetic objectives or where regional traffic is a significant cause of congestion or where substantial

transportation improvements have been required and further mitigation is not feasible because of identified constraints. Level of Service "D" may not be achieved within the Central Business District and the Industrial Planning Area.

- **Implementation 1**: Identify intersections where a LOS below standard may be permissible and show them on the Circulation Diagram.
- **Implementation 2**: Identify intersections where regional or inter-city traffic does not permit the City to adhere to the Level of Service standard.
- **Policy T 1.2.2**: Limit access to parkways and arterials to maintain capacity, efficiency and safety of traffic flow.
- **Policy T 1.2.3**: Coordinate traffic signals to provide smooth vehicular flow on arterials.
- **Policy T 1.2.4**: Work closely with other jurisdictions responsible for roadways within Fremont and those which feed directly into Fremont's street network.
- **Policy T 1.2.5**: Divert regional traffic from local roads.
- **Policy T 1.2.6**: Discourage through traffic on local streets.

- **Objective T 1.5**: Participation in efforts to reduce regional traffic congestion
  - **Policy T 1.5.1**: Coordinate local transportation planning with regional and other local plans.
  - **Policy T 1.5.2**: Work with other jurisdictions to develop solutions to regional congestion.

Goal T 2: Convenient alternatives to the automobile to conserve energy, reduce congestion, improve air quality and provide a variety of transportation choices to meet a variety of needs.

- **Objective T 2.1**: A level of bus service providing a convenient and accessible alternative to the automobile.
  - **Policy T 2.1.1**: Support improved bus service within Fremont.
- **Objective T 2.3**: Easy transfer from one type of transportation to another to promote the use of alternatives to the automobile.
- **Objective T 2.4**: A safe and convenient bicycle network that facilitates bicycle travel for commuting to work, school, shopping and for recreation.
  - **Policy T 2.4.3**: Promote bicycle travel.
- **Objective T 2.6**: A pedestrian walkway system in community commercial centers, in the Central Business District, neighborhood shopping centers and serving major transit facilities.
  - **Policy T 2.6.1**: Develop convenient, continuous walkway systems in the community commercial centers.
  - **Policy T 2.6.3**: Develop walkway systems to serve BART stations.

- **Policy T 2.6.4**: Require the provision of pedestrian walkways in all developments, including older industrial areas. Walkways shall be required on both sides of all public streets.

Goal T 3: Transportation facilities and corridors that enhance the City's historic, visual, natural resources.

- **Objective T 3.1**: Transportation facilities and corridors that enhance community and City identity.
- **Policy T 3.1.1**: Provide street improvements and facilities that enhance neighborhood, district and City identity.
- **Policy T 3.1.2**: Require transportation facilities that aesthetically complement their built and natural environment.

City of Union City General Plan

The City of Union City 2002 General Plan (City of Union City 2002) includes the following relevant polices for resources related to transportation.

Goal TR-A.1: To establish a safe, convenient, and efficient roadway system that minimizes peak hour traffic congestion.

- **Policy TR-A.1.2**: The City shall monitor traffic flow problems and shall, to the extent feasible, improve capacity through improvements such as traffic signals, intersection widening, lane configurations, and basic traffic controls.
- **Policy TR-A 1.3**: The City shall continue to implement its policy that traffic LOS will not fail to meet mid-range LOS D at all signalized intersections on arterial and collector streets, with the exception of intersections on major regional routes, including I-880, Mission Boulevard (SR 238) and the SR 84/Decoto Road corridor.
- **Policy TR-A.1.9**: The City shall support the timely construction of the SR 84 extension as a partially depressed and at-grade parkway through the Station District to Mission Boulevard in order to resolve current circulation deficiencies, improve the area's regional access and visibility, and stimulate the market for region-serving retail, light industrial/service commercial, and office uses.
- **Policy TR-A.1.10**: The City shall ensure that the design of SR 84, 7th Street, and 11th Street is completed in such a manner that the industrial uses in the Station District can gain direct access to the facility with minimum disturbance to other uses in the area.
- **Policy TR-A.1.11**: The City shall develop contingency plans for early development of an east-west link through the Station District should the SR 84 construction be delayed.
- **Policy TR-A.1.14**: The City shall allow for gaps in the medians to provide safe street crossings to access transit stops when determined safe by the City Engineer.

- **Policy TR-A.1.15**: All new traffic signals should be equipped with audible signal devices, traffic signal timing and coordination, and signal emergency vehicle preemption. The City shall investigate new technologies which will improve movement of pedestrians, bicyclists, public transit and emergency vehicles.

Goal TR-A.2: To keep the transportation system in balance with the land uses in Union City.

- **Policy TR-A.2.1**: The City shall work with the City of Fremont, Caltrans, and the ACTA to complete the SR 84 extension between I-880 and Mission Boulevard.

Goal TR-A.3: To protect neighborhood integrity and livability and improve safety by minimizing through traffic in residential neighborhoods.

Goal TR-B.1: To provide an efficient, convenient public transportation system for residents and workers in Union City.

- **Policy TR-B.2.13**: The City shall ensure that the design of 11th Street and the proposed SR 84 extension support the land uses in the Station District.

Goal TR-C.1: To create an institutional framework that supports bicycle and pedestrian travel through policy development, city staff and committee actions, and capital project implementation.

- **Policy TR-C.1.1**: The City shall consider the needs of bicyclists and pedestrians in all future road construction or widening projects and development projects (reference policies CD-A.1.2, LU-A.6.4).
- **Policy TR-C.1.5**: The City shall develop bicycle and pedestrian design guidelines to be used in the development of all new bicycle and pedestrian facilities.

Goal TR-C.2: To develop a comprehensive signed bicycle route network composed of Class I (paved off-street paths and multi-use trails), Class II (bicycle lanes), and Class III (shared-use roadways) facilities connecting all of Union City's neighborhoods and adjacent communities.

- **Policy TR-C.2.3**: The City shall integrate, wherever possible, its planned bicycle route network with the Alameda Countywide Bicycle network and existing bicycle facilities in Fremont and Hayward.
- **Policy TR-C.2.9**: The City shall encourage the development of easily accessible and safe bike paths along the SR 84 extension.

Goal TR-C.4: To create a continuous pedestrian network that meets Americans with Disabilities Act (ADA) standards and allows pedestrians to safely and conveniently access parks and open space areas, transit centers, schools, shopping areas, public facilities, major employment centers, and other significant destinations.

- **Policy TR-C.4.1**: The City shall examine all signalized intersections and prioritize improvements at these locations, including crosswalk striping, pedestrian actuation, pedestrian countdown signals, signal re-timing, and audible pedestrian signals.

3.12.3 Impact Analysis

This section describes the impact analysis relating to transportation and traffic for the proposed project. It describes the methods used to determine the impacts of the proposed project and lists the thresholds used to identify whether or not an impact would be significant. Measures to mitigate (i.e., avoid, minimize, rectify, reduce, eliminate, or compensate for) significant impacts are identified where they are feasible. Significant and unavoidable impacts, for which mitigation is not feasible, are also identified.

Methodology

This section summarizes the methodologies that were applied to assess the potential construction and operational impacts of the proposed project.

Construction Impacts

Construction impacts are those that would occur in the course of constructing the proposed project. Potential construction impacts on roadway, rail, or non-motorized safety and operations were qualitatively assessed. An impact was identified if construction of the proposed project would result in a short-term, temporary increase in construction-related truck and auto traffic, decreases in roadway capacity, potential safety hazards, or disruption of travel for vehicular, rail, or non-motorized travelers.

Operational Impacts

Operational impacts are those that would occur after project construction is completed, which are attributed to the actual operations of the completed project. Potential operation impacts were considered for roadways, transit, bicycle travel, pedestrian travel, and air travel.

Roadway Operations

In order to assess operational impacts on roadway operations, travel patterns that would occur with and without the proposed project were evaluated using the procedures described in the following sections.

Travel Demand Forecasting

The Alameda Countywide Travel Demand Model (model), developed by the Alameda County Congestion Management Agency, was used to develop the future traffic volume forecasts. The model uses the 2005 Association of Bay Area Government's projections of land use and sociodemographic data for horizon years 2005, 2015, and 2035. The model forecasts daily traffic volumes, divided into AM peak hour, PM peak hour, PM peak 2-hour, and PM peak 4-hour volumes. The methodology applied for travel demand forecasting is described in detail in the technical memorandum for the proposed project, I-880–SR 238 East-West Connector Traffic Forecasts (Dowling Associates 2008b) (Appendix Q). A draft memorandum that identified the proposed forecasting methodology was issued on August 30, 2007. The project team met with staff from Fremont and Union City on September 19, 2007, to discuss the approach and study area limits. A final memorandum identifying the agreed-upon forecasting methodology, study area, and the specific study intersections was issued on November 16, 2007 (Dowling Associates 2008b). On November 19, 2008, a Supplemental Technical Memorandum for: I-880 –SR238 East-West Connector Traffic Forecasts– Truncated Alternative was prepared to discuss the traffic forecasting methodology and results for Alternative 1 (analyzed in Chapter 5 and Appendix E). The primary elements of the forecasting process are described below.

<u>Localized Validation</u>

Localized validation consists of refining the broader regional model to reflect conditions on the existing roadways in the study area. This step is usually implemented for project-specific forecasting efforts because regional models generally focus on major facilities such as freeways and expressways; and less attention is given to forecasts for arterials and local streets. The roadway network and regional land use were adjusted to reflect 2007 conditions, to match the year the traffic counts were conducted. The model was then run, and the model output volumes on the study area roadways were compared to the traffic counts on those roadways. Where significant differences were identified between model volumes and traffic counts, adjustments were made to one or more of the model network inputs. The adjusted model was run again, and new volumes were compared to the traffic counts. The process was repeated until the model volumes matched traffic counts within established targets.

<u>Traffic Forecasts</u>

Once the model was validated against existing conditions, it could be used to forecast traffic under future scenarios. The future model was developed by adding the regional development projected to occur by each of the future analysis years (2015 when project construction is expected to be complete and 2035 based on the industry standard of projecting 20 to 25 years out). For the modeled roadway network, future planned roadway improvement projects (verified by the project team with staff of Caltrans and the Cities of Fremont and Union City) were also assumed to be in place. The proposed Route 84 project was not included in this scenario. Thus, the traffic volumes forecasted under the future no project scenarios reflect conditions that include future growth in regional development and future planned roadway projects that are independent of the proposed project.

The future proposed project model was developed by adding the proposed project to the no project roadway network. Thus, the traffic volumes forecasted under the proposed project scenarios also reflect conditions that include future regional growth, but with the proposed project in place.

The bike and pedestrian facilities completed under the proposed project would promote walking and the use of bicycles, and is expected to result in reduced vehicle trips. However, it is difficult to accurately quantify this shift in transportation mode. In the traffic analysis for the project, no reduction in vehicle trips is assumed. This approach is considered conservative in that it would likely overstate the project's impacts to traffic operations.

Intersection Volumes

The future model volumes (2015 and 2035) were compared to 2007 model volumes, to establish a growth rate from 2007 to the analysis year at each intersection. The growth factor was then applied to the 2007 traffic counts, to project future year turning movement volumes at each analysis intersection.

Transportation Measures of Effectiveness

The output of the travel demand forecasting process includes projections of traffic volumes on roadways and through intersections, as well as projections of the average travel times and typical delay experienced by vehicles traveling on those facilities. This output can be used to develop measures of effectiveness at either system-wide or location-specific levels. Common system-wide measures of effectiveness include the following.

- **Travel time** – Travel time is the time it would take to travel from a pre-determined origin to a pre-determined destination in and around a specified area. Average speed is an inverse measure of effectiveness to travel time. The higher the average system-wide speeds, the lower the average travel times. However, travel time is not a guideline included as Goals in the transportation elements of the General Plans of the two cities.
- **Duration of peak congestion hours** – Duration of peak congestion hours are the length of time of the morning peak hour and the evening peak hour during which traffic is delayed due to a lack of capacity in the transportation system. However, change in peak congestion hours is not a guideline included as Goals in the transportation elements of the General Plans of the two cities.
- **Daily (or annual) congestion delay hours** – The delay hours are time lost as a result of to traffic congestion. Delay can contribute to air quality degradation and loss of productivity. In 2007, the Metropolitan Transportation Commission determined that the cost of each hour of recurring delay as $19.10 per vehicle or $31.26 per truck (Yee pers comm.).

However, change in daily (or annual) congestion delay hours is not a guideline included as Goals in the transportation elements of the General Plans of the two cities.

- **Level of Service** – At the location-specific level, LOS is the most commonly used measure of effectiveness (introduced in the Setting section of this chapter, and described in more detail in the following section). Most local jurisdictions, including the Cities of Union City and Fremont, measure roadway operations according to the LOS of individual intersections. As discussed earlier in this chapter, the acceptable level of operations is defined by LOS thresholds that are defined in the Cities' General Plan policies.

It should be noted that LOS determination provides an assessment of traffic operations at a localized level but does not necessarily convey a complete picture of system-wide operations. For example, an individual driver may experience a higher level of delay at an individual intersection, but could still experience an overall decrease in travel time for the overall trip. Likewise, while an individual driver may experience a higher level of delay at an individual intersection, there could still be an overall reduction in overall congestion delay at a project area.

Because the proposed project affects a large geographical area, the analysis assessed both localized LOS at intersections and system-wide measures such as travel times and cumulative delay. Together, these measures provide a more complete picture of the impact of the proposed project, and can be collectively considered in overall decisions made with respect to the proposed project.

Level of Service

As discussed in the previous section, potential intersection impacts were assessed by performing intersection LOS analysis, based on the forecasted 2015 and 2035 intersection traffic volumes under the no project and proposed project scenarios. LOS on transportation facilities is analyzed and measured according to procedures provided in the Highway Capacity Manual (Transportation Research Board 2000). The quality of traffic operation is graded into one of six LOS designations, A, B, C, D, E, or F. LOS A and B represent the best traffic operation. LOS C and D represent intermediate operation, and LOS E represents traffic that is at or approaching capacity. LOS F generally describes congested operations that occur when the volume of traffic arriving at a point is greater than the facility's capacity. In general, intersection LOS is measured by the average delay experienced by vehicles that travel through the intersection. The procedures applied to signalized and stop-controlled intersections are described as follows.

Signalized Intersections

For signalized intersections, LOS is measured by the average delay (seconds per vehicle) experienced by vehicles that travel through the intersection, with LOS designation based upon the delay. Table 3.12-4 summarizes LOS descriptions and thresholds for signalized intersections.

Table 3.12-4. Level of Service Thresholds at Signalized Intersections

LOS	Average Delay (seconds/vehicle)	Description
A	≤ 10	**Very Low Delay:** This LOS occurs when progression is extremely favorable and most vehicles arrive during a green phase. Most vehicles do not stop at all.
B	> 10 and ≤ 20	**Minimal Delay:** This LOS generally occurs with good progression, short cycle lengths, or both. More vehicles stop than at LOS A, causing higher levels of average delay.
C	> 20 and ≤ 35	**Acceptable Delay:** Delay increases due to only fair progression, longer cycle lengths, or both. Individual cycle failures (to service all waiting vehicles) may begin to appear at this LOS. The number of vehicles stopping is significant, though many still pass through the intersection without stopping.
D	> 35 and ≤ 55	**Approaching Unstable Operation/Significant Delay:** The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume/capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	> 55 and ≤ 80	**Unstable Operation/Substantial Delay:** These high delay values generally indicate poor progression, long cycle lengths, and high volume/capacity ratios. Individual cycle failures are frequent occurrences.
F	> 80	**Excessive Delay:** This LOS, considered unacceptable to most drivers, often occurs with over-saturation (when arrival traffic volumes exceed the capacity of the intersection). It may also occur at nearly saturated conditions with many individual cycle failures. Poor progression and long cycle lengths may also contribute significantly to high delay levels.

Source: Transportation Research Board 2000.

Stop-Controlled Intersections

For stop-controlled intersections, the LOS is measured by the average delay experienced by vehicles on the stop-controlled approaches. This methodology determines LOS by calculating an average total delay per vehicle for each stop-controlled movement. An LOS designation is assigned based upon the average control delay of all stop-controlled movements. Table 3.12-5 summarizes LOS thresholds for stop-controlled intersections.

Table 3.12-5. Level of Service Thresholds at Stop-Controlled Intersections

LOS	Average Delay (seconds/vehicle)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

Source: Transportation Research Board 2000.

Transit Operations

The effect of the proposed project on transit operations was qualitatively evaluated. Elements considered were the potential of construction or operations of the proposed project to interfere with accessibility to transit, or to decrease safety or impede mobility of transit operations, as compared to no project conditions.

Non-Motorized Operations

The effect of the proposed project on bicycle and pedestrian operations was qualitatively evaluated. Elements considered were the potential of construction or operations of the proposed project to decrease safety or impede mobility of pedestrian or bicycle operations, or to create gaps in the non-motorized transportation system, as compared to no project conditions.

Significance Criteria

According to State CEQA Guidelines Appendix G (14 CCR 15000 *et seq*.), a project could result in a significant impact if it would:

- cause an increase in traffic that is substantial in relation to the existing traffic volumes and capacity of the roadway system (e.g., result in a substantial increase in either the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections);
- fail to meet, either individually or cumulatively, a LOS standard established by local jurisdictions for designated roadways or highways (as described under the Regulatory Setting section, a standard of LOS D has been established by both Fremont and Union City);
- result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks;
- substantially increase hazards to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);
- result in inadequate emergency access;
- result in inadequate parking capacity; or
- conflict with adopted policies supporting alternative transportation.

For the purposes of this analysis, traffic increases (as presented under the first two bullets above) are considered significant if they result in violation of the local jurisdiction's adopted LOS standard. As stated in their respective adopted policies, both Union City and Fremont have identified LOS D as the desirable level of operations. In coordination with the local jurisdictions, it was determined that traffic increases would be considered significant if:

- traffic operations are LOS D or better under the no project scenario, and analysis shows that the proposed project would cause operations to reduce to LOS E or LOS F; or
- traffic operations are LOS E or F under the no project scenario, and analysis shows that the proposed project would cause a further increase in average delay greater than 4 seconds (Odumade pers. comm.; Malloy pers. comm.).

As stated in Policy TR-A 1.3 of the Union City General Plan (see Regulatory Setting) , the new roadway in Union City (Alvarado-Niles Road to Mission Boulevard) is exempt from this standard (City of Union City 2002).

Section 15126 of the CEQA Guidelines provides that the environmental setting, which consists of existing physical conditions (at the time the notice of preparation [NOP] to prepare an EIR is distributed), will normally be the baseline by which a lead agency determines whether impacts are significant. When the proposed project is a transportation project that would not be constructed and operational for several years into the future, it is common professional practice for traffic, air quality, and noise analyses to use future conditions without the proposed project as the baseline to compare future conditions with the proposed project.

It is also important to analyze future cumulative traffic conditions, because it takes into account future regional traffic growth that is expected to occur regardless of whether or not the proposed project is built. If this future cumulative traffic were not included, potential future traffic impacts would be underestimated. However, under future cumulative conditions, it is also important to differentiate the impacts that would result from regional background growth and the impacts that would directly result from the proposed project. In order to characterize the direct impact of the project and to remove the effect of background growth from the direct impact assessment, changes in transportation are evaluated by comparing future conditions with the proposed project in place to future conditions expected without the proposed project, using the same future years. For this analysis of the proposed project, the future years used are 2015 when project construction is expected to be complete and 2035 based on the industry standard of projecting 20 to 25 years out.

Project Impacts and Mitigation Measures

Construction Impacts

Impact TRA-1: Temporary Increase in Construction-Related Truck and Auto Traffic, Decreases in Roadway Capacity, and Disruption Of Vehicular and Non-Motorized Travel during Construction (Less than Significant with Mitigation)

Demolition and construction activities associated with various elements of the proposed project would generate truck and other vehicular traffic from construction worker commutes, transport and staging of construction equipment, transport of construction materials to the construction site, and hauling materials away from the site. The exact locations and extents of construction impacts would not be known until detailed construction timing and phasing plans are developed. However, potential construction impacts on roadway operations include the following.

- A temporary increase in traffic associated with construction worker commutes, delivery of construction materials, hauling of demolished and/or excavated materials, and general deliveries would increase travel demand on roadways.
- Temporary roadway lanes closures or narrowings in areas directly abutting construction activities would reduce capacity of roadways.
- Temporary roadway closures associated with the construction of transportation infrastructure would reduce the capacity of the roadway system, or require detours that increase travel times.
- Temporary lane or road closures could require route detours or reduced service for transit routes that run adjacent to project elements that are under construction.
- During project construction, parking demand would increase from construction workers and from construction equipment that is not in use. In addition, parking spaces located adjacent to construction activities could be temporarily closed.
- Temporary sidewalk, lane, or road closures could occur adjacent to project elements that are under construction, which could interfere with bicycle or pedestrian circulation in the project vicinity.
- Travel disruptions could occur along the Class II bicycle lane along Decoto Avenue.
- Heavy and slow-moving construction vehicles would mix with general-purpose vehicular and non-motorized traffic in the area.

Construction of the proposed project would result in a temporary increase in traffic volumes and a decrease in roadway capacity as a result of temporary lane closures. The following impacts could result from the proposed project.

- Reduced roadway capacity and an increase in construction-related congestion could result in temporary localized increases in traffic congestion that fail to meet LOS standards.
- Construction activities could disrupt transit service in the project vicinity. Impacts may include temporary route detours, reduced or no service to certain destinations, or service delays.
- Construction activities would increase parking demand in the project vicinity and could result in parking demand exceeding the available supply.
- Construction activities would disrupt pedestrian and bicycle travel. Impacts include temporary sidewalk, trail, or roadway closures that would create gaps in pedestrian or bicycle routes and interfere with safe travel.
- Construction activities would increase the mix of heavy construction vehicles with general purpose traffic. Impacts include increase in safety hazards due to a higher proportion of heavy trucks.

This impact is considered significant. The following mitigation measure would reduce this impact to a less-than-significant level.

Mitigation Measure TRA-1: Develop and Implement a Traffic Control Plan for Project Construction

In accordance with the City of Fremont and Union City policies on street closures and traffic diversion for arterial and collector roadways, the construction contractor will prepare a traffic control plan (to be approved by the City engineers) before construction. The traffic control plan will include:

- a street layout showing the location of construction activity and surrounding streets to be used as detour routes, including special signage;
- a tentative start date and construction duration period for each phase of construction;
- the name, address, and emergency contact number for those responsible for maintaining the traffic control devices during the course of construction; and
- written approval to implement traffic control from other agencies, as needed.

Additionally, the traffic control plan will address the following stipulations required of the proposed project.

- Provide access for emergency vehicles at all times.
- Avoid creating additional delay at intersections currently operating at or approaching congested conditions, either by choosing routes that avoid these locations, or restricting construction-related trips to and from the site to ~~constructing during~~ nonpeak times of day.
- Maintain access for driveways and private roads, except for brief periods of construction, in which case property owners will be notified.
- Provide adequate off-street parking areas at designated staging areas for construction-related vehicles.

- Maintain pedestrian and bicycle access and circulation during proposed project construction where safe to do so. If construction encroaches on a sidewalk or recreation trail, a safe detour will be provided for pedestrians at the nearest crosswalk. If construction encroaches on a bike lane, warning signs will be posted that indicate bicycles and vehicles are sharing the roadway.
- Provide detours as necessary throughout project construction to maintain safe access to the Quarry Lakes Regional Recreation Area.
- Identify the location of all project-related detours of EBRPD trail facilities through coordination with and approval of EBRPD planning staff, and provide detour signage approved by EBRPD to minimize hazards to trail users.
- Control traffic with flag persons wearing Occupational Safety and Health Administration–approved vests and using a Stop/Slow paddle to warn motorists of construction activity.
- Maintain access to transit services and ensure that public transit vehicles are detoured.
- Post standard construction warning signs in advance of the construction area and at any intersection that provides access to the construction area.
- Notify police and fire departments of both Cities of construction locations to ensure that alternative evacuation and emergency routes are designed to maintain response times during construction periods, if necessary during lane closures.
- Provide written notification to contractors regarding appropriate routes to and from construction sites, and weight and speed limits for local roads used to access construction sites. Submit a copy of all such written notifications to the City of Fremont and City of Union City planning departments.
- Repair or restore the road rights-of-way to their original condition or better upon completion of the work.

Impact TRA-2: Intermittent Interruption of Rail Service during Construction (Significant and Unavoidable)

During grade separation construction, the proposed project would construct temporary shooflies to allow continued transit, passenger, and freight rail operations. The transfer of rail operations to and from the temporary shooflies would have temporary impacts on UPRR or BART operations. The tie-in and transfer of rail operations for each track would require disruption of service in order to install or remove the track tie-ins at either end of the shooflies. Each set of tie-ins (both ends) would require 1 to 2 days of 24-hour construction for each set of tracks. UPRR tie-ins could be constructed with minimal impact on existing rail operations.

This impact is considered significant. The following mitigation measures would reduce this impact, but not to a less-than-significant level. Therefore, this impact is considered significant and unavoidable.

Mitigation Measure TRA-2: Provide Temporary Bus Service during All Interruptions in BART Service

ACTA will coordinate with BART officials to provide bus bridges (buses to shuttle BART passengers) between the Fremont and Union City BART stations. Buses will be scheduled to coincide with the normal BART train schedule, and will be available whenever an interruption in BART service is necessary.

Mitigation Measure TRA-3: Limit Interruption of BART Service to Weekends

ACTA will ensure that interruptions of BART service are limited to the weekends. BART ridership is lower on weekends than it is on weekdays, and limiting service interruption to weekends would minimize the number of affected passengers. ACTA will coordinate with BART officials to determine the schedule for construction work and service interruption.

Mitigation Measure TRA-4: Prepare a Rider Awareness Program Addressing BART Service Interruptions

ACTA, in consultation with BART officials, will prepare a rider awareness program to notify BART passengers of the dates and times of closures and of the availability of bus service during the interruption.

Impact TRA-3: Temporary Closure of Pedestrian and Bicycle Trails during Construction (Less than Significant with Mitigation)

The proposed project would require temporary closure of pedestrian and bicycle trails along the Alameda Creek Flood Control Channel and Old Alameda Creek while bridges are constructed. Full access would be restored upon completion of these phases of construction. This impact is considered significant. The following mitigation measures to inform the public of trail closures and to implement a traffic control plan that provides pedestrian and bicycle detours would reduce this impact to a less-than-significant level.

Mitigation Measure NOI-2: Prepare a Community Awareness Program for Project Construction

In consultation with the representatives of Fremont and Union City, ACTA will prepare and maintain a program to enhance community awareness of project construction issues, including noise, vibration, nighttime noise, nighttime lighting, and park or trail closures. Initial information packets will be prepared and mailed to all residences within a 1,000-foot radius of project construction, with updates prepared as necessary to indicate new scheduling or processes. A project liaison will be identified who will be available to respond to community concerns regarding noise, vibration, and light.

Mitigation Measure TRA-1: Develop and Implement a Traffic Control Plan for Project Construction

Operational Impacts

2015 Operational Impacts

Impact TRA-4: Improvement in Operations at 12 Intersections and Minor Reduction in Operations at 2 Intersections under Proposed Project Conditions Compared to No Project Conditions in 2015 (Less than Significant/Beneficial)

Table 3.12-6 summarizes the projected LOS at the analysis intersections in 2015, under no project and proposed project conditions. The table shows that under 2015 no project conditions, 14 analysis intersections are projected to operate at LOS D or better during both peak hours, which is within both Cities' threshold of LOS D. The other 17 analysis intersections are projected to fail to meet LOS D during one or both of the peak hours.

Under 2015 conditions, the proposed project is expected to improve operations at the following 12 intersections that are projected to exceed LOS D under the no project scenario.

- (4) Decoto Road/Union Square—LOS F in PM peak under no project improved to LOS D.
- (5) Decoto Road/Alvarado-Niles Road—LOS F in PM peak under no project is expected to remain LOS F with the proposed project in place, but the proposed project is projected to decrease average delay (however, proposed project would result in reduction of LOS in AM peak, as described under Impact TRA-5).
- (7) Decoto Road/Paseo Padre Parkway—LOS F in AM peak under no project improved to LOS E; LOS E in PM peak under no project improved to LOS D.
- (8) Decoto Road/Brookmill Drive—LOS F in AM and PM peaks under no project improved to LOS A (due to installation of traffic signal).
- (9) Decoto Road/Fremont Boulevard—LOS E in AM peak under no project improved to LOS D (however, proposed project would result in reduction of LOS in PM peak, as described under Impact TRA-5).
- (13) Decoto Road/I-880 southbound ramps—LOS E in AM peak under no project improved to LOS C (however, proposed project would result in reduction of LOS in PM peak, as described under Impact TRA-5).
- (16) Paseo Padre Parkway/Tamayo Street—LOS F in AM and PM peaks under no project improved to LOS A (due to installation of traffic signal).
- (17) Paseo Padre Parkway/Wyndham Drive—LOS F in AM and PM peaks under no project improved to LOS A (due to installation of traffic signal).
- (18) Paseo Padre Parkway/Isherwood Way—LOS F in AM/PM peaks under no project improved to LOS E in AM peak and LOS D in PM peak.

- (20) Paseo Padre Parkway/Peralta Boulevard—LOS E in AM peak under no project improved to LOS D (however, proposed project would result in reduction of LOS in PM peak, as described under Impact TRA-5).
- (28) Niles Boulevard/Nursery Avenue—LOS E in PM peak under no project improved to LOS D (however, proposed project would result in reduction of LOS in AM peak, as described under Impact TRA-5).
- (31) Mission Boulevard/Niles Canyon Road-Niles Boulevard—LOS E in PM peak under no project improved to LOS D (however, proposed project would result in minor reduction of LOS in AM peak, as described in the following section).

Although the LOS would still fail to meet locally adopted standards at some intersections listed above, the project is expected to improve operations at these locations. Therefore, this impact is considered less than significant. No mitigation is required.

In addition, under 2015 conditions the proposed project is expected to increase average delay by less than the 4-second threshold at the following two locations.

- (2) Decoto Road/7th Street—LOS E with 61-second average delay in PM peak under no project; proposed project would reduce operations to LOS E with 64-second average delay (however, the proposed project would result in significant reduction of LOS in AM peak, as described under impact TRA-5).
- (31) Mission Boulevard/Niles Canyon Road-Niles Boulevard—LOS E with 74-second average delay in AM peak under no project; proposed project would reduce operations to LOS E with 77-second average delay.

Although the proposed project is expected to result in a reduction of operations at these locations, the increase in average delay is projected to be less than the 4-second significance threshold. Therefore, this impact is considered less than significant. No mitigation is required.

Table 3.12-6. Intersection Level of Service—2015 No Project and Proposed Project

	Intersection	Location	Traffic Control	Peak Hour	LOS Standard	Existing (2008) LOS[1]	Existing (2008) Average Delay	2015 No Project LOS[1]	2015 No Project Average Delay	2015 Proposed Project LOS[1]	2015 Proposed Project Average Delay	Significant Impact Identified
1	Decoto Road/ Mission Boulevard	Union City	Signal	AM	D	C	23	D	41	D	39	No
				PM	D	C	32	C	33	C	26	No
2	Decoto Road/ 7th Street	Union City	Signal	AM	D	C	33	D	39	**F**	**99**	**Yes**
				PM	D	C	31	**E**	**61**	E	64	No
3	Decoto Road/ 11th Street	Union City	Signal	AM	D	D	38	D	50	**E**	**62**	**Yes**
				PM	D	D	49	**F**	**121**	**F**	**159**	**Yes**
4	Decoto Road/ Union Square	Union City	Signal	AM	D	D	36	D	37	D	36	No
				PM	D	D	44	**F**	**80**	D	45	No
5	Decoto Road/ Alvarado-Niles Road	Union City	Signal	AM	D	**F**	**157**	**F**	**231**	**F**	**254**	**Yes**
				PM	D	**F**	**179**	**F**	**200**	F	174	No
6	Decoto Road/ Perry Road	Union City	Signal	AM	D	C	26	C	31	B	19	No
				PM	D	C	33	C	31	C	29	No
7	Decoto Road/ Paseo Padre Parkway	Fremont	Signal	AM	D	D	55	**F**	**86**	E	77	No
				PM	D	**E**	**61**	**E**	**60**	D	49	No
8	Decoto Road/ Brookmill Drive	Fremont	Westbound Stop-control[2]	AM	D	**F**	**226**	**F**	**710**	A	4	No
				PM	D	**F**	**791**	**F**	**687**	A	5	No
9	Decoto Road/ Fremont Boulevard	Fremont	Signal	AM	D	**E**	**80**	**E**	**80**	D	50	No
				PM	D	**E**	**59**	**E**	**65**	**E**	**74**	**Yes**
10	Decoto Road/ Ozark River Way	Fremont	Signal	AM	D	A	7	A	9	B	10	No
				PM	D	A	8	A	8	A	8	No
11	Decoto Road/ Canal Terrace-Cabrillo Drive	Fremont	Signal	AM	D	C	23	C	32	C	32	No
				PM	D	B	19	C	21	C	20	No
12	Decoto Road/ I-880 northbound ramps	Fremont	Signal	AM	D	D	44	D	43	**F**	**92**	**Yes**
				PM	D	**F**	**86**	**E**	**60**	**F**	**101**	**Yes**

	Intersection	Location	Traffic Control	Peak Hour	LOS Standard	Existing (2008) LOS[1]	Existing (2008) Average Delay	2015 No Project LOS[1]	2015 No Project Average Delay	2015 Proposed Project LOS[1]	2015 Proposed Project Average Delay	Significant Impact Identified
13	Decoto Road/ I-880 southbound ramps	Fremont	Signal	AM	D	A	5	**E**	**69**	C	30	No
				PM	D	**E**	**68**	**E**	**65**	**F**	**118**	**Yes**
14	Mission Boulevard/ Appian Way-7th Street	Union City	Signal	AM	D	C	25	D	36	**E**	**70**	**Yes**
				PM	D	C	23	C	26	**F**	**122**	**Yes**
15	Alvarado-Niles Road/ Mann Avenue-Union Square	Union City	Signal	AM	D	C	23	D	39	C	32	No
				PM	D	C	25	D	38	C	29	No
16	Paseo Padre Parkway/ Wyndham Drive	Fremont	Northbound/ Southbound Stop-control[2]	AM	D	**F**	**238**	**F**	**ECL[4]**	A	8	No
				PM	D	**F**	**226**	**F**	**957**	A	4	No
17	Paseo Padre Parkway/ Tamayo Street	Fremont	Northbound Stop-control[2]	AM	D	**F**	**61**	**F**	**537**	A	10	No
				PM	D	**F**	**52**	**F**	**169**	B	11	No
18	Paseo Padre Parkway/ Isherwood Way	Fremont	Signal	AM	D	B	19	**F**	**89**	E	63	No
				PM	D	B	20	**F**	**109**	D	44	No
19	Paseo Padre Parkway/ Thornton Avenue	Fremont	Signal	AM	D	C	25	**E**	**58**	**E**	**75**	**Yes**
				PM	D	C	26	C	29	D	36	No
20	Paseo Padre Parkway/ Peralta Boulevard	Fremont	Signal	AM	D	D	40	**E**	**75**	D	55	No
				PM	D	**E**	**61**	**F**	**126**	**F**	**136**	**Yes**
21	Fremont Boulevard/ I-880 southbound ramps-Deep Creek Road	Fremont	Signal	AM	D	C	33	**F**	**81**	**F**	**107**	**Yes**
				PM	D	C	25	D	37	C	27	No
22	Fremont Boulevard/ I-880 northbound ramps	Fremont	Signal	AM	D	B	14	C	20	B	19	No
				PM	D	B	15	B	17	B	18	No
23	Fremont Boulevard/ Paseo Padre Parkway	Fremont	Signal	AM	D	C	31	D	54	**E**	**66**	**Yes**
				PM	D	C	31	D	43	D	51	No
24	Thornton Avenue/ I-880 southbound ramps	Fremont	Signal	AM	D	A	8	C	21	B	17	No
				PM	D	B	15	C	23	C	24	No

	Intersection	Location	Traffic Control	Peak Hour	LOS Standard	Existing (2008) LOS[1]	Existing (2008) Average Delay	2015 No Project LOS[1]	2015 No Project Average Delay	2015 Proposed Project LOS[1]	2015 Proposed Project Average Delay	Significant Impact Identified
25	Thornton Avenue/ I-880 northbound ramps	Fremont	Signal	AM	D	A	6	B	10	A	9	No
				PM	D	B	12	B	15	D	55	No
26	Thornton Avenue/ I-880 northbound ramp-Blacow Road	Fremont	Signal	AM	D	B	18	D	54	**F**	**>80**	**Yes**
				PM	D	C	27	D	40	**E**	**78**	**Yes**
27	Thornton Avenue/ Fremont Boulevard	Fremont	Signal	AM	D	C	30	D	37	C	34	No
				PM	D	C	32	D	45	**E**	**75**	**Yes**
28	Niles Boulevard/ Nursery Avenue	Fremont	Signal	AM	D	C	27	D	48	**F**	**87**	**Yes**
				PM	D	B	15	**E**	**72**	D	51	No
29	Niles Boulevard/ Linda Drive	Fremont	Southbound Stop-control	AM	D	C	20	C	20	C	22	No
				PM	D	C	21	C	21	C	22	No
30	Mission Boulevard/ Nursery Avenue	Fremont	Signal	AM	D	C	30	D	49	**F**	**118**	**Yes**
				PM	D	C	32	D	38	C	34	No
31	Mission Boulevard/ Niles Canyon Road-Niles Boulevard	Fremont	Signal	AM	D	D	54	**E**	**74**	E	77	No
				PM	D	D	49	**E**	**67**	D	49	No
32	New Roadway/ 7th Street	Union City	Signal	AM	D	(3)	(3)	(3)	(3)	B	20	No
				PM	D	(3)	(3)	(3)	(3)	B	10	No
33	New Roadway/ 11th Street	Union City	Signal	AM	D	(3)	(3)	(3)	(3)	B	13	No
				PM	D	(3)	(3)	(3)	(3)	C	22	No
34	New Roadway/ Alvarado-Niles Road (Quarry Lakes Drive OPTION 1)	Union City	Signal	AM	D	(3)	(3)	(3)	(3)	E	72	No
				PM	D	(3)	(3)	(3)	(3)	C	31	No
	New Roadway/ Alvarado-Niles Road (Quarry Lakes Drive OPTION 2)	Union City	Signal	AM	D	(3)	(3)	(3)	(3)	D	54	No
				PM	D	(3)	(3)	(3)	(3)	C	30	No

	Intersection	Location	Traffic Control	Peak Hour	LOS Stan-dard	Existing (2008) LOS[1]	Existing (2008) Average Delay	2015 No Project LOS[1]	2015 No Project Average Delay	2015 Proposed Project LOS[1]	2015 Proposed Project Average Delay	Significant Impact Identified
35	New Roadway/ Osprey Drive-Quarry Lakes Drive (Quarry Lakes Drive OPTION 1)	Union City	Signal	AM	D	(3)	(3)	(3)	(3)	B	10	No
				PM	D	(3)	(3)	(3)	(3)	C	28	No
	New Roadway/ Osprey Drive-Quarry Lakes Drive (Quarry Lakes Drive OPTION 2)	Union City	Signal	AM	D	(3)	(3)	(3)	(3)	C	29	No
				PM	D	(3)	(3)	(3)	(3)	C	20	No
36	New Roadway/ Paseo Padre Parkway	Fremont	Signal	AM	D	(3)	(3)	(3)	(3)	B	18	No
				PM	D	(3)	(3)	(3)	(3)	**E**	**78**	**Yes**

Notes: Intersection locations are shown in Figure 3.12-1.

1 At signalized intersections, LOS and average delay reflect the average of all vehicles that move through the intersection. At stop-controlled intersections, LOS average delay reflects the average of all vehicles on the stop-controlled leg(s) of the intersection. Under the Existing and No Project scenarios, LOS that exceeds the threshold of LOS D is **shaded**. Under the proposed project scenario, LOS that exceeds the significance threshold defined (and thus reflects a significant project impact) is **shaded**.

2 Traffic signal is proposed at this location as part of proposed project. LOS under proposed project scenario reflects conditions with signal in place.

3 Intersection only exists under proposed project scenario.

4 ECL = Exceeds calculable limits. This indicates that the estimated delay is very high and is beyond what can be calculated using standard LOS calculation methods.

Impact TRA-5: Reduction in Operations at 18 Intersections under Proposed Project Conditions Compared to No Project Conditions in 2015 (Significant and Unavoidable)

Under 2015 conditions, the proposed project would further reduce operations at the following 8 locations that are projected to fail to meet LOS D under the no project scenario. This is because the proposed project would cause shifts in area traffic patterns that would increase traffic volumes at these locations.

- (3) Decoto Road/11th Street—LOS F in PM peak under no project; proposed project would further increase delay.
- (5) Decoto Road/Alvarado-Niles Road—LOS F in AM peak under no project; proposed project would further increase delay.
- (9) Decoto Road/Fremont Boulevard—LOS E in PM peak under no project; proposed project would further increase delay but intersection would remain at LOS E.
- (12) Decoto Road/I-880 northbound ramps—LOS E in PM peak under no project; proposed project would further increase delay and reduce operations to LOS F.
- (13) Decoto Road/I-880 southbound ramps—LOS E in PM peak under no project; proposed project would further increase delay and reduce operations to LOS F.
- (19) Paseo Padre Parkway/Thornton Avenue—LOS E in AM peak under no project; proposed project would further increase delay but intersection would remain at LOS E.
- (20) Paseo Padre Parkway/Peralta Boulevard—LOS F in PM peak under no project; proposed project would further increase delay.
- (21) Fremont Boulevard/I-880 southbound ramps-Deep Creek Road—LOS F in AM peak under no project; proposed project would further increase delay.

Because the proposed project is expected to further reduce operations already projected to fail to meet LOS thresholds under no project conditions, the impact at these locations is considered significant.

Under 2015 conditions, the proposed project is expected to reduce operations to below LOS D at the following 9 locations that are projected to operate within standards under the no project scenario. This is because the proposed project is expected to cause shifts in area traffic patterns that would increase traffic volumes at these locations.

- (2) Decoto Road/7th Street—LOS F in AM peak under proposed project, compared to LOS D under no project.
- (3) Decoto Road/11th Street—LOS E in AM peak under proposed project, compared to LOS D under no project.

- (12) Decoto Road/I-880 northbound ramps—LOS F in AM peak under proposed project, compared to LOS D under no project.
- (14) Mission Boulevard/Appian Way-7th Street—LOS E in AM peak under proposed project, compared to LOS D under no project; LOS F in PM peak under proposed project, compared to LOS C under no project.
- (23) Fremont Boulevard/Paseo Padre Parkway—LOS E in AM peak under proposed project, compared to LOS D under no project.
- (26) Thornton Avenue/I-880 northbound ramp-Blacow Road—LOS F in AM peak under proposed project, compared to LOS D under no project; LOS E in PM peak under proposed project, compared to LOS D under no project.
- (27) Thornton Avenue/Fremont Boulevard—LOS E in PM peak under proposed project, compared to LOS D under no project.
- (28) Niles Boulevard/Nursery Avenue—LOS F in AM peak under proposed project, compared to LOS D under no project.
- (30) Mission Boulevard/Nursery Avenue—LOS F in AM peak under proposed project, compared to LOS D under no project.

Because the proposed project is expected to result in a reduction of operations to the point that they fail to meet LOS standards, the impact at these locations is considered significant.

Under 2015 conditions, the proposed project is expected to result in operations below LOS D at the following one new intersection that would be built as part of the proposed project.

- (36) New Roadway/Paseo Padre Parkway—LOS E in PM peak.

Because the proposed project is expected to result in operations at these locations exceeding the cities' threshold of LOS D, this impact is considered significant. Table 3.12-7 summarizes the intersection mitigation that was considered for the proposed project. The table shows that many of the impact locations could only be improved to acceptable levels by implementing measures that require right-of-way acquisition within developed areas or that are otherwise physically constrained, and these measures were deemed infeasible and are not listed below as mitigation measures. Other measures were deemed infeasible and are not listed below as mitigation measures because they would divert traffic in ways that would increase impacts at other locations or result in otherwise undesirable traffic conditions. The table shows that some minor signal timing adjustments may improve operations at specific locations. These locations have been incorporated into Mitigation Measure TRA-5 below; however, signal timing alone would not reduce impacts at these locations to less-than-significant levels, and no feasible, practical mitigation is available to reduce these intersection impacts to a less-than-significant level because of limited right-of-way or the undesirable effects on circulation they would produce, as listed in Table 3.12-7.

Conditions at one additional intersection (Mission Boulevard and Nursery Avenue) would be improved by relocating a crosswalk, as identified in

Mitigation Measure TRA-6; likewise, this improvement would not reduce the proposed project's impact at this intersection to a less-than-significant level. To fully mitigate for the reduction in operations at the intersections where project-related significant impacts were identified, there would be a need to acquire additional right-of-way, which would affect and potentially displace adjacent residences or businesses. Because there is no feasible mitigation to reduce this impact to a less-than-significant level, ~~Therefore, no mitigation is proposed at these intersections, and~~ this impact is considered significant and unavoidable.

Mitigation Measure TRA-5: Adjust Signal Timing and Signal Coordination at Intersections

ACTA will coordinate with the City of Fremont and Caltrans (for intersections under their respective jurisdictions) to ensure that signal timing and signal coordination are optimized at the following intersections:

- Decoto Road/Fremont Boulevard
- Thornton Avenue/I-880 northbound ramp/Blacow Road
- Thornton Avenue and Fremont Boulevard
- Mission Boulevard and Nursery Avenue

Implementing this measure at these intersections would improve operations at the respective locations, but not to the degree that the impact would be reduced to a less-than-significant level.

Mitigation Measure TRA-6: Relocate the Crosswalk at Mission Boulevard and Nursery Avenue

ACTA, in coordination with the City of Fremont and Caltrans, will relocate the crosswalk at the intersection of Mission Boulevard and Nursery Avenue to the east leg of the intersection, allowing pedestrian traffic to cross Mission Boulevard with the heavier vehicular movement and enabling more efficient use of green signal time for vehicles. Implementing this measure would improve operations at the respective intersection, but not to the degree that the impact would be reduced to a less-than-significant level.

Table 3.12-7. Assessment of Potential Intersection Mitigation

Intersection	Mitigation Considered	Assessment of Potential Mitigation
Decoto/11th	Add a separate eastbound right-turn lane Add a separate northbound right-turn lane with an overlap phase Add a second northbound left-turn lane Add a separate southbound right-turn lane	Limited right-of-way on Decoto. Limited right-of-way on 11th. Adding a second northbound left-turn lane appears to be possible. However, it does not mitigate the impact to a less-than-significant level, which would result in the same impact conclusion as if no mitigation had been done. Also, if more of the northbound left-turn traffic is able to pass through that movement in the PM peak hour, it would increase the volume on the westbound approach at Decoto/Union Square. Because the delay calculations are a weighted average, this increase in volume (on movements with low delays) would actually reduce the overall calculated delay for Decoto/Union Square rather than increase it. Measures to fully mitigate the significant impact at this location are not considered feasible for the reasons stated above.
Decoto/Union Square	Add a separate eastbound right-turn lane Add an overlap phase for the northbound right turn	Limited right-of-way on Decoto. Adding an overlap phase for the northbound right turn appears to be possible. Addition of an overlap traffic signal phase would improve operations at this location; however, this measure is not expected to improve operations sufficient to meet the LOS D standard. Additional measures to fully mitigate the significant impact at this location are not considered feasible for the reasons stated above.
Decoto/ Alvarado-Niles	Add a second eastbound left-turn lane Add a separate northbound right-turn lane	Limited right-of-way on Decoto. Limited right-of-way on Alvarado-Niles. Measures to fully mitigate the significant impact at this location are not considered feasible for the reasons stated above.
Decoto/Fremont	Add a third northbound through lane Add a third southbound left-turn lane Adjust signal timing and coordination	Limited right-of-way on Fremont. Limited right-of-way on Fremont. Adjustments to signal timing and coordination appear to be possible. Adjustment of signal timing and coordination would improve operations at this location; however, this measure not expected to improve operations sufficient to meet the LOS D standard. Additional measures to fully mitigate the significant impact at this location are not considered feasible for the reasons stated above.
Decoto/Cabrillo/ Canal	Add a northbound left-turn lane	Building an additional northbound lane and making the three lanes, two left and one through-right, would allow only slightly more traffic through the corridor (approximately 100 vehicles during each peak hour). This would likely lead to additional traffic heading eastbound on Decoto and would create additional congestion. Measures to fully mitigate the significant impact at this location are not considered feasible for the reason stated above.

Intersection	Mitigation Considered	Assessment of Potential Mitigation
Decoto/Northbound I-880 Ramps	Add a northbound left-turn lane Add a westbound through lane	Stacking space is limited without affecting existing residences to the east of I-880. Benefits would be limited. This would likely lead to additional traffic heading eastbound on Decoto and would create additional congestion downstream. The additional left-turn lane would allow about 250 vehicles to the east and would probably trigger additional mitigation needs for at least one intersection. This would require the widening of the Decoto overpass and modification of the interchange, at a high cost. Measures to fully mitigate the significant impact at this location are not considered feasible for the reasons stated above.
Decoto/Southbound I-880 Ramps	Add a separate eastbound right-turn lane	Adding a separate eastbound right-turn lane is possible but would likely lead to additional traffic heading eastbound on Decoto and would create additional congestion downstream. Measures to fully mitigate the significant impact at this location are not considered feasible for the reason stated above.
Mission/Appian Way	Add a second eastbound left-turn lane	Right-of-way is limited on Mission. Measures to fully mitigate the significant impact at this location are not considered feasible for the reason stated above.
Paseo Padre/Isherwood	Add separate eastbound left-turn lane	Adding a separate eastbound left-turn lane is possible but has the potential to attract traffic using ~~Isherwood Drive~~Isherwood Way as a cut-through route. If the capacity for that movement remains limited, drivers would use the New Road, which would be a faster and more attractive route. Measures to fully mitigate the significant impact at this location are not considered feasible for the reason stated above.
Fremont/Paseo Padre	Add separate eastbound right-turn lane	Right-of-way is limited. While adding a separate eastbound right turn lane may be possible, it would leave no room for landscaping. However, this would introduce more traffic onto southbound Paseo Padre Parkway which would worsen the Decoto Road/Paseo Padre Parkway intersection. Measures to fully mitigate significant impact at this location are not considered feasible for the reason stated above.
Thornton/Northbound I-880 On-ramp/Blacow	Adjust signal timing and coordination	Adjusting signal timing and coordination appears to be possible. Adjustment of signal timing and coordination would improve operations at this location; however, these actions are not expected to improve operations sufficient to meet the LOS D standard. Additional measures to fully mitigate the significant impact at this location are not considered feasible for the reasons stated above.
Thornton/Fremont	Adjust signal timing	Adjusting signal timing appears to be possible. Adjustment of signal timing would improve operations at this location; however, this measure is not expected to improve operations sufficient to meet the LOS D standard. Additional measures to fully mitigate the significant impact at this location are not considered feasible.

Intersection	Mitigation Considered	Assessment of Potential Mitigation
Niles Road/Nursery	Add separate northbound right-turn lane	Even though adding a separate northbound right-turn lane appears to be possible, this change would require modification to the existing grade crossing. This would require obtaining approval from the California Public Utilities Commission. As Sullivan is a grade-separated alternative route, some of the increased traffic may be shifted to Sullivan as congestion builds up. Measures to fully mitigate the significant impact at this location are not considered feasible for the reason stated above.
Mission/Nursery	Add a second northbound left-turn lane Add a separate southbound right-turn lane Move crosswalk to ~~south~~ east leg of intersection and adjust signal timing	Limited right-of-way on Mission and Nursery. Moving crosswalk to ~~south~~ east leg of intersection appears to be possible and would allow the pedestrians to cross with the heavier vehicular movement, enabling more efficient use of the available green time for vehicles. Relocation of the crosswalk and adjustment of signal timing would improve operations at this location; however, these measures are not expected to improve operations sufficient to meet the LOS D standard. Additional measures to fully mitigate the significant impact at this location are not considered feasible for the reason stated above.
New Roadway/Alvarado-Niles (Offset Quarry Lakes and Osprey option)	Add a third westbound through lane Add a third eastbound left-turn lane	Limited right-of-way on Alvarado-Niles and lanes would not be aligned through intersection (currently one westbound through lane). Limited right-of-way on south side of Alvarado-Niles. Measures to mitigate the significant impact at this location are not considered feasible for the reasons stated above.
New Roadway/Alvarado-Niles (Four-way Quarry Lakes and Osprey intersection option)	Add a third westbound through lane	Limited right-of-way on Alvarado-Niles and lanes would not be aligned through intersection (currently one westbound through lane). Measures to mitigate the significant impact at this location are not considered feasible for the reason stated above.
Fremont Boulevard/I-880 southbound ramps-Dry Creek Road	Add two right turn lanes to southbound Alvarado Road: one to I-880 southbound on-ramp and one to Dry Creek Road	This measure would be expected to improve the intersection to meet LOS -D standard. However, this is not considered feasible, as it would have significant right of way impact which would require the elimination of a roadway serving a part of a neighboring mobile home park and affect access to the maintenance road for Dry Creek. Measure to fully mitigate the significant impact at this location is not considered feasible for the reasons stated above.

Source: T.Y. Lin International, developmental engineering information

2035 Operational Impacts

Impact TRA-6: Improvement in Operations at 21 Intersections under Proposed Project Conditions and Minor Reduction in Operations at 2 Intersections Compared to No Project Conditions in 2035 (Less than Significant/Beneficial)

Table 3.12-8 summarizes the projected LOS at the analysis intersections in 2035, under no project and proposed project conditions. The table shows that under 2035 no project conditions, 3 analysis intersections are projected to operate at LOS D or better during both peak hours, which is within both Cities' threshold of LOS D. The other 28 analysis intersections are projected to fail to meet LOS D during one or both of the peak hours.

Under 2035 conditions, the proposed project is expected to improve operations at the following 21 intersections that are projected to exceed LOS D under the no project scenario.

- (1) Decoto Road/Mission Boulevard—LOS F in AM peak and LOS E in PM peak under no project improved to LOS D in each peak.
- (2) Decoto Road/7th Street—LOS F in AM and PM peaks under no project is expected to remain LOS F with the proposed project in place, but the proposed project would decrease average delay.
- (4) Decoto Road/Union Square—LOS F in AM peak under no project is expected to remain LOS F with the proposed project in place, but the proposed project is projected to decrease average delay (however, proposed project would result in reduction of LOS in PM peak, as described under Impact TRA-7).
- (5) Decoto Road/Alvarado-Niles Road—LOS F in AM peak under no project is expected to remain LOS F with the proposed project in place, but the proposed project would decrease average delay (however, proposed project would result in reduction of LOS in PM peak, as described under Impact TRA-7).
- (6) Decoto Road/Perry Road—LOS F in AM peak and LOS E in PM peak under no project improved to LOS C in AM peak and LOS D in PM peak.
- (7) Decoto Road/Paseo Padre Parkway—LOS F in AM and PM peaks under no project improved to LOS E in AM peak and LOS D in PM peak.
- (8) Decoto Road/Brookmill Drive—LOS F in AM and PM peaks under no project improved to LOS B in each peak (due to installation of traffic signal).
- (14) Mission Boulevard/Appian Way-7th Street—LOS F in AM peak under no project is expected to remain LOS F with the proposed project in place, but the proposed project would decrease average delay (however, proposed project would result in reduction of LOS in PM peak, as described under Impact TRA-7).

- (15) Alvarado-Niles Road/Mann Avenue-Union Square—LOS F in AM and PM peaks under no project is expected to remain LOS F with the proposed project in place, but the proposed project would decrease average delay.
- (16) Paseo Padre Parkway/Wyndham Drive—LOS F in AM and PM peaks under no project improved to LOS A in each peak (due to installation of traffic signal).
- (17) Paseo Padre Parkway/Tamayo Street—LOS F in AM and PM peaks under no project improved to LOS A in each peak (due to installation of traffic signal).
- (19) Paseo Padre Parkway/Thornton Avenue—LOS F in AM peak and LOS E in PM peak under no project improved to LOS E in AM peak and LOS D in PM peak.
- (20) Paseo Padre Parkway/Peralta Boulevard—LOS F in AM and PM peaks under no project is expected to remain LOS F with the proposed project in place, but the proposed project would decrease average delay in each peak.
- (21) Fremont Boulevard/I-880 southbound ramps-Deep Creek Road—LOS F in AM peak under no project is expected to remain LOS F with the proposed project in place, but the proposed project would decrease average delay. LOS E in PM peak under no project improved to LOS D.
- (22) Fremont Boulevard/I-880 northbound ramps—LOS E in AM peak under no project improved to LOS C.
- (23) Fremont Boulevard/Paseo Padre Parkway—LOS F in AM peak under no project is expected to remain LOS F with the proposed project in place, but the proposed project would decrease average delay (however, proposed project would result in reduction of LOS in PM peak, as described under Impact TRA-7).
- (27) Thornton Avenue/Fremont Boulevard—LOS F in AM peak under no project improved to LOS D (however, proposed project would result in reduction of LOS in PM peak, as described under Impact TRA-7).
- (28) Niles Boulevard/Nursery Avenue—LOS E in AM peak under no project improved to LOS C (however, proposed project would result in reduction of LOS in PM peak, as described under Impact TRA-7).
- (29) Niles Boulevard/Linda Drive—LOS E in AM peak under no project is expected to remain LOS E with the proposed project in place, but the proposed project would decrease average delay. LOS F in PM peak under no project improved to LOS E.
- (30) Mission Boulevard/Nursery Avenue—LOS F in PM peak under no project improved to LOS E (however, proposed project would result in reduction of LOS in AM peak, as described under Impact TRA-7).
- (31) Mission Boulevard/Niles Canyon Road-Niles Boulevard—LOS F in AM and PM peaks under no project is expected to remain LOS F with the proposed project in place, but the proposed project would decrease average delay in each peak.

Although the LOS would still fail to meet locally adopted standards at some intersections listed above, the project is expected to improve operations at these locations. Therefore, this impact is considered less than significant. No mitigation is required.

In addition, under 2035 conditions the proposed project is expected to increase average delay by less than the 4-second threshold at the following two locations.

- (9) Decoto Road/Fremont Boulevard—LOS F with 134-second average delay in AM peak under no project; proposed project would reduce operations to LOS F with 137-second average delay (however, the project would result in significant reduction of LOS in PM peak, as described under Impact TRA-7).
- (13) Decoto Road/I-880 southbound ramps—LOS F with 108-second average delay in AM peak under no project; proposed project would reduce operations to LOS F with 112-second average delay (however, the project would result in significant reduction of LOS in PM peak, as described under Impact TRA-7).

Although the proposed project is expected to reduce operations at these locations, the increase in average delay is projected to be less than the 4-second significance threshold. Therefore, this impact is considered less than significant. No mitigation is required.

Table 3.12-8. Intersection Level of Service—2035 No Project and Proposed Project

	Intersection	Location	Traffic Control	Peak Hour	LOS Stan d-ard	Existing (2008) LOS[1]	Existing (2008) Average Delay	2035 No Project LOS[1]	2035 No Project Average Delay	2035 Proposed Project LOS[1]	2035 Proposed Project Average Delay	Significant Impact Identified
1	Decoto Road/ Mission Boulevard	Union City	Signal	AM	D	C	23	**F**	**138**	D	52	No
				PM	D	C	32	**E**	**57**	D	37	No
2	Decoto Road/ 7th Street	Union City	Signal	AM	D	C	33	**F**	**257**	F	156	No
				PM	D	C	31	**F**	**184**	F	131	No
3	Decoto Road/ 11th Street	Union City	Signal	AM	D	D	38	**F**	**245**	**F**	**369**	**Yes**
				PM	D	D	49	**F**	**128**	**F**	**313**	**Yes**
4	Decoto Road/ Union Square	Union City	Signal	AM	D	D	36	**F**	**109**	F	92	No
				PM	D	D	44	**E**	**73**	**F**	**132**	**Yes**
5	Decoto Road/ Alvarado-Niles Road	Union City	Signal	AM	D	**F**	**157**	**F**	**266**	F	188	No
				PM	D	**F**	**179**	**F**	**320**	**F**	**388**	**Yes**
6	Decoto Road/ Perry Road	Union City	Signal	AM	D	C	26	**F**	**81**	C	31	No
				PM	D	C	33	**E**	**64**	D	36	No
7	Decoto Road/ Paseo Padre Parkway	Fremont	Signal	AM	D	D	55	**F**	**90**	E	75	No
				PM	D	**E**	**61**	**F**	**82**	D	46	No
8	Decoto Road/ Brookmill Drive	Fremont	Westbound Stop-control[2]	AM	D	**F**	**226**	**F**	**321**	B	17	No
				PM	D	**F**	**791**	**F**	**183**	B	13	No
9	Decoto Road/ Fremont Boulevard	Fremont	Signal	AM	D	**E**	**80**	**F**	**134**	F	137	No
				PM	D	**E**	**59**	**F**	**119**	**F**	**174**	**Yes**
10	Decoto Road/ Ozark River Way	Fremont	Signal	AM	D	A	7	B	13	B	13	No
				PM	D	A	8	A	8	B	10	No
11	Decoto Road/ Canal Terrace-Cabrillo Drive	Fremont	Signal	AM	D	C	23	**F**	**85**	**F**	**95**	**Yes**
				PM	D	B	19	C	33	**E**	**62**	**Yes**

	Intersection	Location	Traffic Control	Peak Hour	LOS Stan d-ard	Existing (2008)		2035 No Project		2035 Proposed Project		Significant Impact Identified
						LOS[1]	Average Delay	LOS[1]	Average Delay	LOS[1]	Average Delay	
12	Decoto Road/ I-880 northbound ramps	Fremont	Signal	AM	D	D	44	**E**	**58**	**F**	**146**	**Yes**
				PM	D	**F**	**86**	D	47	**E**	**55**	**Yes**
13	Decoto Road/ I-880 southbound ramps	Fremont	Signal	AM	D	A	5	**F**	**108**	F	112	No
				PM	D	**E**	**68**	**F**	**136**	**F**	**188**	**Yes**
14	Mission Boulevard/ Appian Way-7th Street	Union City	Signal	AM	D	C	25	**F**	**257**	F	135	No
				PM	D	C	23	**F**	**86**	**F**	**97**	**Yes**
15	Alvarado-Niles Road/ Mann Avenue-Union Square	Union City	Signal	AM	D	C	23	**F**	**184**	F	146	No
				PM	D	C	25	**F**	**188**	F	178	No
16	Paseo Padre Parkway/ Wyndham Drive	Fremont	Northbound/ Southbound Stop-control[2]	AM	D	**F**	**238**	**F**	**645**	A	9	No
				PM	D	**F**	**226**	**F**	**ECL[4]**	A	8	No
17	Paseo Padre Parkway/ Tamayo Street	Fremont	Northbound Stop-control[2]	AM	D	**F**	**61**	**F**	**ECL[4]**	D	52	No
				PM	D	**F**	**52**	**F**	**ECL[4]**	C	24	No
18	Paseo Padre Parkway/ Isherwood Way	Fremont	Signal	AM	D	B	19	**F**	**126**	**F**	**203**	**Yes**
				PM	D	B	20	**F**	**237**	**F**	**253**	**Yes**
19	Paseo Padre Parkway/ Thornton Avenue	Fremont	Signal	AM	D	C	25	**F**	**116**	E	76	No
				PM	D	C	26	**E**	**74**	D	52	No
20	Paseo Padre Parkway/ Peralta Boulevard	Fremont	Signal	AM	D	D	40	**F**	**251**	F	225	No
				PM	D	**E**	**61**	**F**	**251**	F	236	No
21	Fremont Boulevard/ I-880 southbound ramps-Deep Creek Road	Fremont	Signal	AM	D	C	33	**F**	**206**	F	144	No
				PM	D	C	25	**E**	**74**	D	46	No
22	Fremont Boulevard/ I-880 northbound ramps	Fremont	Signal	AM	D	B	14	**E**	**57**	C	28	No
				PM	D	B	15	C	24	C	29	No
23	Fremont Boulevard/ Paseo Padre Parkway	Fremont	Signal	AM	D	C	31	**F**	**163**	F	104	No
				PM	D	C	31	**F**	**90**	**F**	**116**	**Yes**

	Intersection	Location	Traffic Control	Peak Hour	LOS Stan d-ard	Existing (2008) LOS[1]	Existing (2008) Average Delay	2035 No Project LOS[1]	2035 No Project Average Delay	2035 Proposed Project LOS[1]	2035 Proposed Project Average Delay	Significant Impact Identified
24	Thornton Avenue/ I-880 southbound ramps	Fremont	Signal	AM	D	A	8	C	24	B	17	No
				PM	D	B	15	C	24	C	24	No
25	Thornton Avenue/ I-880 northbound ramps	Fremont	Signal	AM	D	A	6	A	9	A	9	No
				PM	D	B	12	D	37	D	55	No
26	Thornton Avenue/ I-880 northbound ramp-Blacow Road	Fremont	Signal	AM	D	B	18	**F**	**201**	**F**	**240**	**Yes**
				PM	D	C	27	**F**	**101**	**F**	**268**	**Yes**
27	Thornton Avenue/ Fremont Boulevard	Fremont	Signal	AM	D	C	30	**F**	**83**	D	50	No
				PM	D	C	32	**F**	**138**	**F**	**168**	**Yes**
28	Niles Boulevard/ Nursery Avenue	Fremont	Signal	AM	D	C	27	**E**	**65**	C	24	No
				PM	D	B	15	**F**	**151**	**F**	**296**	**Yes**
29	Niles Boulevard/ Linda Drive	Fremont	Southbound Stop-control	AM	D	C	20	**E**	**40**	E	38	No
				PM	D	C	21	**F**	**53**	E	46	No
30	Mission Boulevard/ Nursery Avenue	Fremont	Signal	AM	D	C	30	**F**	**111**	**F**	**179**	**Yes**
				PM	D	C	32	**F**	**81**	E	70	No
31	Mission Boulevard/ Niles Canyon Road-Niles Boulevard	Fremont	Signal	AM	D	D	54	**F**	**355**	F	260	No
				PM	D	D	49	**F**	**191**	F	103	No
32	New Roadway/ 7th Street	Union City	Signal	AM	D	(3)	(3)	(3)	(3)	D	40	No
				PM	D	(3)	(3)	(3)	(3)	C	22	No
33	New Roadway/ 11th Street	Union City	Signal	AM	D	(3)	(3)	(3)	(3)	B	16	No
				PM	D	(3)	(3)	(3)	(3)	C	24	No
34	New Roadway/ Alvarado-Niles Road (Quarry Lakes Drive OPTION 1)	Union City	Signal	AM	D	(3)	(3)	(3)	(3)	E	64	No
				PM	D	(3)	(3)	(3)	(3)	F	95	No

	Intersection	Location	Traffic Control	Peak Hour	LOS Stand-ard	Existing (2008) LOS[1]	Existing (2008) Average Delay	2035 No Project LOS[1]	2035 No Project Average Delay	2035 Proposed Project LOS[1]	2035 Proposed Project Average Delay	Significant Impact Identified
	New Roadway/ Alvarado-Niles Road (Quarry Lakes Drive OPTION 2)	Union City	Signal	AM	D	(3)	(3)	(3)	(3)	D	48	No
				PM	D	(3)	(3)	(3)	(3)	E	71	No
35	New Roadway/ Osprey Drive-Quarry Lakes Drive (Quarry Lakes Drive OPTION 1)	Union City	Signal	AM	D	(3)	(3)	(3)	(3)	D	44	No
				PM	D	(3)	(3)	(3)	(3)	E	61	No
	New Roadway/ Osprey Drive-Quarry Lakes Drive (Quarry Lakes Drive OPTION 2)	Union City	Signal	AM	D	(3)	(3)	(3)	(3)	D	44	No
				PM	D	(3)	(3)	(3)	(3)	D	52	No
36	New Roadway/ Paseo Padre Parkway	Fremont	Signal	AM	D	(3)	(3)	(3)	(3)	C	26	No
				PM	D	(3)	(3)	(3)	(3)	D	53	No

Notes: These intersections are shown in Figure 3.12-1.

1 At signalized intersections, LOS and average delay reflect the average of all vehicles that move through the intersection. At stop-controlled intersections, LOS average delay reflects the average of all vehicles on the stop-controlled leg(s) of the intersection. Under the existing and no project scenarios, LOS that exceeds the threshold of LOS D is **shaded**. Under the proposed project scenario, LOS that exceeds the significance threshold defined (and thus reflects a significant project impact) is **shaded**.

2 Traffic signal proposed at this location as part of proposed project. LOS under proposed project scenario reflects conditions with signal in place.

3 Intersection only exists under proposed project scenario.

4 ECL = Exceeds calculable limits. This indicates that the estimated delay is very high and is beyond what can be calculated using standard LOS calculation methods.

Impact TRA-7: Reduction in Operations at 16 Intersections under Proposed Project Conditions Compared to No Project Conditions in 2035 (Significant and Unavoidable)

Under 2035 conditions, the proposed project is expected to reduce operations at the following 14 locations that would fail to meet LOS D under the no project scenario. This is because the proposed project is expected to cause shifts in area traffic patterns that would increase traffic volumes at these locations.

- (3) Decoto Road/11th Street—LOS F in AM and PM peaks under no project; proposed project would further increase delay in both peaks.
- (4) Decoto Road/Union Square—LOS E in PM peak under no project; proposed project would increase delay and would reduce operations to LOS F.
- (5) Decoto Road/Alvarado-Niles Road—LOS F in PM peak under no project; proposed project would further increase delay.
- (9) Decoto Road/Fremont Boulevard—LOS F in PM peak under no project; proposed project would further increase delay.
- (11) Decoto Road/Canal Terrace-Cabrillo Drive—LOS F in AM peak under no project; proposed project would further increase delay.
- (12) Decoto Road/I-880 northbound ramps—LOS E in AM peak under no project; proposed project would increase delay and would reduce operations to LOS F.
- (13) Decoto Road/I-880 southbound ramps—LOS F in PM peak under no project; proposed project would further increase delay.
- (14) Mission Boulevard/Appian Way-7th Street—LOS F in PM peak under no project; proposed project would further increase delay.
- (18) Paseo Padre Parkway/Isherwood Way—LOS F in AM and PM peaks under no project; proposed project would further increase delay in both peaks.
- (23) Fremont Boulevard/Paseo Padre Parkway—LOS F in PM peak under no project; proposed project would further increase delay.
- (26) Thornton Avenue/I-880 northbound ramp-Blacow Road—LOS F in AM/PM peaks under no project; proposed project would further increase delay in both peaks.
- (27) Thornton Avenue/Fremont Boulevard—LOS F in PM peak under no project; proposed project would further increase delay.
- (28) Niles Boulevard/Nursery Avenue—LOS F in PM peak under no project; proposed project would further increase delay.
- (30) Mission Boulevard/Nursery Avenue—LOS F in AM peak under no project; proposed project would further increase delay.

Because the proposed project is expected to further reduce operations already projected to fail to meet LOS thresholds under no project conditions, the impact at these locations is considered significant.

Under 2035 conditions, the proposed project is expected to reduce operations to below LOS D at the following two locations that are projected to operate within standards under the no project scenario. This is because the proposed project is expected to cause shifts in area traffic patterns that would increase traffic volumes at these locations.

- (11) Decoto Road/Canal Terrace-Cabrillo Drive—LOS C in PM peak under no project; proposed project would increase delay and reduce operations to LOS E.
- (12) Decoto Road/I-880 northbound ramps—LOS D in PM peak under no project; proposed project would increase delay and would result reduce operations to LOS F.

Because the proposed project is expected to result in reduction of operations to the point that they fail to meet LOS standards, the impact at these locations is considered significant. Table 3.12-7 summarizes the intersection mitigation that was considered for the proposed project. The table shows that some minor signal timing adjustments and other minor modifications may improve operations at specific locations, and these have been incorporated into Mitigation Measures TRA-5 and TRA-6. These measures would improve operations at Decoto Road/Fremont Boulevard, Thornton Avenue/I-880 northbound ramp/Blacow Road, Thornton Avenue and Fremont Boulevard, and Mission Boulevard and Nursery Avenue, as discussed under Impact TRA-5, but these measures would not reduce the proposed project's impacts at the respective intersections or any other intersections to a less-than-significant level~~, but no~~. No feasible, practical mitigation is available to reduce these intersection impacts to a less-than-significant level. To fully mitigate for the reduction in operations, there would be a need to acquire additional right-of-way, which would affect and potentially displace adjacent residences or businesses. Therefore, ~~no mitigation is proposed at these intersections, and~~ this impact is considered significant and unavoidable.

Beneficial Impacts of Proposed Project

Under CEQA, impacts are defined as only the measures on which the proposed project is expected to have an adverse effect. However, the transportation analysis completed for this proposed project also indicated several areas in which the proposed project is identified to have a beneficial impact. The projected beneficial impacts of the proposed project on roadway, transit, bicycle, and pedestrian operations are described in the following sections.

Enhancement of System-Wide Roadway Operations

The new roadway is forecast to carry between 4,300 and 5,800 vehicles per hour during the AM peak hour and between 3,800 and 5,800 vehicles per hour during the PM peak hour. In general, analysis shows that the proposed project would result in a decrease in traffic along the northern portion of Decoto Road, but would increase traffic along the southern portion.

Although vehicles may experience higher delay at specific locations (as identified previously under the Operational Impacts section), the proposed project is expected to improve system-wide travel times, and decrease overall hours of vehicle delay. The extents to which these system-wide improvements are expected to occur are discussed in the following sections and illustrated in Figure 3.12-2.

System-Wide Travel Times

Tables 3.12-9 and 3.12-10 summarize projected 2035 travel times between major destinations under no project and proposed project conditions, in the AM peak and PM peak hours respectively. The tables show that the proposed project is expected to result in major travel time improvements between destinations within the study area. During the AM peak hour, the proposed project is expected to provide travel time improvement of 34% to 56% over no project conditions. During the PM peak hour, the proposed project is expected to provide travel time of 33% to 49% over no project conditions. This is considered a beneficial effect of the proposed project on overall roadway operations.

Table 3.12-9. Travel Time Comparison – Year 2035 AM Peak Hour

			Travel Time (minutes)		Difference	
From	To	Peak Direction	No Project	Proposed Project	Minutes	Percent
Mission/Mowry	SR 84 west of I-880	WB	52	27	-25	-48%
Mission/Mowry	Fremont/Decoto	WB	39	17	-22	-56%
Mission/Niles Canyon	SR 84 west of I-880	WB	65	31	-34	-52%
Mission/Nursery	SR 84 west of I-880	WB	65	35	-30	-46%
Mission/Whipple	SR 84 west of I-880	SB	67	39	-28	-42%
Mission/ Whipple	Fremont/Thorton	SB	53	35	-18	-34%
Mission/ Whipple	Fremont/Mowry	SB	62	34	-28	-45%
Source: Dowling 2008c						

Table 3.12-10. Travel Time Comparison – Year 2035 PM Peak Hour

			Travel Time (minutes)		Difference	
From	To	Peak Direction	No Project	Proposed Project	Minutes	Percent
SR 84 west of I-880	Mission/Mowry	EB	54	36	-18	-33%
Fremont/Decoto	Mission/Mowry	EB	30	17	-13	-43%
SR 84 west of I-880	Mission/Niles Canyon	EB	59	38	-21	-36%
SR 84 west of I-880	Mission/Nursery	EB	59	36	-23	-39%
SR 84 west of I-880	Mission/Whipple	NB	52	35	-17	-33%
Fremont/Thorton	Mission/ Whipple	NB	43	22	-21	-49%
Fremont/Mowry	Mission/ Whipple	NB	46	25	-21	-46%
Source: Dowling 2008c						

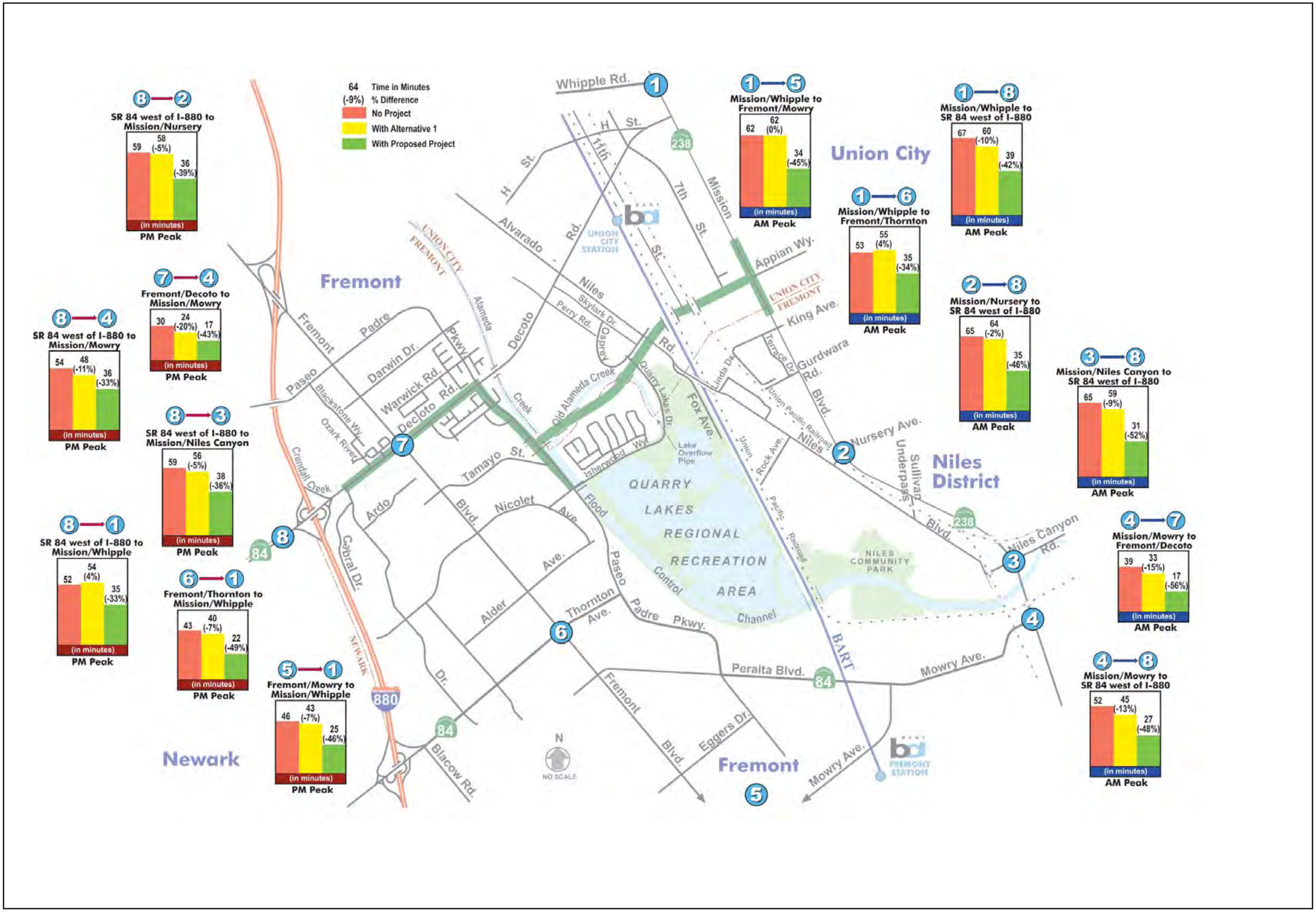

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Figure 3.12-2
Year 2035 Travel Time Comparison
ACTA East-West Connector Project

System-Wide Vehicle Hours of Delay

Table 3.12-11 summarizes the system-wide hours of vehicle delay that are projected in 2035 during the AM and PM peak hours, under no project and proposed project conditions. The table shows that the proposed project is expected to result in a decrease of 12% to 19% in system-wide delay, compared to no project conditions. This is considered a beneficial impact of the proposed project on overall roadway operations.

Table 3.12-11. Daily System-Wide Delay Comparison – Year 2035

	Total Vehicle Hours of Delay		Difference	
Peak Period	**No Project**	**Proposed Project**	**Hours**	**Percent**
AM Peak Hour	67,449	59,634	-7,815	-12%
PM Peak Hour	47,551	38,438	-9,072	-19%

Source: Dowling 2008c

Improved Transit Operations

Overall, the system-wide reductions in delay and decrease~~increase~~ in travel times that are projected to result from the proposed project (described in the previous section) are expected to benefit the system-wide efficiency of transit operations. Although buses may experience higher delays at specific locations (as identified previously under the Operational Impacts section), expected improvements in the system-wide efficiency of roadway operations would also improve overall efficiency of buses that operate on those roadways.

In addition, Union City Transit buses are parked at a depot on 7th Street, just north of the proposed roadway alignment, so Union City Transit anticipates that buses would use the new roadway to travel to the beginning points of their routes, and back from the end points of their routes, which would improve the overall efficiency of their operations.

The proposed project would also improve pedestrian, bicycle and vehicular access to the Union City BART Station and the planned Intermodal Station. This is expected to increase the use of transit and reduce vehicular trips. These are considered beneficial effects of the proposed project on overall transit operations.

Enhancement of Pedestrian Facilities

The proposed project would enhance pedestrian facilities in the study area by constructing new sidewalks along Decoto Road and Fremont Boulevard in areas where gaps currently exist. Pedestrian facilities would be constructed along the new roadway, including a sidewalk that would be separated and elevated from the roadway. Thus, the project alignment would have sidewalks or trails along its entire length, so upon completion there would be a continuous pedestrian corridor from just east of I-880 to Mission Boulevard. The project would also reconstruct roadway intersections to remove right-turn yield slip lanes to improve pedestrian safety. These changes are considered a beneficial impact of the proposed project on pedestrian safety and mobility.

Enhancement of Bicycle Facilities

The proposed project would enhance bicycle facilities along existing streets and provide Class I bike paths along the new roadway (see Figure 2-12, in Chapter 2 of the Draft EIR). As part of providing consistent right-of-way on Decoto Road, the project proposes to complete the Class II bike lanes along this road, filling gaps that currently exist because of inconsistent rights-of-way. The proposed project would also implement Class II bike lanes along the project-related segment of Fremont Boulevard. Thus, the proposed project would provide bike lanes along its entire length, so upon completion there would be a continuous bike corridor from just east of I-880 to Mission Boulevard. This is considered a beneficial impact of the proposed project on bicycle safety and mobility.

Chapter 4
Other Analyses Required by CEQA

Chapter 4
Other Analyses Required by CEQA

This chapter includes the following analyses required by CEQA, in addition to the resource-specific analyses included in Chapter 3, Environmental Setting and Impact Analysis:

- Cumulative Impacts
- Growth-Inducing Impacts
- Irretrievable Commitment of Resources
- Summary of Significant and Unavoidable Impacts

The analysis of project alternatives, which is required by CEQA, is included in Chapter 5, Project Alternatives.

4.1 Cumulative Impacts

Section 15130 of the State CEQA Guidelines provides guidance for analyzing a project's cumulative impacts, which are defined as the impacts of a project that may not be considerable when viewed individually, but that combine with the impacts of other projects to produce more substantial impacts on the environment. According to this section of the State CEQA Guidelines, the discussion of cumulative impacts "...need not provide as great a detail as is provided for the effects attributable to the project alone. The discussion should be guided by the standards of practicality and reasonableness." The discussion should also focus only on significant impacts resulting from the project's incremental impacts and the impacts of other projects. If the environmental conditions would essentially be the same with or without the proposed project's contribution, then it may be concluded that the impact is not significant. According to Section 15130(a)(1), "an EIR should not discuss impacts which do not result in part from the project evaluated in the EIR."

Cumulative impact analysis may be conducted and presented by either of two methods: 1) listing past, present, and reasonably foreseeable future project activities producing related or cumulative impacts; or 2) summarizing projections contained in an adopted general plan or related planning document that describe or evaluate regional or area conditions contributing to the cumulative impact. Analysis for this proposed project uses both of these methods, depending on the resource area. The analysis for the proposed project also applies to Alternative 1.

4.1.1 Growth Projections and Cumulative Projects

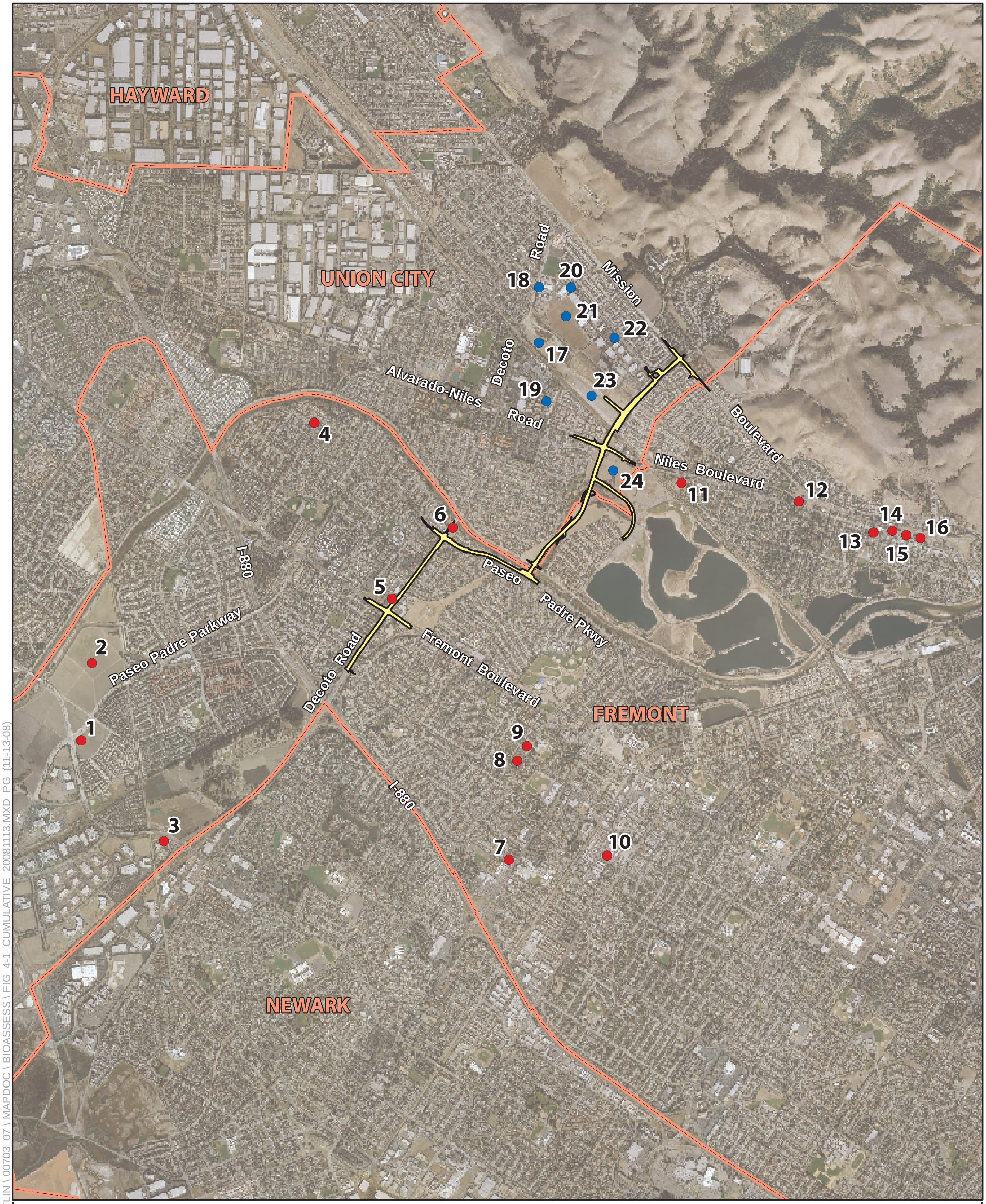
Cumulative impacts for traffic, air quality, and noise are based on growth projections. The traffic analysis conducted for this proposed project (Appendices P and Q) and summarized in Section 3.12, Transportation and Traffic, relied upon growth forecasts incorporated into the Alameda Countywide Travel Demand Model developed by the Alameda County Congestion Management Agency.[1] This model uses regional growth projections published by Association of Bay Area Governments (ABAG) (*Projections 2005*), which include land use and sociodemographic data with horizon years of 2000, 2005, 2015, and 2030 to project future congestion and traffic projects. To reach the 2035 conditions analyzed in the traffic study, the model extrapolated growth trends noted between 2015 and 2030 out another 5 years to 2035, and factored in ABAG's most recent *Projections 2007* to ensure that the most up-to-date information was reflected in this analysis. By following this model and the noted updates, the traffic study established an adequate picture of the growth that is forecast to occur in the project area and contribute future vehicle trips to the studied roadways and intersections. The air quality and noise analyses conducted for this Draft EIR based their respective cumulative analyses on the projected traffic volumes and conditions noted in the traffic study.

The methodology and rational described above for the proposed project also applies to Alternative 1: Historic Alignment in Union City. The traffic analysis conducted for Alternative 1 is summarized in Chapter 5 (Section 5.4.3) and Appendix E (Section 3.12).

Cumulative impacts for all other environmental issue areas are based on a list of projects that are currently underway, approved, or proposed and likely to be implemented in the project vicinity. This list was compiled by reviewing relevant planning documents published by Fremont, Union City, Alameda County Congestion Management Agency, East Bay Regional Park District; and consulting Fremont and Union City planning department staff. The numbered cumulative projects are listed in Table 4-1; these correspond with the numbers shown on Figure 4-1. The list of projects is limited to those projects currently underway, approved, or proposed within approximately 1 mile of the project alignment. One mile was determined to be a reasonable scope because of the highly built-out nature of the project vicinity and the limited potential for distant projects to combine and create cumulative impacts on most of the environmental issue areas.

The growth projections method of analysis used for cumulative traffic, air quality, and noise impacts takes a more holistic, regional approach and is not limited to 1 mile, as is appropriate for those types of impacts. Projects that are further away were also considered if they had considerable potential to affect the hydrology or water quality in Alameda Creek. The analysis considers the potential impacts of the proposed project combined with the anticipated impacts of the projects on the list. For projects where the CEQA process has been

[1] The Alameda County Travel Demand Model was developed to support the Countywide Transportation Plan.



0 0.5 1
Miles

N

Project Limits
City Limits
Fremont Projects *
Union City Projects *

* Projects 1-24 are identified as described in Table 4-1

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Figure 4-1
Cumulative Projects in the Project Area
ACTA East-West Connector Project

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completed or is underway, environmental review documents were reviewed and considered to determine specific impacts that are likely to occur and which, when combined with the proposed project, could produce a considerable cumulative impact. Projects that have recently been completed and are fully occupied or otherwise operating are not included in this list, as they contribute to the existing conditions that were considered in project-level and cumulative impact analysis. Residential and commercial projects being processed by Union City and Fremont are, for the most part, also considered in the projections method of analysis conducted for traffic, air quality, and noise, as those projections considered the development potential of vacant or underutilized land and the plans for future development maintained by those cities.

Table 4-1. List of Projects Considered in Cumulative Impact Analysis

No.	Project Name	Project Description	Project Status
FREMONT PROJECTS			
1	Villa D'Este	287 units in a Planned District development	Partially constructed
2	Patterson Ranch	840 residences, parks, and commercial uses on 50,000 square feet; schools, community park, and churches on 82 acres; 246 acres dedicated to open space uses	Under City review
3	Ardenwood Park and Ride Lot	250-space Park and Ride lot on 2.88 acres	Approved
4	Beard Road Subdivision	2 single-family units on 0.46 acre; rezone for increased residential density	Approved
5	Decoto Villas	16 townhouse units on 0.7 acre; rezone for increased residential density	Approved
6	Decoto Crossing	10 single-family units on 1.7 acres	Approved
7	Thorton Condominiums	16 additional townhouse units on 1.36 acres; rezone for increased residential density	Approved
8	Alder Heights	12 multifamily units on 1.5 acres; rezone for increased residential density	Under City review
9	Chin Subdivision	3 single-family units; subdivision of lot	Approved
10	Mayvand Crossing	10 townhouse units on 0.6 acre	Approved
11	Peridot at Niles	27 single-family units on 3.8 acres	Approved
12	Niles and Nursery Estates	5 single-family units on 0.89 acre; rezone for residential	Under City review
13	E Street Subdivision	3 single-family units on 0.43 acre; subdivision of lot	Approved
14	Niles Townhouses	15 single-family units on 0.65 acre; General Plan Amendment and rezone to high density	Under City review
15	Niles Fire Station	7,800-square-foot fire station	Under construction
16	Niles Town Plaza	Community plaza on 1.7 acres; restoration of historic train buildings	Under construction

No.	Project Name	Project Description	Project Status
UNION CITY PROJECTS			
17	Station District	700 multifamily units, 1.2 million square feet of office space, 100,000 square feet of commercial, major train station, parks on 56 acres	Shown in General Plan
18	Air Liquide	Redevelopment to increase density of light industrial, add commercial, 7.4 acres	Shown in General Plan
19	Avalon Bay at Union Station	438 multi-family units on 6 acres near BART Station	Under construction
20	Unnamed 7th Street site	Redevelopment to increase density of light industrial, 10.8 acres	Shown in General Plan
21	Catellus/Shelton	Redevelopment to increase density of light industrial site, 24 acres	Shown in General Plan
22	Island	Redevelopment to increase density of light industrial, 19.3 acres	Shown in General Plan
23	Pacific States Steel Corporation site	Redevelopment on 17.5 acres: 250,000 square feet of light industrial	Shown in General Plan
24	Caltrans Property	75 single-family units, park, and church on 23.5 acres	Shown in General Plan

Sources: City of Fremont Redevelopment Agency 2008b; City of Fremont Planning Division 2008c; City of Union City 2002; Jones & Stokes 2001. Updated November 2008.

4.1.2 Cumulative Impacts by Resources

The discussion of cumulative impacts in this section refers to the proposed project, but it also applies to Alternative 1: Historic Alignment in Union City, which is a truncated version of the proposed project, as fully explained in Section 5.4.1 of this Draft EIR and analyzed on a project level for environmental impacts in Appendix E. Because Alternative 1 would entail constructing and operating a shorter new~~smaller~~ roadway than the proposed project, the overall contribution of Alternative 1 to cumulative impacts would be less than that described for the proposed project. However, implementing Alternative 1 would not avoid the cumulatively considerable contributions to significant cumulative noise and transportation impacts identified below for the proposed project.

Aesthetics

The new roadway portion of the proposed project is located adjacent to and in the vicinity of planned development in Union City, including the Caltrans Property project, the Station District project, and the Pacific States Steel Corporation project, as presented in the Union City General Plan. Some of the development within the Pacific States Steel Corporation project has been recently constructed, some is currently under construction, and some is planned for future construction. These projects comprise redevelopment of an area characterized by industrial development and former agricultural uses. The area has not been an active agricultural land for many years. Recent and proposed redevelopment has substantially changed the visual setting of the area and would continue to do so as subsequent projects are implemented. This represents a cumulative impact on the aesthetic environment.

The proposed project represents a similar conversion from an industrial and former agricultural setting to a more developed setting and would contribute to this cumulative impact. Potentially significant project impacts include change in visual character and quality, obstruction of hillside views, increased light and glare during construction and permanently, and potential placement of soundwalls adjacent to residences.

As discussed in Section 3.1 Aesthetics, all of the project impacts related to aesthetics would be mitigated to a less-than-significant level, except for increased light and glare during construction. New sources of light and glare along the BART corridor during construction would be a temporary impact. The proposed project to construct a low-profile roadway would include a landscaping plan and other mitigation to reduce potential impacts related to light and glare. Therefore, the proposed project's contribution to cumulative aesthetic impacts would not be considerable.

Air Quality

The air quality analysis presented in Section 3.2, Air Quality, considers cumulative growth by anticipating future increases in regional and local traffic, estimating the amounts of pollutant emissions that would result from this increased traffic, and considering the project's impacts in the context of that growth. In addition to the State CEQA Guidelines (Appendix G), significance criteria for greenhouse gases (GHG) were also based on goals from Assembly Bill 32, as discussed in Section 3.2 Air Quality. The cumulative traffic increases used in the air quality analysis were based on data obtained from the technical traffic analysis prepared for the project (Appendices P and Q).

The future planning year of 2035 was used to determine any cumulative impacts for CO concentrations resulting from intersection congestion, and to determine the potential of the proposed project to contribute to these cumulative impacts. Table 3.2-8 in Section 3.2 Air Quality, presents the results of the 2035 cumulative analysis, and shows that none of the analyzed intersections are anticipated to exceed the 1-hour or 8-hour standards for CO concentrations. Therefore, the proposed project would not result in a considerable cumulative contribution to CO concentrations.

Impact AIR-C1: Contribution of Greenhouse Gas Emissions

Emission of GHG and the resulting climate change impacts represent a global cumulative impact, and growth in the region will contribute to this cumulative impact. The proposed project's GHG emissions are discussed in Section 3.2, Air

Quality, and summarized in Table 3.2-9. The proposed project is anticipated to reduce vehicle miles traveled (VMT) in 2015, when compared to the 2015 no project condition. This would result in a reduction of GHG emissions (a beneficial GHG impact). However, although the proposed project would reduce GHG emissions under the 2015 scenario, under 2035 conditions, there would be a slight increase in VMT in 2035, when compared to the 2035 no project conditions. Therefore, local area GHG emissions in 2035 would increase, contributing to this cumulative air quality impact.

Implementation of Mitigation Measure AIR-2, Employ Measures to Reduce Project-Related Greenhouse Gas Emissions (described in Section 3.2, Air Quality) would reduce the proposed project's impact to a less-than-significant level. Therefore, the proposed project would not make a considerable contribution to cumulative air quality impacts related to GHGs.

Impact AIR-C2: Contribution of Ozone Precursors during Construction

The construction of the proposed project would result in the temporary increase in emissions of ozone precursors (ROG and NO_X), CO and particulates (PM10 and PM2.5), as summarized in Table 4-2 (table shown in full in Section 3.2, Air Quality [Table 3.2-6]). During temporary construction activities, proposed project emissions are anticipated to exceed the established threshold of 80 pounds per day for NO_X, which was identified as a significant and unavoidable project-level impact (Impact AIR-1). Although increases in project-related construction emissions are temporary, and implementation of Mitigation Measure AIR-1, Employ Measures to Reduce Criteria Pollutant Emissions during Construction, (described in Section 3.2, Air Quality), would reduce project contribution, the increase in these emissions in combination with emissions from other proposed and approved projects under construction would remain considerable. Therefore, the proposed project would make a cumulatively considerable contribution to air quality impacts related to ozone precursors. This cumulative impact is identified in Section 3.2, Air Quality.

Table 4-2. Construction Emissions Summary (pounds per day)

	ROG	NOX	CO	PM10	PM2.5
Maximum Concurrent Project Emissions (All Phases) a, b	21	178	113	64	19
Regional Significance Threshold	80	80	–	80	–
Exceed Threshold?	No	Yes	No	No	No

Notes:
Road Construction Model output sheets and emissions calculation worksheets are included in Appendix G.
a All the three phases (including bridge construction under Phase 2) are assumed to occur simultaneously. Hence, maximum construction emissions in a day are the sum of highest emissions from construction activities under each phase.
b Activities that contribute to emissions include: grubbing/land clearing, grading/excavation, drainage/utilities/sub-grade, and paving.
Source: compiled from data available in Appendix Q

Impact AIR-C3: Net Increase in Criteria Pollutants

According to the significance criteria presented in Section 3.2, Air Quality, a project would result in a significant impact if it would "result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard…." The proposed project would be located in the SFBAAB, which is already designated as "serious nonattainment" for the state ozone standards and as a "nonattainment" area for the state PM10 standards.

The proposed project, in combination with other proposed and approved projects, would contribute to the already significant cumulative air quality impacts in the air basin (a result of emissions from past projects and exacerbated by future projects). Therefore, the proposed project would make a cumulatively considerable contribution to air quality impacts related to criteria pollutants for which the project region is in nonattainment. This cumulative impact is identified in Section 3.2 Air Quality.

Biological Resources

The project alignment includes an undeveloped corridor with biological resources where the new roadway would be located. The corridor has been reserved for a roadway, and the surrounding area is predominantly developed and highly disturbed. Significant project impacts related to biological resources include degradation of water quality in aquatic resources, loss of or disturbance to special-status plants, loss of wetlands, loss of riparian habitat, and loss of or disturbance to listed wildlife species' habitat. These project impacts would all be mitigated to a less-than-significant level by mitigation measures identified in Section 3.3, Biological Resources.

Projects considered in the cumulative analysis include residential infill developments that propose redevelopment of previously disturbed and developed land. In addition, the Caltrans Property project, located in the undeveloped area between the Alameda Creek Flood Control Channel and Alvarado-Niles Road, proposes the construction of 75 residences, a park, and a church adjacent to the project alignment. Similar to conditions within the project area, the Caltrans site supports nonnative grasslands that have formally been used for agricultural purposes. The combined implementation of the two projects would result in a cumulative impact on nonnative grasslands. However, nonnative grasslands throughout the project area and Caltrans site are highly disturbed as a result of recent agricultural activities, and the number of small mammal burrows present on both sites is minimal. The quality of habitat provided by both sites is considered low, and biological resources supported by these sites, including special-status plant and animal species, would be limited. The loss of nonnative grasslands as a result of the proposed project and that proposed for the Caltrans site may result in a cumulative impact on potential nesting and foraging habitat for the Western burrowing owl. However, the likelihood of the project area supporting this species was identified as low. The project area supports a very small number of mammal burrows scattered throughout the area, and owls have not been reported in the project area or the immediate vicinity. The adjacent nonnative grassland on the Caltrans property would be similarly limited in its potential to support this species because of its similar habitat conditions. Therefore, for the reasons listed above, the cumulative impact related to the loss of nonnative grasslands and species-supporting habitat would not be considerable.

Implementation of the proposed project would result in project-level construction impacts on nesting birds through disturbance cause by construction equipment and activities. Outside of the proposed project, no other projects are proposed for implementation in the project vicinity within a similar timeframe. Therefore, there would be no cumulative impacts ton nesting birds.

None of the projects included in this analysis include habitat that would support California red-legged frog or western pond turtle; therefore, there would be no cumulative impacts on these species related to project construction or implementation. In addition, none of the projects include construction activities in the Alameda Creek Flood Control Channel. Therefore, there would be no cumulative impacts on steelhead. Finally, the Patterson Ranch project proposes construction directly adjacent to the Alameda Creek Flood Control Channel, and would have the potential to combine with the proposed project to result in cumulative impacts on wetland habitats and features. However, both projects are subject to consultation with, and regulation by, the Corps for mitigation of wetlands impacts. Since any required wetland mitigation would have to result in no net loss of wetland value and function, cumulative wetland impacts on the Alameda Creek Flood Control Channel would not be considerable.

In summary, the proposed project's contribution to cumulative biological resources impacts would not be considerable.

Cultural Resources

The new roadway segment of the project alignment is located adjacent to planned development in the undeveloped and partially undisturbed corridor between the Alameda Creek Flood Control Channel and Alvarado-Niles Road. As with the proposed project, implementation of the Caltrans Property project would require extensive excavation in this undeveloped corridor. While there are no known archaeological resources located in this area, the absence of such resources cannot be confirmed, and, if resources are present, the Caltrans Property project could result in similar disturbance of cultural resources that is identified for the proposed project. The two projects could collectively disturb the same archaeological resources deposit, and without proper mitigation could collectively compromise the cultural and scientific value of any deposits that may exist. Therefore, without mitigation, the proposed project has the potential to contribute to a significant cumulative impact on archaeological resources.[2]

[2] Project-specific environmental review for the Caltrans project has not yet been conducted. It is reasonable to expect that a mitigation program potentially including Mitigation Measure CUL-1 for the proposed project would be identified and implemented for that project, although none is specifically known at this time.

In summary, except for the potential to disturb archaeological resources (discussed below), the proposed project's contribution to cumulative cultural resources impacts would not be considerable.

Impact CUL-C1: Contribution to Cumulative Impact on Archaeological Resources

The new roadway segment of the project alignment is proposed within a semi-developed area that contains open fields and wetlands area adjacent to residential development and existing infrastructure. Roadway work in this segment of the alignment comprises clearing and grading for the new road, pile installation in Old Alameda Creek, and excavation for utilities installment within the roadway. Parts of the roadway adjacent to Old Alameda Creek will be built below the existing grade. Additional excavation may be conducted for utilities placement. As with the existing roadway segment of the project alignment, the probability of previously undiscovered subsurface archaeological resources existing in this portion of the project alignment is low, but the absence of such resources cannot be confirmed. There is a chance that project grading and excavation could encounter significant archeological resources, including Native American human remains. Although the potential for discovering archaeological resources is low, this is a significant cumulative impact and warrants mitigation.

Implementing Mitigation Measure CUL-1, Conduct Earthwork Monitoring by Qualified Archaeologist during Construction and Implement Management Measures if Resources are Discovered, (described in Section 3.4, Cultural Resources), would fully mitigate the proposed project's contribution to this cumulative impact, reducing this cumulative impact to a less-than-significant level. No additional mitigation is required.

None of the cumulative projects identified in Table 4-1 are anticipated to affect the Peterson Farm; therefore, there would be no cumulative impact on this historic resource. There are no other historical resources located in the project vicinity to which the proposed project's less-than-significant impacts would contribute. Therefore, the proposed project would not make a considerable contribution to cumulative cultural resources impacts related to archaeological resources.

Geology, Soils, and Seismicity

Implementation of the projects included in the cumulative analysis would occur adjacent to the project alignment or in the project vicinity. Therefore, these projects would be subject to similar geological and soil conditions that are common throughout the region. All projects would be subject to the standards set forth by the BART, Caltrans, UPRR, and City of Fremont and Union City General Plan standards, and therefore would be designed and implemented in accordance with these regulations. Therefore, geologic and soil conditions at all sites would be accounted for and proper mitigation would be incorporated to minimize potential impacts that may occur through existing conditions at each site.

Therefore, the proposed project would not make a considerable contribution to cumulative geology, soils, and seismicity impacts.

Hazards and Hazardous Materials

Several of the Union City projects listed in Table 4-1 propose redevelopment of former industrial sites that have been listed as contaminated hazardous materials sites. Recent development and future development in this former industrial area has entailed an ongoing effort to remediate contaminated soil and alleviate potential issues with hazardous materials contamination. Development of these cumulative projects has and will continue to abide by all federal and state regulations pertaining to the identification and remediation of hazardous materials prior to development, as well as mitigation similar to that included in Section 3.6, Hazards and Hazardous Materials.

Therefore, the proposed project would not make a considerable contribution to cumulative hazards and hazardous materials impacts.

Hydrology and Water Quality

The projects listed in Table 4-1 generally propose development within the same watershed, all eventually draining to the Alameda Creek Flood Control Channel. Projects in the area have the potential to have a cumulative impact on hydrology and water quality. However, these projects are subject to compliance with the NPDES process, which governs discharges from the municipal storm drain systems in cities and towns within the County, and requires implementation of erosion- and sediment-control measures and for pollution prevention measures during construction. Most of the developments would also be subject to Provision C.3, which requires projects to retain stormwater runoff associated with increased amounts of impervious surface, and use BMPs such as grassy swales to act as buffer zones. These provisions have been designed and are enforced to limit the cumulative hydrology- and water-quality-related impacts that would otherwise occur within a watershed. Therefore, this cumulative impact is considered to be less than significant. One project in Fremont that is currently under review—Patterson Ranch—proposes development directly adjacent to the Alameda Creek Flood Control Channel. Similar to the proposed project, Patterson Ranch would not substantially alter the channel and its existing drainage pattern. Therefore, the proposed project would not make a considerable contribution to cumulative hydrology and water quality impacts.

Land Use and Planning

In general, the projects listed in Table 4-1 appear to be consistent with the applicable general plans, although formal determinations of their consistency would not be made until they were approved by the respective decision-making bodies. Thus, there is nothing to indicate that, in combination, they would result in a considerably cumulative impact.

Furthermore, the projects do not propose cumulative development that would affect implementation of the plans for trail, pedestrian, and bicycle facilities that are discussed in Section 3.8, Land Use and Planning. Because there is no significant collective inconsistency with the respective general plans or other planning documents, there is no cumulative impact related to planning. None of the listed projects would combine to divide established communities; therefore, there is no cumulative impact on divided communities.

In summary, the proposed project's contribution to cumulative land use impacts would not be considerable.

Noise and Vibration

As with air quality, cumulative operational noise analysis is was conducted using traffic data compiled and generated as part of preparing this Draft EIR. Cumulative development in the region is anticipated to increase traffic, which in turn will increase traffic-related noise. A significant cumulative noise impact would occur at land uses where the traffic noise level currently is or is predicted to be in excess of land use compatibility standards. The proposed project's contribution to a significant cumulative noise impact is considered to be cumulatively considerable if it would contribute to a significant cumulative noise impact at noise-sensitive locations where the project-related increase is at least 1 dBA and the predicted noise level exceeds the exterior noise land compatibility standard (60 dBA L_{dn} for residences and 70 dBA L_{dn} for parks).

Tables 3.9-5 and 3.9-9 in Section 3.9, Noise and Vibration show the results of the noise analysis, and include information on locations where cumulative impacts would occur. Noise levels that were considered to result in a cumulative impact were measured at 17 locations, as shown in Table 4-3, Cumulative Predicted Traffic Noise Levels. For specific description of the Receiver ID column and the location of these receivers, refer to Section 3.9, Noise and Vibration.

Table 4-3. Cumulative Predicted Traffic Noise Levels

Receiver ID[1]	Receiver Location	Calculated L_{dn} Noise Level (dBA)			Increase over 2007 Existing[2]		Project Noise Increase[2] over 2035 No Build	Impact	
		2007 Existing	2035 No Build	2035 Build	2035 No Build	2035 Build		Project[3]	Cumulative[4]
LT-2	90 feet from center of Paseo Padre Parkway	68	70	72	2	4	2	LTS	C
ST-2	Setback of 4194 Decoto Road	73	74	76	1	3	2	LTS	C
ST-5	Setback of 3853 Decoto Road	74	76	78	2	4	2	LTS	C
ST-6	Backyard of 34996 Silverlock Court	61	63	64	2	3	1	LTS	C
ST-8	Setback of 3425 Decoto Road	70	72	73	2	3	1	LTS	C
ST-9	Backyard of 3255 Cade Drive	63	65	67	2	3	2	LTS	C
ST-10	Setback of 3198 Waugh Pl	67	69	71	2	3	1	LTS	C
ST-11	Backyard of 35540 Dee Place	60	62	63	1	3	2	LTS	C
ST-13	Backyard of 2723 Oaktree Court	59	60	61	1	3	2	LTS	C
ST-14	Side of 35583 Chaplin Drive	56	56	61	0	5	5	S	C
ST-18	Setback of 35509 Monterra Circle	58	59	61	1	4	2	LTS	C
ST-21	End of Chesapeake Court	57	57	61	1	4	4	S	C
M-1	Front of residence on Decoto Road	73	74	76	1	3	2	LTS	C
M-2	Front of residence on Belvedere Terrace	71	73	74	2	3	1	LTS	C
M-6	Backyard of Residence on Decoto Road	66	68	69	2	3	1	LTS	C
M-7	Side of residence on Paseo Padre Parkway	63	65	67	2	3	2	LTS	C
M-8	Backyard of residence on Paseo Padre Parkway	64	66	67	2	3	2	LTS	C
M-11	Backyard of residence on Begonia Street	56	56	68	0	12	12	S	C

Receiver ID[1]	Receiver Location	Calculated L_{dn} Noise Level (dBA) 2007 Existing	2035 No Build	2035 Build	Increase over 2007 Existing[2] 2035 No Build	2035 Build	Project Noise Increase[2] over 2035 No Build	Impact Project[3]	Cumulative[4]
M-12	Front of residence on Dominici Drive	58	59	61	1	3	2	LTS	C
M-13	Side of residence on Chaplin Drive	56	56	66	0	10	9	S	C
M-14	Side of residence on Osprey Drive	57	58	61	1	3	2	LTS	C
M-19	Backyard of residence on Cascades Circle	59	60	62	1	3	2	LTS	C

1 Receiver ID: LT=Measured Long-Term Location, ST=Measured Short-Term Location, M= Modeled Location

2 Discrepancies may occur due to rounding.

3 Impact Type: S = Significant Impact, Exterior Noise, I = Significant Impact, Interior Noise, LTS = less than significant

4 Impact Type: C = Project would contribute to a significant cumulative noise impact, NC =Project would not contribute to significant cumulative noise impact

5 35261 Alvarado-Niles Road is the latest known address for the Peterson Farm house, located west of and accessed by Quarry Lakes Drive.

6 This receptor location would be subject to neighborhood park thresholds; all others are subject to residential thresholds.

Project implementation is predicted to contribute 1 dBA or more to traffic noise levels at most noise-sensitive receptor locations along the project alignment, including the existing roadway and new roadway segments. In addition to the four receptors identified as significantly affected (Section 3.9, Noise and Vibration), the proposed project would also contribute to significant cumulative noise impacts at five additional receptors locations, as identified in Table 4-3. Noise increases at receivers along the new roadway would result in the same traffic noise impacts as those identified and addressed in Section 3.9, Noise and Vibration. As proposed as mitigation measures for project-specific noise impacts, extending noise barriers to provide shielding for these additional receptors would reduce the noise impacts at receptors this area. Although significant cumulative increases in noise (of 1 dBA or greater) would result, the increases would be similar to impacts identified under project conditions. Mitigation would reduce impacts to a less-than-significant levels. Furthermore, cumulative construction noise impacts would not be considerable because other projects in the immediate vicinity of the proposed project are not anticipated to be built concurrently with the proposed project. Therefore, except for impacts to noise-sensitive receptors along existing roadways (discussed below), the proposed project's contribution to cumulative noise impacts would not be considerable.

Impact NOI-C1: Contribution to Cumulative Impact on Noise-Sensitive Receptors along Existing Roadways (Significant and Unavoidable)

The proposed project would also contribute to significant cumulative noise impacts in noise-sensitive areas along the existing roadway segments on Decoto Road, Paseo Padre Parkway, and Alvarado-Niles Road from increased traffic. Implementation of the proposed project would contribute to a significant cumulative noise impact. Implementation of mitigation measures identified for the proposed project include using a quiet pavement type on the new roadway, which would reduce the project's contribution to a significant cumulative noise impact, but not necessarily to a less-than-significant level (refer to Mitigation Measures NOI-7 and NOI-8 in Section 3.9.3). Implementation of the following mitigation, which involves contributing to a city program for reducing traffic noise and installing quiet pavement on all project roadway surfaces, would reduce this impact to a less-than-significant level (i.e. eliminate the projects contribution to the significant cumulative noise impact in the area). However, because there are currently no mechanisms in place for pooling funds to mitigate cumulative noise impacts, there is little or no certainty that these measures would be implemented. Even if a funding mechanism were in place, there can be no assurance that enough funding to mitigate all of the project's contributions to significant cumulative impacts would be available. Further, installing a "quiet" pavement type on project roadways would reduce the proposed project's contribution to the cumulative impact but not necessarily to a less-than-significant level. Therefore, the proposed project would make a cumulatively considerable contribution to significant cumulative noise impacts on noise-sensitive receptors along existing roadways. This impact is considered to be significant and unavoidable. ~~This impact would be partially reduced by the following mitigation measure.~~

Mitigation NOI-C1: Contribute to City Funds to Implement Traffic Noise Reduction Treatments

ACTA will contribute to pooled City funds for both Union City and Fremont to implement traffic noise reduction treatments at existing residential areas. With use of this pooled fund, the Cities would perform studies, conducted by qualified acoustical professionals, to define reasonable and feasible noise mitigation for noise-sensitive receptors that are predicted to be exposed to traffic noise increases that exceed the noise significance thresholds. Mitigation measures could include the following.

- Construct new or larger soundwalls or berms to protect existing residential land uses where reasonable and feasible.
- Implement alternative noise reduction techniques, such as installing traffic calming measures to slow traffic, coordinating routing and other traffic control measures, or repaving the streets with "quiet" pavement types such as porous open-grade asphalt concrete with fine aggregate size.
- Provide~~d~~ building sound insulation such as sound-rated windows and doors on a case-by-case basis as a method of reducing noise levels in interior spaces of affected residences. This method would be applicable where the

construction of soundwalls is not feasible and interior noise levels inside residences are anticipated to exceed 45 dBA L_{dn}.

Mitigation NOI-C2: Use Low Noise Pavement Types on Project Roadways

ACTA will pave the project alignment, including both the new roadway and existing roadways being widened, with "quiet" pavement types such as porous open-grade asphalt concrete with fine aggregate size. Specifically, this would include the widening on Decoto Road between Cabrillo Court and Paseo Padre Parkway, the widening of Paseo Padre Parkway between Decoto Road and Isherwood Drive, and the new roadway between Paseo Padre Parkway and Mission Boulevard except at bridge crossings and in the vicinity of grade separation structures where it is not practicable.

Population and Housing

The proposed project does not generate additional housing, need for housing, or new populations. None of the cumulative projects propose relocation of residents; therefore, there is no associated cumulative impact.

Implementation of the proposed project would improve access throughout the cities of Fremont and Union City through the expansion of existing roadways and addition of a new roadway alignment, connecting I-880 to Mission Boulevard. Although improved access may support additional housing and commercial development within the project area and vicinity, this additional development has been accounted for in both the City of Fremont and City of Union City General Plans. These plans include policies for the growth and expansion of residential and commercial development in the project vicinity.

Therefore, the proposed project's contribution to cumulative population and housing impacts would not be considerable. For an additional discussion of the growth-inducing impacts of this proposed project, see Section 4.2, below.

Public Services, Utilities, and Recreation

The cumulative projects represent planned development in the cities of Fremont and Union City that have been and will be subject to the planning process in the respective cities. This includes consideration for how future development would provide utilities infrastructure; contribute funds toward the provision of public services staff, facilities, and equipment; and provide park space to the community. The proposed project would encroach into two public parks maintained by the City of Union City. None of the other projects in this analysis would result in impacts on these parks. Therefore, there would be no contribution to cumulative public services, utilities, and recreation impacts.

Transportation and Traffic

The traffic analysis presented in the technical traffic materials (Appendices P and Q) and Section 3.12, Transportation and Traffic, considers cumulative growth by anticipating future increases in regional and local traffic and estimating the distribution of this traffic to studied roads and intersections. The analysis used a future planning year of 2035. Significant cumulative impacts are identified where intersections degrade from acceptable LOS to unacceptable LOS without implementation of the proposed project. As shown in Table 3.12-6, 28 of the 31 existing intersections (i.e., those not constructed by the proposed project) that were ~~studies~~ studied are anticipated to operate at unacceptable levels under 2035 no project conditions.

Impact TRA-C1: Contribution to Cumulative Impact of Intersections Operating Below Acceptable Thresholds in 2035 (Significant and Unavoidable)

The proposed project is anticipated to reduce delay at several of these intersections, as Table 3.12-6 in Section 3.12 shows, but it is also anticipated to increase delay at others, contributing to a significant cumulative impact.

Considerable contributions to significant cumulative impacts are identified at the following 16 intersections (see Section 3.12, Traffic and Transportation for the complete list of intersections studied).

- Decoto Road/11th Street
- Decoto Road/Union Square
- Decoto Road/Alvarado-Niles Road
- Decoto Road/Fremont Boulevard
- Decoto Road/Canal Terrace-Cabrillo Court
- Decoto Road/I-880 northbound ramps
- Decoto Road/I-880 southbound ramps
- Mission Boulevard/Appian Way-7th Street
- Paseo Padre Parkway/Isherwood Way
- Fremont Boulevard/Paseo Padre Parkway
- Thornton Avenue/I-880 NB ramp-Blacow Road
- Thornton Avenue/Fremont Boulevard
- Niles Boulevard/Nursery Avenue
- Mission Boulevard/Nursery Avenue
- New Roadway/Alvarado-Niles Road (under Quarry Lakes Drive roadway alignment Options 1 and 2)
- New Roadway/Osprey Drive-Quarry Lakes Drive (under Quarry Lakes Drive roadway alignment Option 2 only)

The proposed project's contribution to traffic impacts would be considered cumulatively significant. This impact is considered to be significant and unavoidable and no feasible mitigation has been identified. This impact is identified in Section 3.12, Transportation and Traffic.

4.2 Growth-Inducing Impacts

Growth-inducing impacts were briefly addressed in Section 3.10, Land Use and Planning. An expanded discussion of how the proposed project could indirectly induce growth in each project-related City is provided below.

4.2.1 Growth Inducement in Fremont

The roadway widening segment of the project alignment is located in an area of Fremont that is mostly built out. Scattered infill developments that are small in scale, such as the Decoto Villas project proposed adjacent to the project alignment on the north side of Decoto Road, have been identified for implementation in this portion of Fremont. However, widening the road or connecting the new roadway to Fremont would not remove a current obstacle to growth or directly or indirectly induce this growth. Access to these sites is already available from the existing roads, and adequate utilities infrastructure already exists. The City of Fremont owns a parcel of land in the undeveloped corridor, between Old Alameda Creek and an existing single-family residential development to the south. This area is not designated for development in the City of Fremont's General Plan, and there are no current proposals to development the land. Constructing the new roadway through this corridor would not directly or indirectly induce growth in this area or any other part of Fremont. The proposed project would not provide new access to this parcel, as the parcel can already be accessed by the residential streets located south of Old Alameda Creek, and infrastructure could be extended from this residential area. Therefore, the proposed project would not directly or indirectly induce growth in Fremont.

4.2.2 Growth Inducement in Union City

Within the City of Union City, the proposed project has the potential to induce growth in the redevelopment area north of the eastern segment of the project alignment. This development of former industrial land has been identified in the Union City General Plan, and encompasses the Station District, Pacific States Steel Corporation site, Catellus/Shelton, Air Liquide, Island, and the Unnamed 7th Street site projects, as listed in Table 4-1. These project's proposed uses include residential, commercial, train station, and light industrial development. A portion of the residential development in this redevelopment area has already occurred on either side of the project alignment. Although all of these redevelopment parcels are accessible from existing roadways and the transit station, and utilities infrastructure would be available from existing development in the area, implementation of the proposed project would enhance access to the prospective developments and provide a new access to the planned 11th Street extension, enabling growth to occur as planned. As discussed in Section 3.8, Land Use and Planning, the Union City General Plan anticipates the construction of the proposed project (referred to by its former incarnation as an SR-84 realignment), and even remarks that the new road "will clearly strengthen the development potential of the Station District." (Union City General Plan Transportation Element, pg. TR-1) Although the proposed project would directly induce growth in this portion of Union City, it was anticipated as part of the growth identified in the General Plan. The proposed project would not remove an obstacle to growth or induce growth beyond that which has ~~been~~ already been presented as part of Union City's plans for future growth and development.

4.3 Irretrievable Commitment of Resources

In accordance with Section 21100(b)(2)(B) of CEQA and with Sections 15126(c) and 15126.2(c) of the CEQA Guidelines, the purpose of this section is to identify significant irreversible environmental changes that would be caused by the proposed project.

Construction of the proposed project would required an irretrievable commitment of resources, such as asphalt, concrete and steel, to be used for the construction of the expanded and new roadways, as well as bridges, grade separation structures, and infrastructure associated with maintaining utilities and services throughout the project area. Because the majority of the project alignment is located above ground, most of these materials could be recovered and reused if necessary. However, portions of the proposed project would result in the irretrievable placement of materials below ground. Therefore, the use of these materials is an irretrievable commitment of resources.

Implementation of the proposed project would also result in the irreversible commitment of energy resources to fuel and maintain construction equipment (such as gasoline, diesel, and oil). This commitment would end upon construction completion.

4.4 Summary of Significant and Unavoidable Impacts

The analysis in this Draft EIR indicates that the proposed project would result in the following significant and unavoidable impacts with respect to aesthetics, air quality, noise and vibration, and transportation and traffic. There is no feasible mitigation identified to reduce the impacts to a less-than-significant level.

- Aesthetics—New Source of Light and Glare along BART/UPRR Oakland Subdivision Railroad Corridor during Construction

- Air Quality—Temporary Increase in Ozone Precursors (ROG and NO_X), CO, and PM10 Emissions during Grading and Construction Activities
- Noise and Vibration—Exposure of Off-Site Noise-Sensitive Land Uses to Short-Term Construction Noise from Roadway Widening
- Noise and Vibration-Exposure of Off-Site Noise-Sensitive Land Uses to Short-Term Construction Noise from New Roadway Construction
- Noise and Vibration—Exposure of Off-Site Noise-Sensitive Land Uses to Short-Term Increases in Railroad Noise during Construction of the New Roadway Grade Separation
- Noise and Vibration—Exposure of Off-Site Noise-Sensitive Land Uses to Short-Term Increases in Railroad Vibration during Construction of the New Roadway Grade Separation
- Noise and Vibration—Contribution to Cumulative Impact on Noise-Sensitive Receptors along Existing Roadways
- Transportation and Traffic— Intermittent Interruption of Rail Service during Construction
- Transportation and Traffic— Reduction in Operations at 19 Intersections under Proposed Project Conditions Compared to No Project Conditions in 2015 (Under Alternative 1, it would be reduction in operations at 15 intersections)
- Transportation and Traffic—Reduction in Operations at 18 Intersections under Proposed Project Conditions Compared to No Project Conditions in 2035 (Under Alternative 1, it would be reduction in operations at 14 intersections)
- Transportation and Traffic—Contribution to Cumulative Impact of Intersections Operating Below Acceptable Thresholds in 2035

Chapter 5

Project Alternatives

Chapter 5
Project Alternatives

5.1 Introduction

This chapter addresses alternatives to the proposed project.

The CEQA Guidelines require that an EIR include a range of reasonable alternatives (CEQA Guidelines Section 15126.6[a]). The range of alternatives should be based on three key factors: 1) the ability of alternatives to meet the objectives of the project, 2) the ability of the alternatives to avoid or lessen the significant environmental impacts of the project, and 3) the feasibility of the alternatives. Alternatives may be eliminated from detailed consideration in the EIR if they fail to meet most of the basic project objectives, are infeasible, or do not avoid any significant environmental effects (Guidelines sec. 15126.6(c).

The CEQA Guidelines state that the discussion of alternatives must focus on alternatives capable of either avoiding or substantially lessening any significant environmental impacts of the project, even if the alternative would impede, to some degree, the attainment of project objectives, or would be more costly. The objectives of the proposed project are discussed in Chapter 1, Introduction (Section 1.2, Project Objectives and Need) and are listed below. The alternatives discussion should not consider alternatives whose implementation is remote or speculative, and the analysis need not be presented in the same level of detail as the assessment of the proposed project. When addressing feasibility, the CEQA Guidelines states that factors may include site suitability, economic viability, availability of infrastructure, other plans or regulatory limitations, and jurisdictional boundaries. As a starting point for the consideration of alternatives, the lead agency considered requirements of the memorandum of understanding (MOU) between ACTA, Caltrans, and the Cities of Fremont and Union City (effective May 25, 2006) (Appendix A).

5.1.1 Project Objectives

The primary project objectives are to:

- reduce local traffic congestion,
- reduce travel time, and
- provide a more direct east-west link in the transportation network in Fremont and Union City.

Supporting objectives that would result from implementation of the proposed project and provide benefits to the community would:

- improve air quality by decreasing local traffic congestion,
- implement planned transportation improvements upon which completed and planned developments in Fremont and Union City depend,
- improve access to transit facilities and businesses in the vicinity,
- improve transit operations in the vicinity by reducing congestion along existing and future transit routes,
- promote the use of non-motorized transport, and
- maximize the use of publicly-owned rights-of-way in the Historic Corridor for transportation purposes.

5.1.2 Project Impacts

The proposed project would have potentially significant impacts on biological resources, cultural resources, geology and seismicity, hazards and hazardous materials, hydrology and water quality, land use and planning, noise and vibration, and public services, utilities, and recreation. These impacts would be reduced to a less-than-significant level by implementing mitigation measures identified in this Draft EIR.

The analysis in this Draft EIR indicates that the proposed project would result in significant and unavoidable impacts on aesthetics, air quality, noise and vibration, and transportation and traffic.

All the impacts of the proposed project, including the significance determination before and after mitigation, are listed in Table ES-3 in the Executive Summary.

5.1.3 Requirements of the Memorandum of Understanding

As described in Chapter 1, Introduction (Section 1.3 Background), the intent of the MOU between ACTA, Caltrans, and the Cities of Fremont and Union City is to formalize the commitment of funding and define the roles and responsibilities in defining the new location and components of the proposed project (called Option 2 in the MOU). The MOU also identifies alternatives to be considered in the environmental document. The language below is from Section 14(b) of the MOU (Appendix A).

(b) The following potential alternatives, with the appropriate level of information, will be included in the environmental document.

i. Option 2

ii. Option 2 with two access points for new homes behind Mission Lakes development

iii. Option 2 with access point(s) for Union City neighborhoods

iv. Historic alignment in Union City up to Alvarado Niles Road

v. Transportation System Management which may summarize results from previous EIRs for comparison purposes

Option 2 is the proposed project, which is analyzed in this Draft EIR in Chapter 3, Environmental Setting and Impact Analysis.

"Option 2 with two access points for new homes behind Mission Lakes development," is the same as the proposed project, with additional access points (or side streets) from the new roadway segment (between Paseo Padre Parkway and Alvarado-Niles Road) to a possible future Fremont development area immediately south of Old Alameda Creek. The access points would be right-in/right-out; and if it is determined that a signalized intersection is needed at these access points, it would be synchronized with the other signalized intersections along this portion of the new roadway. The operational impacts for this alternative would be the same as or very similar to the proposed project. However, there would be additional construction-related impacts from installing the access roads, traffic and noise impacts in the Mission Lakes neighborhood from increased traffic, and growth-inducing impacts from providing access to an undeveloped area that is not specified in the Fremont General Plan and where there currently is no access. The City indicates that possible future development could include 40 to 50 homes. This alternative is not evaluated further in this Draft EIR because it would not avoid any significant environmental impacts; however, this does not preclude its implementation. The impacts would be addressed in the environmental document prepared for future development.

"Option 2 with access point(s) for Union City neighborhoods" is the same as the proposed project, as the project proposes access points to existing and planned residential development in the project alignment's eastern portion. This includes the realignment of Quarry Lakes Drive, which provides access to the neighborhood north of Old Alameda Creek via Osprey Drive. Therefore, this alternative is not discussed further in this document.

The **historic alignment in Union City up to Alvarado-Niles Road** (hereinafter called Historic Alignment in Union City) alternative and the **Transportation System Management** (hereinafter called Previously Studied Transportation System Management) alternative are addressed in this chapter as Alternatives 1 and 2, respectively, under Section 5.4, Alternatives under Consideration.

5.2 Development of Project Alternatives

The proposed project was developed based on extensive engineering studies and environmental review for previous versions of the project, which collectively considered in detail several alternatives. Previous studies considered several potential alignments north and south of the current project alignment in order to provide enhanced connection between I-880 and Mission Boulevard. Most of these alternatives have been eliminated from further consideration, and there are few remaining alignments that can be considered as feasible alternatives to the proposed project.

In the late 1980s, Caltrans began the preparation of an environmental document for the SR 84 Realignment Project, which has many similar elements but different project objectives. In 2002, a Final EIR/EIS was approved but was not certified, as discussed in Chapter 1, Introduction (Section 1.3 Project Background). After the FHWA and Caltrans decided not to certify the document, ACTA performed additional studies and evaluated additional alternatives (Table 5-1). Development and consideration of project alternatives was based on project studies conducted to date and conducted under the guidance of a Project Development Team with staff representatives from local cities, agencies, and the state. Input from the affected communities was considered through the CEQA process for the 2002 EIR/EIS and for this Draft EIR.

A total of 16 project alternatives have been considered over the history of the proposed project. Thirteen of these 16 alternatives were considered but eliminated based on such factors as ability to achieve the fundamental project purpose, potential environmental and community impacts, general engineering feasibility and cost, and required approval from all responsible agencies. The 13 alternatives that were eliminated are discussed under Section 5.3, Alternatives Considered but Eliminated from Detailed Analysis. The three remaining project alternatives and their respective environmental impacts are evaluated qualitatively and in comparison to those of the proposed project in Section 5.4, Alternatives under Consideration. Section 5.5 includes a summary comparison of the project alternatives and the proposed project, including identification of an environmentally superior alternative.

Table 5-1. Studies and Documentation of Project Alternatives Considered

Study/Documentation	Date
Revised Preliminary Assessment of Alternative Corridors Report (De Leuw et al. 1991a)	February 1991
Corridor Refinement Report (De Leuw et al. 1991b)	September 1991
Comparison of Alternatives Report (formerly Major Investment Study)*	October 1994
Draft Major Investment Study (De Leuw et al. 1994) Alternatives Analysis from Route 84 Realignment Project Final EIS/EIR*	November 1994 January 1997
Alternatives Analysis from Route 84 Realignment Project Final EIS/EIR (Caltrans and Federal Highway Administration 2002)	January 2002
Environmental Constraints Report for the Route 84 Realignment Project (Jones & Stokes 2004a)	January 2004
Environmental Constraints Report for the SR 84 Realignment Project (Jones & Stokes 2004b)	September 2004
Environmental Constraints Analysis SR 84 East-West Connector SR 239 to I-880 (Jones & Stokes 2006)	July 2006

*This document is a second tier reference (in that it was referenced in another document) and could not be located at the time of publication.

5.3 Alternatives Considered but Eliminated from Detailed Analysis

This section describes 13 alternatives to enhancing the connection between I-880 and Mission Boulevard that were considered in previous engineering and environmental studies or documentation, and that were eliminated from further consideration by ACTA. The locations of these alternatives are shown in Figure 5-1.

5.3.1 Existing SR 84 Upgrade

This alternative entailed improvements along the existing SR 84 alignment, which follows several roads in Fremont, south of the project alignment. The Existing SR 84 Upgrade Alternative proposed to widen Thornton Avenue to six lanes between Blacow Road and a point west of Fremont Boulevard and to provide a new four-lane facility eastward to Mission Boulevard along Peralta Boulevard and Mowry Avenue. A new grade-separated, no-access connection would be constructed from Thornton Avenue under Fremont Boulevard to Peralta Boulevard. Major signalized intersections would be provided at Paseo Padre Parkway, Peralta Boulevard/Mowry Avenue, and Mission Boulevard, and railroad grade separation improvements would be constructed on Mowry Avenue.

The Existing SR 84 Upgrade alternative was addressed in the November 1994 Alternatives Analysis Study and was considered in the SR 84 Realignment Project 2002 Final EIS/EIR. This alternative would meet the primary project objective of providing a more direct east-west link in the local transportation network. However, prior studies have shown it to have limited traffic benefits, meaning it would not fully meet the other primary project objectives of reducing local traffic congestion and travel time. Therefore, the alternative was eliminated from further consideration. Another reason for its elimination is the previously identified significant right-of-way impacts entailing the displacement and relocation of 45 to 50 residences and 30 to 35 non-residential properties. Further, this alternative is inconsistent with the MOU, and the possibility of its implementation is remote.

5.3.2 Existing SR 84 Freeway

The Existing SR 84 Freeway alternative was addressed in the February 1991 Revised Preliminary Assessment of Alternative Corridors Report. This alternative proposed to construct a freeway along the alignment explained above for the Existing SR 84 Upgrade Alternative.

This alternative would meet the primary project objectives of reducing local traffic congestion and travel time, and providing a more direct east-west link in the local transportation network. This alternative was eliminated from further consideration because of the excessive displacement and relocation required (estimated at 990 properties), the difficulty of construction and staging for such a major freeway in a developed area, and high capital costs. Rough cost estimates prepared for this alternative identified the cost to build the Existing SR 84 Freeway Alternative at $246 million, approximately 33% greater than the $188 million estimated for the proposed project. Stream crossings, noise, visual, and neighborhood intrusion also presented environmental sensitivity problems. Further, this alternative is inconsistent with the MOU, and the possibility of its implementation is remote.

5.3.3 Historic Parkway

The Historic Parkway is the original, voter-approved alignment that was incorporated into the Alameda County Congestion Management Plan Agency's countywide traffic model. The Historic Parkway alternative proposed to construct a new six-lane, median divided parkway within the undeveloped corridor located between the I-880/Decoto Road interchange and Mission Boulevard, including the project-related corridor east of the Alameda Creek Flood Control Channel, and the western continuation of that corridor cutting diagonally between Paseo Padre Parkway and Decoto Road near I-880. The existing I-880/Decoto Road Interchange would be improved and an additional grade-separated interchange would be provided at the Decoto Road/Fremont Boulevard intersection. New grade separations would be constructed at railroad crossings and bridges at waterway crossings, similar to the proposed project. A continuous hike/bike trail would be constructed within available right-of-way.

The Historic Parkway alternative was addressed in the November 1994 Alternatives Analysis Study and was the preferred alternative in the SR 84 Realignment Project 2002 Final EIS/EIR. During the EIS/EIR review process, there was substantial community opposition to this alternative primarily for the portion of the new roadway that extended through Fremont~~diagonally~~ between Alvarado-Niles Road~~Paseo Padre Parkway~~ and Decoto Road near I-880. Primary concerns included noise impacts, air quality impacts, cut-through traffic through local neighborhoods, biological impacts on the Old Alameda Creek, and the loss of open space. The City of Fremont also opposed the alternative. Because of this substantial local opposition, Caltrans and FHWA did not certify the EIS/EIR. This alternative is inconsistent with the MOU, and the possibility of its implementation is remote.

The Historic Parkway alternative would meet the primary project objectives of reducing local traffic congestion and travel time, and providing a more direct east-west link in the local transportation network. However, for the reasons stated above, the alternative is no longer being considered.

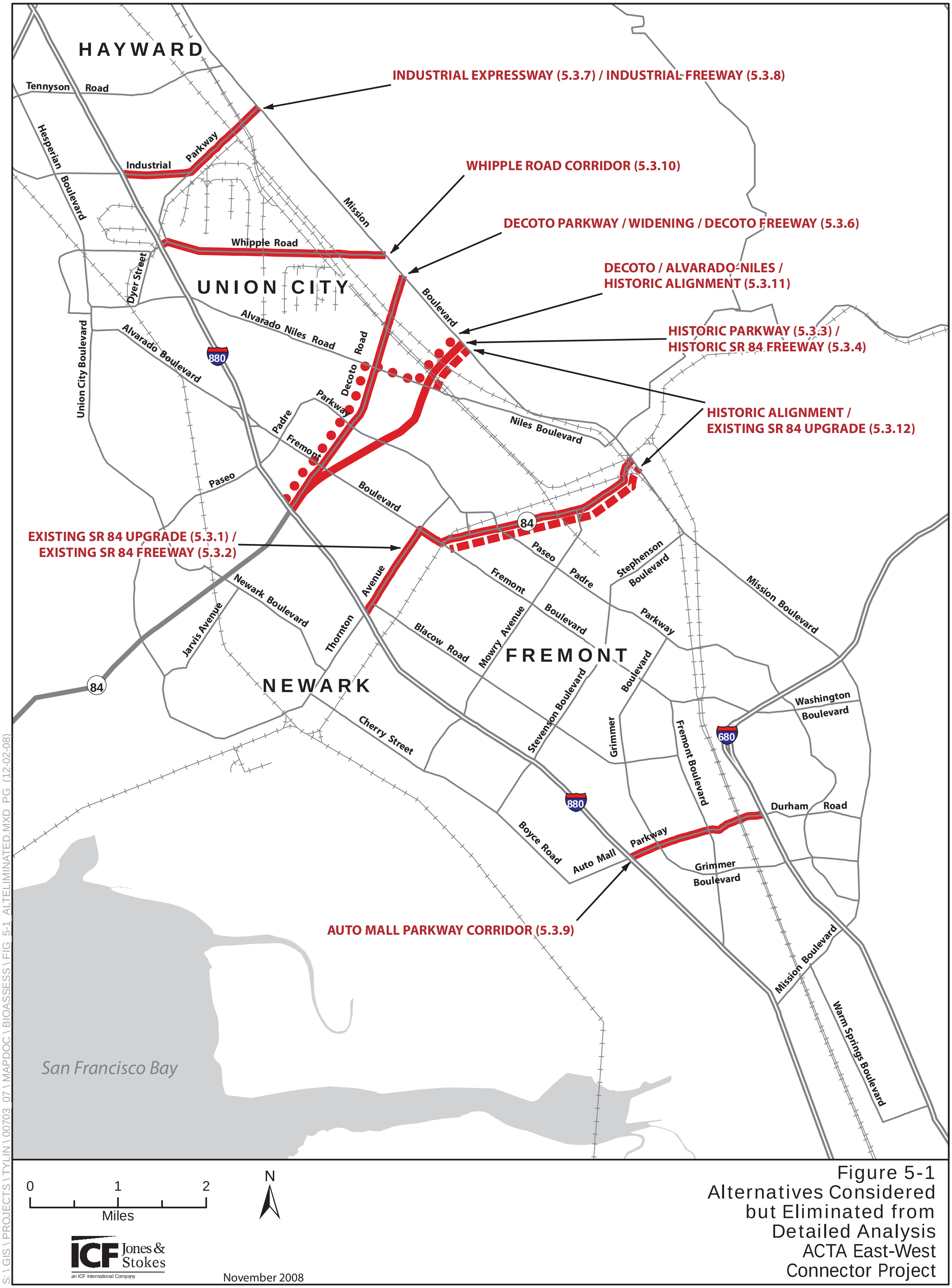

Figure 5-1
Alternatives Considered but Eliminated from Detailed Analysis
ACTA East-West Connector Project

5.3.4 Historic SR 84 Freeway

This alternative proposed a new freeway along the same alignment as that proposed under the Historic Parkway alternative.

The Historic SR 84 Freeway alternative was addressed in the February 1991 Revised Preliminary Assessment of Alternative Corridors Report. Based on the findings in these reports, the alternative was eliminated from further consideration because of the excessive displacement and relocation required (estimated at 116 properties) and the difficulty of construction and staging in a developed area. Additional problems included potential for major noise intrusion into residential areas, visual incompatibility, and environmental impacts resulting from numerous stream crossings, including a skewed crossing of Alameda Creek Flood Control Channel, and impacts on approximately 12 acres of habitat. Further, this alternative is inconsistent with the MOU and the possibility of its implementation is remote. The alternative would meet the primary project objectives of reducing local traffic congestion and travel time, and providing a more direct east-west link in the local transportation network. However, for the reasons stated above, the alternative is no longer being considered.

5.3.5 Decoto Parkway/Widening

The Decoto Parkway/Widening alternative proposed widening and reconstructing Decoto Road to a six-lane, median-divided parkway between the I-880 interchange and Mission Boulevard. A major interchange at Fremont Boulevard was proposed, with a cut for Decoto Road built beneath Fremont Boulevard. The existing Alameda Creek Flood Control Channel bridge would have been widened, and the UPRR at-grade railroad crossings would have remained.

The Decoto Parkway/Widening alternative was addressed in the November 1994 Alternatives Analysis Study and was considered in the SR 84 Realignment Project 2002 Final EIS/EIR. This alternative was eliminated because of the substantial right-of-way impacts that would displace 50 to 55 residential, 5 to 10 non-residential properties, and a community retail center at the Decoto Road/Fremont Boulevard intersection and the associated relocation costs. Further, this alternative is inconsistent with the MOU and the possibility of its implementation is remote. The alternative would meet the primary project objectives of reducing local traffic congestion and travel time, and providing a more direct east-west link in the local transportation network. However, for the reasons stated above, the alternative is no longer being considered.

5.3.6 Decoto Freeway

This alternative proposed a freeway along the existing alignment of Decoto Road.

The Decoto Freeway alternative was addressed in the February 1991 Revised Preliminary Assessment of Alternative Corridors Report. The alternative was eliminated from further consideration because of the difficulty of construction and staging in a developed area, lack of available right-of-way, business displacement, and related high relocation requirements (470 structures displaced). Adverse environmental impacts included noise, visual resources, and neighborhood intrusion, and reconfiguration of connecting local roads were identified. Further, this alternative is inconsistent with the MOU and the possibility of its implementation is remote. The alternative would meet the primary project objectives of reducing local traffic congestion and travel time, and providing a more direct east-west link in the local transportation network. However, for the reasons stated above, the alternative is no longer being considered.

5.3.7 Industrial Expressway

Industrial Parkway extends between I-880 and Mission Boulevard in Hayward, north of the project area. The Industrial Expressway alternative proposed to upgrade the existing Industrial Parkway to a six-lane, major divided arterial roadway. The existing at-grade crossing of the UPRR would remain, and the UPRR and BART grade separations would remain.

The Industrial Expressway alternative was addressed in the November 1994 Alternatives Analysis Study and was considered in the SR 84 Realignment Project 2002 Final EIS/EIR. This alternative was eliminated because of its substantial right-of-way impacts associated with widening the road and because of its limited traffic benefit. It is located too far from the project area to provide any local traffic benefit. Further, this alternative is inconsistent with the MOU and it is located too far from the project area to provide any local traffic benefit. This alternative would not meet any of the primary project objectives, as it would not provide a more direct east-west link in the local transportation network, and it would not effectively reduce local traffic congestion and travel time.

5.3.8 Industrial Freeway

This alternative proposed a freeway along the same alignment as the Industrial Expressway alternative.

The Industrial Freeway alternative was addressed in the February 1991 Revised Preliminary Assessment of Alternative Corridors Report. This alternative was eliminated from further consideration because it would result in severe environmental impacts as a result of longitudinal encroachment along Alameda Creek Flood Control Channel and several stream crossings. Other impacts would include difficulty with construction and staging for the major structures required to cross BART and UPRR tracks; limited traffic benefit from being located too far away to provide local traffic benefit; and excessive displacements and relocation requirements (approximately 70 residential, business, or quasi-public structures would have been displaced). Further, this alternative is inconsistent with the MOU and the possibility of its implementation is remote. This alternative would not meet any of the primary project objectives, as it would not provide a more direct east-west link in the local transportation network, and it would not effectively reduce local traffic congestion and travel time.

5.3.9 Auto Mall Parkway Corridor

Auto Mall Parkway, alternatively known as Durham Road in certain areas, connects I-880 to Mission Boulevard in southern Fremont, south of the project area. The Auto Mall Parkway Corridor alternative proposed improvements between I-880 and Interstate 680 (I-680), rather than Mission Boulevard. The specifics for this alternative were not developed further as it was found to provide little traffic benefit in the project area because it is too far away. Further, this alternative is inconsistent with the MOU and the possibility of its implementation is remote. This alternative would not meet any of the primary project objectives, as it would not provide a more direct east-west link in the local transportation network, and it would not effectively reduce local traffic congestion and travel time.

5.3.10 Whipple Road Corridor

Whipple Road connects I-880 and Mission Boulevard in Hayward, north of the project alignment. The Whipple Road Corridor alternative proposed to widen this road, maintaining the existing overpass at the BART and UPRR Oakland Subdivision tracks and the existing at-grade crossing at the UPRR Niles Subdivision tracks.

The Whipple Road Corridor alternative was withdrawn from consideration in January 1991, prior to detailed corridor analysis (Caltrans and Federal Highway Administration 2002). Preliminary traffic analysis indicated that the Whipple Road corridor would not attract additional traffic sufficient to make it useful as a new connector and would not meet basic project objectives for providing an east-west corridor and reducing congestion and travel time. Based on this report, this alternative was eliminated from further consideration in January 1991, prior to detailed analysis, because it did not meet project objectives, would result in displacements, neighborhood disruption, and other community impacts. Further this alternative is inconsistent with the MOU and the possibility of its implementation is remote.

5.3.11 Decoto/Alvarado-Niles/Historic Alignment

This alternative proposed widening Decoto Road to six lanes between I-880 and Alvarado-Niles Road, widening Alvarado-Niles Road to six lanes between Decoto Road and just south of Osprey Drive, and constructing a four-lane roadway along the historic alignment between Alvarado-Niles Road to Mission Boulevard. This alignment is similar to the project alignment, except that it omits roadway construction in the undeveloped corridor between Paseo Padre Parkway and Alvarado-Niles Road. This alternative would not entail constructing the bridges over the Alameda Creek Flood Control Channel and Old Alameda Creek, but would include grade separation structures where the alignment would cross BART and UPRR tracks.

The Decoto/Alvarado-Niles/Historic Alignment alternative was considered prior to preparation of the January and September 2004 Environmental Constraints Reports Jones & Stokes 2002, 2004). This alternative was eliminated from further consideration because the road widening would result in substantial displacement of residences and businesses, remove parking from apartments along Decoto Road to the extent that they would not have enough parking, and affect businesses at all four corners of the Decoto Road/Alvarado-Niles Road intersection..

5.3.12 Historic Alignment/Existing SR 84 Upgrade

This alternative proposed to construct a new four-lane roadway along the historic alignment between Alvarado-Niles Road to Mission Boulevard, similar to the proposed project, and to widen the existing SR 84 between Fremont Boulevard and Mission Boulevard.

The Historic Alignment/Existing SR 84 Upgrade alternative was considered prior to preparation of the January and September 2004 Environmental Constraints Reports (Jones & Stokes 2004). This alternative was eliminated because widening the existing SR 84 would require acquiring right-of-way from existing businesses, which would have significant land use impacts and disrupt the community. Also, the City of Fremont expressed interest in acquiring this segment of existing SR 84 from Caltrans to redevelop the roadway system into a more pedestrian-friendly, downtown setting that would discourage vehicular traffic.

5.3.13 Transit

The Transit alternative considered several improvements to transit systems rather than constructing new or widened vehicular roads. The potential transit improvements included either a commuter rail across the existing non-functioning Dumbarton Railroad Bridge or light rail added to the new Dumbarton Bridge and upgrades and expansions of bus service, with a 5% increase in the number of bus runs along the following AC Transit bus routes: DB (Transbay), 20, 21, 26, 27, 29, 77, 89, and 97.

The Transit alternative was addressed in the November 1994 Draft Major Investment Study (De Leuw et al. 1994). Commuter rail transit was found not to be cost effective (refer to the Cost Effective Analysis). Passenger demand in the corridor is low in relation to the capacity and cost offered by rail transit. The most cost effective transit solution in the corridor was found to be upgrade bus service, including an express bus linkage between East Bay rail lines (Hayward BART Station and Fremont/Centerville commuter rail station) and West Bay transit transfer points (San Mateo and Palo Alto CalTrain Stations).

This alternative would not meet the primary project objective of providing a more direct east-west link in the local transportation network. Prior studies concluded that the upgraded bus service would have only minimal impact (approximately 1%) on corridor travel demand, and hence, would only minimally address the project purpose. Therefore, the alternative would not sufficiently meet the primary project objectives of reducing local traffic congestion and travel time. Further, this alternative is considered inconsistent with the MOU and the possibility of its implementation is remote. For these reasons, a transit alternative was withdrawn from further consideration.

5.4 Alternatives under Consideration

As discussed in Section 5.3, an extensive list of potential alternative alignments for the proposed project was considered, studied, and ultimately eliminated from further consideration and detailed study. Given this extensive list and the project's primary objective to reduce local traffic congestion and travel time in the transportation network in Fremont and Union City, viable alternatives to the proposed project are limited.

The no project alternative must be analyzed pursuant to Section 15126.6(e) of the CEQA Guidelines to allow the lead agency to compare the impacts of approving the proposed project with the impacts of not approving the proposed project. The previously studied Transportation Systems Management Alternative and the Historic Alignment in Union City up to Alvarado-Niles Road Alternative (hereinafter called the Historic Alignment in Union City Alternative) were identified in the MOU between ACTA, Caltrans, and the Cities of Fremont and Union City (Appendix A). Each of these alternatives would reduce at least one of the significant and unavoidable impacts that would occur if the proposed project is implemented. Therefore, this section provides a qualitative and comparative analysis of the following alternatives.

- Alternative 1: Historic Alignment in Union City
- Alternative 2: Previously Studied Transportation System Management
- Alternative 3: No Project

CEQA requires that these alternatives be analyzed qualitatively and in comparison to the proposed project. Therefore, the discussion in this section includes references to impacts of the proposed project described in Chapter 3 of this Draft EIR and summarized in Table ES-3 in the Executive Summary.

Although not required by CEQA, Alternative 1: Historic Alignment in Union City has been analyzed at the same level of detail as the proposed project. The analysis has been summarized below in Section 5.4.1 and in Table ES-4 in the Executive Summary. The complete analysis is included in Appendix E.

5.4.1 Alternative 1: Historic Alignment in Union City

A detailed project description of Alternative 1, along with a detailed analysis of its environmental impacts and the mitigation measures necessary to reduce impacts to less-than-significant levels, are provided in Appendix E of this Draft EIR. The following discussion summarizes the Alternative 1 project description, compares the Alternative 1 impacts to those of the proposed project, and analyzes to what extent Alternative 1 meets the project objectives. For additional detail on Alternative 1, refer to Appendix E.

Description

Alternative 1 is a truncated or reduced version of the proposed project. There would be no widening or improvements to Decoto Road and Paseo Padre Parkway, no new roadway between Paseo Padre Parkway and Alvarado-Niles Road, and no new bridge crossings of the Alameda Creek Flood Control Channel and Old Alameda Creek.

Alternative 1 includes a new .6-mile roadway, from Alvarado-Niles Road on the west to Mission Boulevard on the east, located entirely within Union City (Figure 5-2). This new roadway under Alternative 1 would have the same project features as the new roadway segment, from Alvarado-Niles Road to Mission Boulevard, under the proposed project. Alternative 1 would construct the grade separations, remove the 2C Basin and the New Basin, reconfigure the Line M Channel, construct a new intersection at 11th Street and the proposed roadway, reconfigure 7th Street, and move the CNG station at the Union City Corporation Yard. The differences between Alternative 1 and the proposed project are shown in Table 5-2.

Table 5-2. Comparison of Alternative 1 Project Components with Proposed Project Components

~~Improvements to Existing Roadway Segments~~	
~~Decoto Road~~	~~Widen 0.9-mile segment, from intersection at Cabrillo Court to Paseo Padre Parkway, to six lanes~~
~~Paseo Padre Parkway~~	~~Widen 0.8-mile segment, from Decoto Road to Isherwood Way, to six lanes~~
~~Decoto Road/Cabrillo Court~~	~~Signal modification at existing intersection. Signal adjusted/re-timed.~~
~~Decoto Road/Ozark River Way~~	~~Signal modification at existing intersection. Signal adjusted/re-timed.~~
~~Decoto Road/Fremont Boulevard~~	~~Signal and intersection modification at existing intersection. Signal adjusted/re-timed. Additional turn lanes will be provided.~~
~~Decoto Road/Brookmill Drive~~	~~New signal at existing intersection.~~

Figure 5-2
Alternative 1:
Historic Alignment
in Union City
ACTA East-West
Connector Project

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~~Decoto Road/Paseo Padre Parkway~~	~~Signal and intersection modification. Signal adjusted/re-timed. Additional turn lanes will be provided.~~
~~Paseo Padre Parkway/Wyndham Drive~~	~~New signal at existing intersection.~~
~~Paseo Padre Parkway/Tamayo Drive~~	~~New signal at existing intersection.~~
~~Paseo Padre Parkway/Isherwood Way~~	~~Signal modification at existing intersection. Signal adjusted/re-timed.~~
New Roadway and Other Infrastructure Improvements	
New Roadway	Construct 0.6 ~~1.3~~ mile of new four-lane roadway from ~~Paseo Padre Parkway~~ Alvarado-Niles Road to Mission Boulevard
New or Improved Intersections	
~~Paseo Padre Parkway/ New Roadway~~	~~Intersection modification. Turn pockets and signals added~~
~~Quarry Lakes Drive/ New Roadway~~	~~Intersection modification. Realigned westward and signalized (3- or 4-way intersection, depending option selected)~~
Alvarado-Niles Road/ New Roadway	New intersection modification. Turn pockets and signals to be provided.
Alvarado-Niles Road/ Olsen Way	Signal modification at existing intersection. Signal adjusted/re-timed.
11th Street/ New Roadway	New intersection. Turn pockets and signals to be provided.
7th Street/ New Roadway	New intersection with realigned 7th Street/Chesapeake Drive. Turn pockets and signals to be added
Mission Boulevard/ New Roadway	Intersection modification at Mission Boulevard and Appian Way. New turn pockets added. Signal adjusted/re-timed
Other Project Features	
~~Alameda Creek Flood Control Channel Bridge~~	~~New bridge crossing (concrete slab supported by six bents)~~
~~Old Alameda Creek Bridges~~	~~New bridge crossings at two locations (two cast-in-place concrete girder bridges)~~
~~Quarry Lakes Drive Realignment~~	~~Realignment of Quarry Lakes Drive approximately 450 feet to the southwest (old roadway to be removed)~~
Silva Farmhouse Demolition	Demolition of existing single-family residence and barn southwest of proposed alignment and intersection of Alvarado-Niles Road
Rail and Road Grade Separation	Addition of three grade separation structures for new roadway alignment extending beneath BART, UPRR Oakland, Green Street, and UPRR Niles
Removal of Detention Basins	Removal of two detention basins (New Basin and Basin 2C) between Alvarado-Niles Road and Mission Boulevard
Line M Channel and Diversion Pipeline	Installation of drainage bifurcation facilities at Chesapeake Drive and of new 84-inch buried pipeline extending to Old Alameda Creek on south side of new road

Modifications to 7th St and Union City Corporation Yard	Realignment of 7th Street and reconfiguration of compressed natural gas refueling island and replacement parking for Union City Corporation Yard and Drigon Park
Wetlands Mitigation Site	Creation of a wetlands mitigation site along Old Alameda Creek to compensate for loss of wetlands and riparian vegetation
Replacement of Old Alameda Creek Outlets	Possible replacement of drainage gates that keep water from Alameda Creek Flood Control Channel from backing up into Old Alameda Creek
Trail System Upgrades and Maintenance	Construction of a multi-use path on north side of new roadway~~; new trail segments at new bridge abutments and in Fremont.~~
Utility Relocation and Construction	Possible relocation of existing utility poles and lines; existing storm drains and drainage inlets may be relocated or modified

Note: Alternative 1 (Historic Alignment in Union City) is a reduced version of the proposed project. For comparison purposes, this table shows the parts of the proposed project that would not occur (with strike-out), leaving the components of Alternative 1.

The Alternative 1 new roadway alignment would extend through primarily undeveloped land that includes two detention basins (New Basin and Basin 2C) and the Line M Channel. The Alternative 1 alignment would cross the UPRR tracks, BART tracks, Green Street Bridge, and the Chesapeake Drive culvert extending over Basin 2C. Surrounding land uses include a multifamily development on the north side of the Alternative 1 alignment near Alvarado-Niles Road, existing and planned single-family residential development on both sides of the Alternative 1 alignment, industrial uses (Union City Corporation Yard) on the north side, and a dog park on the north side. The Line M Channel would be diverted as in the proposed project, with a new channel carried via buried pipeline to a new outfall structure in Old Alameda Creek. In the proposed project, this pipeline would generally follow the proposed roadway alignment, on the south side. Under Alternative 1, the proposed roadway would terminate at Alvarado-Niles Road, but the new Line M Channel diversion pipeline would continue west of Alvarado-Niles Road, generally along the same alignment as in the proposed project, with a similar outfall structure installed at Old Alameda Creek. Additionally, the wetlands mitigation site along Old Alameda Creek, and infiltration basins (low-level grassy areas) identified to mitigate water quality impacts from stormwater runoff would still be implemented in the area west of Alvarado-Niles Road. Alternative 1 would entail construction of the wetlands mitigation site similar to the proposed project, but the site would be slightly smaller than for~~in~~ the proposed project, due to the smaller amount of wetlands impacts that would occur with implementation of Alternative 1 compared to the proposed project.

Comparison of Environmental Impacts: Alternative 1 to Proposed Project

To supplement the discussion below, Tables 5-7 and 5-8 (at the end of this chapter) provide a general and specific comparison of impacts by issue area for Alternative 1 and the proposed project.

Aesthetics

Under Alternative 1, new roadway construction in the disturbed, undeveloped corridor between Alvarado-Niles Road and Mission Boulevard would occur. All of the visible components of the proposed project east of Alvarado-Niles Road would be implemented, but there would be no new roadway or associated facilities in the undeveloped corridor between Paseo Padre Parkway and Alvarado-Niles Road. The buried Line M Channel diversion pipeline, wetlands mitigation site along Old Alameda Creek, and infiltration basins (low-level grassy areas) identified to mitigate water quality impacts from stormwater runoff would still be implemented. By omitting the new roadway section and associated facilities west of Alvarado-Niles Road, Alternative 1 would avoid the permanent impacts identified as Impact AES-5: Change of Visual Character or Visual Quality along New Roadway Segment between Paseo Padre Parkway and Alvarado-Niles Road, AES-6: Potential Placement of Soundwalls Adjacent to Residential Property between Paseo Padre Parkway and Alvarado-Niles Road, AES-7: Encroachment of Quarry Lakes Drive Realignment Option 2 (Four-Way Intersection) into Arroyo Park, AES-8: Obstruction of Scenic Vistas from Public Trails Adjacent to Old Alameda Creek, and AES-9: New Source of Light and Glare from New Roadway between Paseo Padre Parkway and Alvarado-Niles Road. None of the mitigation identified for these impacts under the proposed project would be required. Temporary construction work would occur between Old Alameda Creek and Alvarado-Niles Road, due to trenching for the Line M Channel diversion pipeline and the outfall structure in Old Alameda Creek. Because temporary construction work within this area would be visible from public trails, potentially resulting in a considerable degradation of visual character and visual quality of the area, Alternative 1 would not avoid Impact AES-4: Temporary Degradation of Visual Character or Visual Quality along New Roadway Segment between Paseo Padre Parkway and Alvarado-Niles Road, and mitigation would be necessary in the form of installing construction screening during the temporary construction activities. Because Alternative 1 would entail construction of the grade separations at the BART and UPRR tracks, necessitating the shoofly construction, Alternative 1 would not avoid Impact AES-11: New Source of Light and Glare along BART Corridor during Construction, the significant and unavoidable impact identified for the proposed project resulting from nighttime construction work on the shooflies. Because Alternative 1 would install new street lights in the new corridor east of Alvarado-Niles Road, in proximity to existing residences, Alternative 1 would not avoid Impact AES-12: New Source of Light and Glare from New Roadway between Alvarado-Niles Road and Mission Boulevard, and mitigation would be required.

In summary, Alternative 1 would have significant aesthetic impacts, but fewer than those identified for the proposed project; mitigation would be required to reduce impacts to a less-than-significant level.

Air Quality

Alternative 1 construction would be of a smaller scale than the proposed project, because the new road between Paseo Padre Parkway and Alvarado-Niles Road would be omitted, avoiding most of the grading in that area and construction of the creek and channel bridges. However, Alternative 1 would still entail a large-scale construction effort to excavate the grade separation, construct the new road, create the wetlands mitigation site, and dig the trench for the Line M Channel diversion pipeline. A significant construction impact was identified for the proposed project because NOx thresholds would be exceeded under the worst-case, maximum-emissions construction day. The reduction in emissions due to the smaller-scale construction proposed in Alternative 1 would reduce NOx emissions to less-than-significant levels. Emissions thresholds for all other pollutants would not be exceeded. Therefore, Alternative 1 would not result in a significant and unavoidable impact (Impact AIR-1: Temporary Increase in Ozone Precursors (ROG and NOX), CO, and PM10 Emissions during Grading and Construction Activities) as identified for the proposed project. However, Caltrans and BAAQMD require implementation of measures to reduce criteria pollutant emissions during construction to ensure that the impact is less than significant (Mitigation Measure AIR-1: Employ Measures to Reduce Criteria Pollutant Emissions during Construction).

As in the proposed project, the construction of Alternative 1 would emit greenhouse gases. Although no standards or thresholds are available for determining the significance of greenhouse gas emissions on a local, state, or national level, construction-related contribution to regional greenhouse gas emissions are considered a significant impact in Alternative 1, as they are in the proposed project (Impact AIR-3: Increase in Greenhouse Gas Contaminant Emissions). Mitigation would be required to reduce this impact to a less-than-significant level.

All other air quality impacts were identified as less than significant for the proposed project, so Alternative 1 would not avoid any other significant impacts. As under the proposed project, regional and local traffic would continue to increase in the project area as projected, and this would result in future increases in traffic-related air emissions. Because both the proposed project and Alternative 1 would accommodate this future traffic, and would not generate additional traffic on their own, there would generally be no difference in operational emissions between the proposed project and Alternative 1. Analysis of congested intersections under Alternative 1 indicated that, as under the proposed project, local CO concentrations would not exceed relevant federal and state thresholds, and Impact AIR-3: Increase in Greenhouse Gas Contaminant Emissions would be less than significant under Alternative 1.

Alternative 1 would not result in any additional emissions not identified for the project in Section 3.2, Air Quality.

Biological Resources

All wetlands and other waters mapped within the study area are directly or indirectly hydrologically connected to the San Francisco Bay. The types of wetlands and other waters within the project site are described below and summarized in Table 3.3-2 of the Draft EIR.

By omitting the roadway within the undeveloped corridor between Paseo Padre Parkway and Alvarado-Niles Road and omitting the new bridge crossings of the Alameda Creek Flood Control Channel and Old Alameda Creek, Alternative 1 would substantially reduce the biological resources impacts, when compared to the proposed project. However, Alternative 1~~3~~ would result in the same impacts on the New Basin, Basin 2C, and the Line-M Channel as would the proposed project, and would result in impacts on a small area of Old Alameda Creek for construction of the Line M Channel outfall. It is estimated that Alternative 1 would result in a total of ~~1.03~~ 0.87 acres of permanent impacts to jurisdictional wetlands of the United States and state and 0.23 acres of potentially jurisdictional other waters of the United States and state~~, including 0.23 acre from Line M Channel and 0.80 acre from the 2C Basin~~. Impacts on an additional 2.85 acres of ~~state~~ waters of the state would occur if the state takes jurisdiction over the New Basin, which is not assumed for this impact analysis. Alternative 1 impacts would require mitigation at a 2:1 replacement ratio for these wetlands impacts. Alternative 1 would result in ~~only~~ a ~~very~~ small amount of impacts on sensitive habitat communities (Impact BIO-9: Permanent Loss and Temporary Disturbance of a Sensitive Community—Willow Riparian Woodland and Scrub)~~,~~ ~~encompassing the~~ from constructing the wetlands mitigation site and realigning the trail adjacent to the wetlands mitigation site~~approximately 110-square-foot rock slope protection area~~, equating to approximately ~~less than 0.01~~ 0.11 acre of permanent impacts and 3.2 acres of temporary impacts on willow riparian woodland and scrub. ~~This is a substantial reduction from the impact to this sensitive community assessed for the proposed project, estimated at either 2.26 or 2.64, depending on which Quarry Lakes Drive Realignment Option was selected.~~ Mitigation for this permanent habitat loss at a 2:1 ratio for permanent impacts and 1:1 for temporary impacts, and would be incorporated into the wetland mitigation plan under Alternative 1.

Alternative 1 would not entail construction near Crandall Creek, and would avoid Impact BIO-1: Degradation of Water Quality in Crandall Creek from Construction Activities Associated with the Roadway Widening. Alternative 1 would not entail construction in the Alameda Creek Flood Control Channel, and would avoid Impact BIO-6: Disturbance to Anadromous Steelhead and their Habitat from Construction Activities at Alameda Creek Flood Control Channel. Alternative 1 would not entail impacts on willow riparian woodland and scrub, avoiding Impact BIO-9: Permanent Loss and Temporary Disturbance of a Sensitive Community—Willow Riparian Woodland and Scrub, nor would it result in the potential to spread noxious weeds into this sensitive plant community, avoiding Impact BIO-10: Potential Introduction or Spread of Noxious Weeds into a Sensitive Plant Community.

Because Alternative 1 would entail removal of detention basins and work within Old Alameda Creek, it would have the potential to result in impacts on California red- legged frogs, western pond turtles, and their respective habitats, and would not avoid Impact BIO-4: Loss of or Disturbance to California Red- Legged Frogs, California Tiger Salamanders, Western Pond Turtles, and their Habitat. Because Alternative 1 would entail construction in the vicinity of mature trees and would have the potential to affect nesting birds, it would not avoid Impact BIO-5: Potential Loss of Nesting Migratory Birds, including Raptors, or Loss of their Nests or Eggs. Work in proximity to surface water resources would not be avoided, and Alternative 1 would not avoid Impact BIO-8: Degradation of Water Quality in Aquatic Resources from Construction Activities, though the impact would be reduced when compared to that of the proposed project because of the reduced amount of construction occurring directly within and adjacent to surface water bodies. As stated above, Alternative 1 would result in permanent loss of wetlands, and therefore would not avoid Impact BIO-11: Loss of Wetlands and Other Waters of the United States and of the State, but this impact would be reduced when compared to the proposed project. This is because there would be no impacts on the Alameda Creek Flood Control Channel (except the possible replacement of drainage gates that keep water from Alameda Creek Flood Control Channel from backing up into Old Alameda Creek and new outfalls from proposed drainage systems) and fewer impacts on Old Alameda Creek. Overall impacts on biological resources under Alternative 1 would be less than under the proposed project, but Alternative 1 does not eliminate any significant and unavoidable impacts.

Cultural Resources

Alternative 1 would change existing physical conditions but to a lesser degree than would the proposed project, as it would also entail roadway construction or associated grading. Alternative 1 would not have an effect on the one known historic resource located in the project area, the Peterson farmhouse. Alternative 1 would entail earth disturbance and therefore would have the potential to affect any archaeological resources that may be present beneath the surface. Alternative 1 would not avoid Impacts CUL-1: Construction Impacts on Archaeological Resources from Roadway Widening and CUL-4: Construction Impacts on Archaeological Resources from New Roadway, and mitigation would be required. Earthwork under Alternative 1 would primarily occur within previously disturbed areas, except in the undeveloped area east of Alvarado-Niles Road and the trenching area between Alvarado-Niles Road and Old Alameda Creek. By greatly reducing the amount of work in the undeveloped corridor between Paseo Padre Parkway and Alvarado-Niles Road, Alternative 1 would result in less of a chance that subsurface artifacts could be discovered. Therefore, potential archaeological impacts under Alternative 1 would be reduced compared to the proposed project.

Geology, Soils, and Seismicity

Under Alternative 1, roadway construction and associated grading would be undertaken, but it would not include the new roadway segment between Paseo Padre Parkway and Alvarado-Niles Road or the realignment of Quarry Lakes Drive. No significant geology, soils, or seismicity impacts were identified for the proposed project, so Alternative 1 would not avoid any significant impacts assessed for the proposed project. Alternative 1 would also not result in any additional significant geology, seismicity, and soils impacts not discussed in Section 3.5, Geology, Soils, and Seismicity.

Hazards and Hazardous Materials

Alternative 1 would construct and operate an improved road, similar to the proposed project, although there would be substantially less construction activity because there would be no construction along Decoto Road and Paseo Padre Parkway, no new roadway between Alvarado-Niles Road and Paseo Padre Parkway, and no realignment of Quarry Lakes Drive. However, Alternative 1 would not avoid Impact HAZ-1: Creation of a Hazard to the Public or the Environment through the Routine Transport, Use, or Disposal of Hazardous Materials. Alternative 1 proposes roadway construction in a former industrial area that has undergone and is undergoing remedial action for former hazardous materials contamination. Therefore, Alternative 1 construction would result in potential exposure of workers to hazardous materials during construction and would not avoid Impact HAZ-2: Accidental Mobilization and Exposure of Workers and Public to Hazardous Materials during Construction. This impact would be reduced under Alternative 1, as compared to the proposed project, because Alternative 1 would substantially reduce the amount of earth disturbance in the former agricultural area between Paseo Padre Parkway and Alvarado-Niles Road, reducing the proposed project's potential impacts associated with agricultural chemical contamination and the presence of agricultural wells. However, mitigation for this impact would still be required. As Alternative 1 construction proposes work in existing roads, it would have the potential to interfere with emergency response or emergency evacuation plans, and would not avoid Impact HAZ-3: Impairment of the Implementation of or Physical Interference with an Adopted Emergency Response Plan or Emergency Evacuation Plan during Construction. Alternative 1 would also not avoid Impact HAZ-4: Exposure of People or Structures to Increased Risk of Loss, Injury, or Death Involving Urban or Wildland Fires during Construction because it proposes work in undeveloped areas covered in nonnative grassland and therefore subject to wildland fires during construction. Because there are no schools within 0.25 miles of Alternative 1, Alternative 1 would avoid Impact HAZ-5: Emission or Use of Hazardous Materials, Substances, or Waste within 0.25 mile of an Existing or Proposed School, which was found to be less than significant under the proposed project,

In summary, significant hazardous impacts could result from implementation of Alternative 1, and mitigation would be required to reduce such impacts to a less-than-significant level. The implementation of Alternative 1 would not result in any additional hazards and hazardous materials impacts not discussed in Section 3.6, Hazards and Hazardous Materials.

Hydrology and Water Quality

Alternative 1 would entail construction and earth-disturbing activities in the vicinity of Old Alameda Creek and the Line M Channel; therefore, it would not avoid Impacts HWQ-1: Degradation of Surface Water Quality from Construction-Related Earth-Disturbing Activities and HWQ-2: Contamination of Surface Water Quality from Leak or Accidental Spill of Hazardous Materials during Construction. Alternative 1 would require similar mitigation as identified for the proposed project to bring these impacts to less-than-significant levels. Under Alternative 1, these impacts would be reduced when compared to those identified for the proposed project, because Alternative 1 would avoid work within and adjacent to the Alameda Creek Flood Control Channel and would involve less work in Old Alameda Creek. Alternative 1 would increase the amount of impervious surface in the project area, which could increase stormwater runoff; therefore, Alternative 1 would not avoid Impact HWQ-3: Increased Runoff from New Impervious Surfaces and Adverse Impacts on Surface Waters and would require similar mitigation as identified for the proposed project. However, because the road proposed under Alternative 1 would be smaller in scale than the road under the proposed project, Impact HWQ-3: Increased Runoff from New Impervious Surfaces and Adverse Impacts on Surface Waters would be reduced when compared to the proposed project. The other impacts on hydrology and water quality were identified as less than significant for the proposed project, and the same is true for Alternative 1.

In summary, Alternative 1 would result in significant hydrology and water quality impacts, requiring mitigation to reduce the impacts to less-than-significant levels. Implementing Alternative 1 would not result in any additional hydrology and water quality impacts not discussed in Section 3.7, Hydrology and Water Quality.

Land Use

Under Alternative 1, Decoto Road curb and sidewalks would not be improved, maintaining the existing non-conforming sections of right-of-way, curb, and sidewalk between Cabrillo Court and Paseo Padre Parkway. Such conditions would also persist on Fremont Boulevard. Bicycle lanes would not be provided and/or improved along Decoto Road and Fremont Boulevard. This would mark an inconsistency with the Fremont General Plan, the Fremont Ped Plan, and the Fremont Bike Plan. The new road in the undeveloped corridor between Paseo Padre Parkway and Alvarado-Niles Road would also not be built, and this would be inconsistent with the Union City General Plan, which anticipates the implementation of the full extent of the new road as provided in the proposed project. The general plans for both cities include the Route 84 project (also called the historic parkway), which includes a new roadway in the reserved right-of-way.; Projects completed in the last decade and planned developments in Fremont and Union City assumed the use of the Route 84 project, which is in the Alameda County Congestion Management Agency Countywide Traffic Model. Alternative 1 would also conflict with the Union City Pedestrian and Bicycle Master Plan and the EBRPD Master Plan, both of which anticipate trails and bike lanes to be provided within the full extent of the new road, as provided in the proposed project. Because of these inconsistencies, Alternative 1 would avoid the beneficial impacts identified for the proposed project (Impacts LUP-3: Potential Conflict with the Fremont Pedestrian Master Plan, LUP-5: Potential Conflict with the Alameda Countywide Bicycle Plan, and LUP-7: Consistency with the Union City Pedestrian and Bicycle Master Plan).

Noise and Vibration

Under Alternative 1, roadway construction and associated grading would result in project-related noise and vibration from grading, pile driving, paving, or other actions. The new road would be constructed in the corridor between Alvarado-Niles Road and Mission Boulevard, and project-related construction noise and vibration would be received at adjacent residences and park land in the vicinity, as would operational vehicle noise on the new road. The shooflies would also be constructed, and railroad tracks would be moved closer to residences in the vicinity; therefore, there would be an increase in the railroad-related vibration experienced at adjacent residences. ~~Because~~ Alternative 1 would not entail construction and operation of the road near residences between Paseo Padre Parkway and Alvarado-Niles Road, and no construction or operational noise or vibration would be received in that area and no soundwalls would be required. However, the wetlands mitigation site would be constructed in proximity to City of Fremont residences south of Old Alameda Creek and City of Union City residences north of Old Alameda Creek. As a result, nearby residences would receive construction noise on a temporary basis during excavation and creation of the wetlands mitigation site.

Alternative 1 would not entail the roadway widening portion of the proposed project; therefore, it would avoid Impacts NOI-1: Exposure of Off-Site Noise-Sensitive Land Uses to Short-Term Construction Noise from Roadway Widening and NOI-2: Exposure of Off-Site Vibration-Sensitive Land Uses to Short-Term Construction Vibration from Roadway Widening. NOI-1 was identified as significant and unavoidable under the proposed project.

Because project construction under Alternative 1 may occur outside of normally acceptable hours, as in the proposed project, Alternative 1 would not avoid Impact NOI-5: Exposure of Off-Site Noise-Sensitive Land Uses to Short-Term Construction Noise from New Roadway and Wetlands Mitigation Site Construction —a significant and unavoidable impact under the proposed project. Construction vibration would occur, and Alternative 1 would not avoid Impact NOI-6: Exposure of Off-Site Vibration-Sensitive Land Uses to Short-Term Vibration from New Roadway Construction. As in the proposed project, construction of the grade separations under Alternative 1 would result in Impacts NOI-7: Exposure of Off-Site Noise-Sensitive Land Uses to Short-Term

Increases in Railroad Noise during Construction of the New Roadway Grade Separation and NOI-8: Exposure of Off-Site Noise-Sensitive Land Uses to Short-Term Increases in Railroad Vibration during Construction of the New Roadway Grade Separation, which were both identified as significant and unavoidable. Vehicle traffic noise on the new road would still be received by adjacent residences, and noise levels at some residential receptors are estimated to exceed significance thresholds; therefore, Alternative 1 would not avoid Impact NOI-9: Exposure of Noise-Sensitive Land Uses to Operational Noise from Vehicles on New Roadway.

In summary, Alternative 1 would result in significant noise and vibration impacts, including some construction impacts that would be significant and unavoidable. Mitigation measures would be required similar to those required for these impacts under the proposed project. Overall, significant impacts under Alternative 1 would be less than those anticipated under the proposed project. Alternative 1 would not result in noise or vibration impacts not addressed in Section 3.9, Noise and Vibration.

Population and Housing

Alternative 1 would require demolition of the Silva farmhouse and relocation of the residing tenants, similar to the proposed project. By providing improved access to future development in Union City (north of the project area's eastern end), Alternative 1 would result in the same indirect inducement of growth in Union City as identified for the proposed project. As in the proposed project, there would be no direct change in population or housing in Fremont or Union City, and no significant impact would result. Significant population and housing impacts were not identified for the proposed project; therefore, implementing Alternative 1 would not avoid any significant population and housing impacts. Alternative 1 would not result in population and housing impacts not addressed in Section 3.10, Population and Housing.

Public Services, Utilities, and Recreation

Under Alternative 1, roadway construction and associated grading would result in the potential interruption of stormwater drainage. Therefore, Alternative 1 would not avoid Impact PSR-1: Interruptions to Stormwater Drainage System during Construction. Similar to the proposed project, there would be no permanent change in public services, utilities, and service systems. With respect to recreation, Alternative 1 would not have the full extent of the benefits identified for the proposed project (Impact PSR-3: Change in Demand for Neighborhood Parks, Regional Parks, or Recreational Facilities), because it would not construct new trails and bike lanes between Paseo Padre Parkway and Alvarado-Niles Road, nor would it improve bike lanes and pedestrian access along Decoto Road, as under the proposed project. Under Alternative 1, Impact PSR-3: Change in Demand for Neighborhood Parks, Regional Parks, or Recreational Facilities would be less than significant with no beneficial impacts as identified for the proposed project. Alternative 1 would avoid impacts on Arroyo Park from realignment of Quarry Lakes Drive but would not avoid the minor encroachment on Drigon Park; however, this impact would be considered less than significant and no mitigation would be required. Alternative 1 ~~would also not~~ may entail a temporary trail ~~closures~~closure to enable construction of the wetlands mitigation site, which would require realignment of a City of Fremont trail south of Old Alameda Creek. Because many other trails in the vicinity would remain open, this temporary closure would not significantly hinder access or recreational opportunities in the vicinity of the site; therefore, Alternative 1 would ~~avoid~~ substantially reduce Impact PSR-4: Adverse Physical Effects on Existing Recreational Facilities, which would be less than significant under Alternative 1.

Transportation and Traffic

Alternative 1 would construct a new road with a smaller scale than the proposed project. Roadway construction would affect a smaller area than under the proposed project, but the construction effort would still have the potential to create hazards on existing roadways along the alignment, so Alternative 1 would not avoid Impact TRA-1: Temporary Increase in Construction-Related Truck and Auto Traffic, Decrease in Roadway Capacity, and Disruption of Vehicular and Non-motorized Travel during Construction. Mitigation would still be required in the form of a comprehensive traffic control plan, as under the proposed project. Alternative 1 would entail the same grade separation construction as the proposed project, and the alternative would result in the same temporary interruption of rail service identified as Impact TRA-2: Intermittent Interruption of Rail Service during Construction for the proposed project, and would require the same mitigation. Alternative 1 would not entail trail closure; therefore, Alternative 1 would avoid the pedestrian and bicycle impacts identified as Impact TRA-3: Temporary Closure of Pedestrian and Bicycle Trails during Construction for the proposed project and mitigation would not be required to address this impact under Alternative 1.

In regard to operation of the local automobile circulation system, Alternative 1 would affect traffic flow in a different manner than the proposed project because it would entail a different scale of improvements than the proposed project. The results of technical analysis of Alternative 1's intersection impacts are shown in Section 3.12 of Appendix E. As discussed in Appendix E and listed below, Alternative 1 would have less-than-significant impacts as a result of intersection operation improvements in 2015 and 2035 (Impacts TRA-4: Improvement in Operations at 12 Intersections and Minor Reduction in Operations at 2 Intersections under Proposed Project Conditions Compared to No Project Conditions in 2015 and TRA-6: Improvement in Operations at 21 Intersections under Proposed Project Conditions and Minor Reductions in Operations at 2 Intersections Compared to No Project Conditions in 2035) and significant and unavoidable impacts due to intersection operation reductions in the same years (Impacts TRA-5: Reduction in Operations at 19 Intersections under Proposed Project Conditions Compared to No Project Conditions in 2015 and TRA-7: Reduction in Operations at 18 Intersections under Proposed Project Conditions

Compared to No Project Conditions in 2035), similar to the proposed project. However, impacts under Alternative 1 would affect different intersections than they would under the proposed project. Alternative 1 would decrease delay (improve operations) or reduce delay by fewer than 4 seconds at 15 intersections in the 2015 timeframe (compared to 14 under the proposed project), and at 25 intersections in the 2035 timeframe (compared to 21 under the proposed project). Alternative 1 would significantly increase delay (reduce operations) at 16 intersections in the 2015 timeframe (compared to 19 under the proposed project), and at 14 intersections in the 2035 timeframe (compared to 18 under the proposed project). As in the proposed project, there are no feasible mitigation measures to reduce Alternative 1's significant operational impacts to less-than-significant levels. Therefore, Alternative 1 would result in significant and unavoidable impacts.

As with the proposed project, Alternative 1 would offer an overall improvement to local congestion by reducing average travel times on studied routes, although not to the same extent as that assessed for the proposed project. Whereas all studied routes are anticipated to improve under the proposed project, most of the routes would improve under Alternative 1, with some of the routes seeing minimal increases in travel time; as compared to no project conditions (see Table 3.12-8 and 3.12-9 of Section 3.12 in Appendix E). Because a detailed analysis was conducted for Alternative 1, this improvement has been quantified. Tables 5-3 and 5-4 compare the route-specific reduction in delay for the proposed project and Alternative 1.

Table 5-3. Comparison of Reduction in Travel Time – Year 2035 AM Peak Hour, Proposed Project and Alternative 1

			Proposed Project, compared to No Project		**Alternative 1, compared to No Project**	
From	**To**	**Peak Direction**	**Minutes**	**Percent**	**Minutes**	**Percent**
Mission/Mowry	SR 84 west of I-880	WB	-25	-48%	-7	-13%
Mission/Mowry	Fremont/Decoto	WB	-22	-56%	-6	-15%
Mission/Niles Canyon	SR 84 west of I-880	WB	-34	-52%	-6	-9%
Mission/Nursery	SR 84 west of I-880	WB	-30	-46%	-1	-2%
Mission/Whipple	SR 84 west of I-880	SB	-28	-42%	-7	-10%
Mission/ Whipple	Fremont/Thorton	SB	-18	-34%	+2	+4%
Mission/ Whipple	Fremont/Mowry	SB	-28	-45%	0	0%
Source: Dowling 2008c						

Table 5-4. Comparison of Reduction in Travel Time – Year 2035 PM Peak Hour, Proposed Project and Alternative 1

From	To	Peak Direction	Proposed Project, compared to No Project		Alternative 1, compared to No Project	
			Minutes	Percent	Minutes	Percent
SR 84 west of I-880	Mission/Mowry	EB	-18	-33%	-6	-11%
Fremont/Decoto	Mission/Mowry	EB	-13	-43%	-6	-20%
SR 84 west of I-880	Mission/Niles Canyon	EB	-21	-36%	-3	-5%
SR 84 west of I-880	Mission/Nursery	EB	-23	-39%	-1	-2%
SR 84 west of I-880	Mission/Whipple	NB	-17	-33%	+2	+4%
Fremont/Thorton	Mission/ Whipple	NB	-21	-49%	-3	-7%
Fremont/Mowry	Mission/ Whipple	NB	-21	-46%	-3	-7%

Source: Dowling 2008c

Alternative 1 would also result in an improvement to system-wide delay during the PM peak hour, as compared to no project conditions, but would result in a slight increase in system-wide delay during the AM peak hour (see Table 3.12-10 of Section 3.12 in Appendix E). Table 5-5 compares the system-wide delay benefits of the proposed project and Alternative 1. This detailed information is provided for Alternative 1 (but not Alternatives 2 and 3) because, although not required by CEQA, Alternative 1 is analyzed at the same level of detail as the proposed project.

Table 5-5. Daily System-Wide Delay Comparison – Year 2035

Peak Period	Proposed Project, compared to No Project		Alternative 1, compared to No Project	
	Hours	Percent	Hours	Percent
AM Peak Hour	-7,815	-12%	+5,006	+7%
PM Peak Hour	-9,072	-19%	-8,543	-18%

Compared to the proposed project, Alternative 1 would not have the beneficial results of providing continuous pedestrian and bicycle facilities from west of I-880 to Mission Boulevard, and it would not conform the right-of-way along Decoto Road and Fremont Boulevard . By omitting the portion of the new road between Paseo Padre Parkway and Alvarado-Niles Road, Alternative 1 would not have the beneficial results of installing the trails and bicycle paths proposed within this part of the road in the proposed project. However, Alternative 1 would still provide bicycle and pedestrian facilities between Alvarado-Niles Road and Mission Boulevard, providing a connection that does not currently exist.

Relationship to Project Objectives

Alternative 1 would meet the primary objectives of reducing local traffic congestion and travel times. This reduced congestion would lead to improved air quality and transit operations, thereby meeting the respective objectives. Alternative 1 would partially enhance east-west access, but by only constructing a portion of the proposed project's roadway, Alternative 1 would not achieve the primary project objective of providing a new, direct east-west link in the local circulation system, and local traffic would continue to use Alvarado-Niles Road and Decoto Road to access I-880, as under existing conditions. Similar to the proposed project, Alternative 1 would improve access to constructed and planned projects in Fremont and Union City, and improve access to transit facilities and businesses in the vicinity, thereby meeting these project objectives. Alternative 1 would promote non-motorized transportation by constructing pedestrian and bicycle facilities in the proposed roadway and linking them to existing and planned features in other Union City roadways. However, Alternative 1 would meet this goal to a lesser degree than the proposed project, which proposes more extensive pedestrian and bicycle improvements and linkages in both Fremont and Union City. By omitting construction in the undeveloped corridor between Paseo Padre Parkway and Alvarado-Niles Road, Alternative 1 would not achieve the objective of maximizing use of the publicly owned right-of-way for transportation purposes. In summary, Alternative 1 would meet most of the project objectives, but not to the extent that the proposed project would.

Impact Analysis

This section includes a summary of the detailed analysis prepared for Alternative 1. The detailed analysis is included in Appendix E. The impacts and mitigation measures for Appendix E are summarized below in Table 5-6. This detailed information is provided for Alternative 1 (but not Alternatives 2 and 3) because Alternative 1 is analyzed at the same level of detail as the proposed project, which is not required by CEQA.

Table 5-6. Impacts and Mitigation Measures for Alternative 1: Historic Alignment in Union City

Impact	Mitigation Measure
AESTHETICS	
AES-1: Temporary Degradation of Visual Character or Visual Quality for Views along Wetlands Mitigation Site and Line M Channel Trenching between Old Alameda Creek and Alvarado-Niles Road during Construction	AES-1: Provide Screened Fencing around Project Staging Areas during Construction
AES-2: Degradation of Visual Character or Visual Quality along the Proposed Alternative 1 Alignment	None required
AES-3: New Source of Light and Glare along BART Corridor during Construction	NOI-2: Prepare a Community Awareness Program for Project Construction AES-2 Minimize Fugitive Light from Portable Sources
AES-4: New Source of Light and Glare from New Roadway	AES-3: Install Low-Standing Light Standards with Directional Shields Downward along the New Roadway
AIR QUALITY	
AIR-1: Temporary Increase in Ozone Precursors (ROG and NO_X), CO, and PM10 Emissions during Grading and Construction Activities	AIR-1: Employ Measures to Reduce Criteria Pollutant Emissions during Construction
AIR-2: Violation of Carbon Monoxide NAAQS or CAAQS	None required
AIR-3: Increase in Greenhouse Gas Contaminant Emissions	AIR-2: Employ Measures to Reduce Project-Related Greenhouse Gas Emissions
AIR-4: Increase in Localized MSAT Emissions	None required
BIOLOGICAL RESOURCES	
BIO-1: Loss of or Disturbance to Special-Status Plants	None required
BIO-2: Loss of or Disturbance to Western Burrowing Owls or their Nesting and Foraging Habitat	None required

Impact	Mitigation Measure
BIO-3: Loss of or Disturbance to California Red- Legged Frogs, California Tiger Salamanders, Western Pond Turtles, and their Habitat	BIO-1: Provide Construction Worker with Awareness Training for Special-Status Species and Sensitive Habitats in the Construction Area BIO-2: Conduct Preconstruction Surveys and, if Necessary, Implement Measures to Protect California Red-Legged Frog and California Tiger Salamander BIO-3: Conduct Preconstruction Surveys and, of Necessary, Implement Measures to Protect Western Pond Turtle HWQ-1: Comply with National Pollutant Discharge Elimination System Requirements and Develop and Implement a Stormwater Pollution Prevention Plan
BIO-4: Potential Loss of Nesting Migratory Birds, including Raptors, or Loss of Their Nests or Eggs	BIO-~~4~~3: Conduct Site Preparation and Construction Activities between September 1 and ~~March 14~~January 31 to Avoid the Typical Nesting Period of Migratory Birds, and Implement Preconstruction Surveys and Protective Measures if Necessary
BIO-5: Degradation of Water Quality in Aquatic Resources from Construction Activities	HWQ-3: Implement Additional Water Quality Protection Measures to Reduce Sediment in Surface Waters during Construction
BIO-6: Loss of Wetlands and Other Waters of the United States and of the State	BIO-5: Prepare and Implement a Wetlands Mitigation Plan that Includes the Creation of New Wetlands, ~~and~~ Waters of the United States and State, and Replacement and Enhancement of Willow Riparian Woodland and Scrub ~~to Replace Permanent Loss~~ BIO-6: Identify Wetland and Other Waters Temporarily Affected and Install Protective Fencing during Construction
BIO-7: Permanent Loss and Temporary Disturbance of a Sensitive Community—Willow Riparian Woodland and Scrub	BIO-5: Prepare and Implement a Wetlands Mitigation Plan that Includes the Creation of New Wetlands, ~~and~~ Waters of the United States and State, and Replacement and Enhancement of Willow Riparian Woodland and Scrub ~~to Replace Permanent Loss~~ BIO-7: ~~Identify~~ Protect Willow Riparian Woodland and Scrub Habitat~~Temporarily Affected and Install Protective Fencing~~ during Project Construction
BIO-8: Loss of Disturbed or Non-Sensitive Habitats	None required
BIO-9: Loss of or Disturbance to Protected Trees	BIO-8: Prepare an Arborist Report and Develop and Implement a Landscaping Plan that Includes Compensation for Loss of Protected Trees BIO-9: Install Temporary Fencing around Remaining Protected Trees
BIO-10: Potential Introduction or Spread of Noxious Weeds into a Sensitive Plant Community	BIO-10: Implement Measures to Avoid or Minimize the Dispersal of Noxious Weeds into Sensitive Riparian Areas during Construction

Impact	Mitigation Measure
CULTURAL RESOURCES	
CUL-1: Construction Impacts on Archaeological Resources from New Roadway and Wetlands Mitigation Site	CUL-1: Conduct Earthwork Monitoring by Qualified Archaeologist during Construction and Implement Management Measures if Resources are Discovered
CUL-5: Change to Historic Resources from New Roadway	None required
GEOLOGICAL RESOURCES	
GEO-1: Potential Structural Damage and Injury Caused by Fault Rupture	None required
GEO-2: Potential Structural Damage and Injury from Ground Shaking	None required
GEO-3: Potential Structural Damage and Injury from Development on Unsuitable Materials or Materials Subject to Liquefaction	None required
GEO-4: Potential Accelerated Runoff, Erosion, and Sedimentation from Grading Activities	None required
GEO-5: Potential Structural Damage as a Result of Development on Expansive Soils	None required
HAZARDS AND HAZARDOUS MATERIALS	
HAZ-1: Creation of a Hazard to the Public or the Environment through the Routine Transport, Use, or Disposal of Hazardous Materials	HWQ-4: Prepare and Implement a Hazardous Materials Spill Prevention and Control Program during Construction
HAZ-2: Accidental Mobilization of and Exposure of Workers and Public to Hazardous Materials	HAZ-1: Train Construction Workers to Identify Potentially Contaminated Materials and, if Found, Stop Work and Implement Hazardous Materials Investigations and Remediation HAZ-2: Implement Recommendations in the Phase I Environmental Site Assessment to Prepare a Phase II Environmental Site Assessment, a Health and Safety Plan, and a Soil and Groundwater Management Plan, and to Properly Abandon any Agricultural Wells PSR-1: Conduct an Investigation of Utility Line Locations and Maintain Utility Services
HAZ-3: Impairment of the Implementation of or Physical Interference with an Adopted Emergency Response Plan or Emergency Evacuation Plan during Construction	TRA-1: Develop and Implement a Traffic Control Plan for Project Construction

Impact	Mitigation Measure
HAZ-4: Exposure of People or Structures to Increased Risk of Loss, Injury, or Death Involving Urban or Wildland Fires	HAZ-3: Implement Procedures to Reduce Fire Risk during Construction
HYDROLOGY AND WATER QUALITY	
HWQ-1: Degradation of Surface Water Quality from Construction-Related Earth-Disturbing Activities	HWQ-1: Comply with National Pollutant Discharge Elimination System Requirements and Develop and Implement a Stormwater Pollution Prevention Plan HWQ-2: Clean Paved Areas with Street- Sweeping Equipment HWQ-3: Implement Additional Water Quality Protection Measures to Reduce Sediment in Surface Waters during Construction
HWQ-2: Contamination of Surface Water Quality from Leak or Accidental Spill of Hazardous Materials during Construction	HWQ-4: Prepare and Implement a Hazardous Materials Spill Prevention and Control Program during Construction
HWQ-3: Increased Runoff from New Impervious Surfaces and Adverse Impacts on Surface Waters	HWQ-5: Construct the Tree Wells and Infiltration Basins to Implement the Hydrograph Modification Management Plan for Stormwater Runoff HWQ-6: Incorporate Site-Specific Water Quality Treatment Devices into Site Drainage Plans to Meet Water Quality Standards and Maintain Beneficial Uses
HWQ-4: Water Quality Impacts from Discharges to CWA 303(d)-Listed Surface Water Bodies-Diazinon	None required
HWQ-5: Potential Flood Hazards Associated with Levee or Dam Failure	None required
LAND USE AND PLANNING	
LUP-1: Divide an Established Community	None required
LUP-2: Potential Conflict with the Union City General Plan	None required
LUP-3: Consistency with the Union City Pedestrian and Bicycle Master Plan	None required
LUP-4: Consistency with the Fremont General Plan	None required
NOISE AND VIBRATION	
NOI-1: Exposure of Off-Site Noise-Sensitive Land Uses to Short-Term Construction Noise	NOI-1: Employ Measures to Reduce Construction Noise to Comply with Applicable Construction Noise Standards NOI-2: Prepare a Community Awareness Program for Project Construction

Impact	Mitigation Measure
NOI-2: Exposure of Off-Site Vibration-Sensitive Land Uses to Short-Term Vibration	NOI-2: Prepare a Community Awareness Program for Project Construction NOI-3: Conduct Structural Conditions Survey for Areas Where Pile Driving is Proposed NOI-4: Limit Extent of Vibratory Compaction Activity and Vibratory Pile Driving NOI-5: Limit Vibration Levels Received at Structures
NOI-3: Exposure of Off-Site Noise-Sensitive Land Uses to Short-Term Increases in Railroad Noise during Construction of the Grade Separation	NOI-2: Prepare a Community Awareness Program for Project Construction
NOI-4: Exposure of Off-Site Noise-Sensitive Land Uses to Short-Term Increases in Railroad Vibration during Construction of the Grade Separation	NOI-2: Prepare a Community Awareness Program for Project Construction NOI-6: Maximize Distance between Shoofly and Residences to Extent Allowed by UPRR
NOI-5: Exposure of Noise-Sensitive Land Uses to Operational Noise from Vehicles on New Roadway	NOI-7: Conduct Survey for Presence of Air Conditioning at Residences Adjacent to the New Roadway
NOI-6: Exposure of Vibration-Sensitive Land Uses to Increased Traffic	None required
NOI-C1: Contribution to Cumulative Impact on Noise-Sensitive receptors along Existing Roadways	NOI-C1: Contribute to City Funds to Implement Traffic Noise Reduction Treatments NOI-C2: Use Low Noise Pavement Types on Project Roadways
POPULATION AND HOUSING	
POP-1: Indirect Inducement of Substantial Population Growth	None required
POP-2: Displacement of a Substantial Number of Existing Housing Units or People	None required
PUBLIC SERVICES, UTILITIES, AND RECREATION	
PSR-1: Interruptions to Stormwater Drainage System during Construction	PSR-1: Conduct an Investigation of Utility Line Locations and Maintain Utility Services
PSR-2: Adverse Effects on the Capacity of Solid Waste Landfills	None required
PSR-3: Change in Demand for Neighborhood Parks, Regional Parks, or Recreational Facilities	None required

Impact	Mitigation Measure
PSR-4: Adverse Physical Effects on Existing Recreational Facilities	
TRANSPORTATION AND TRAFFIC	
TRA-1: Temporary Increase in Construction-Related Truck and Auto Traffic, Decrease in Roadway Capacity, and Disruption of Vehicular and Non-Motorized Travel during Construction	TRA-1: Develop and Implement a Traffic Control Plan for Project Construction
TRA-2: Intermittent Interruption of Rail Service during Construction	TRA-2: Provide Temporary Bus Service during All Interruptions in BART Service TRA-3: Limit Interruption of BART Service to Weekends TRA-4: Prepare a Rider Awareness Program Addressing BART Service Interruptions
TRA-3: Improvement in Operations at 13 Intersections and Minor Reduction in Operations at 2 Intersections under Alternative 1 Conditions Compared to No Project Conditions in 2015	None required
TRA-4: Reduction in Operations at 16 Intersections under Alternative 1 Conditions Compared to No Project Conditions in 2015	TRA-5: Relocate the Crosswalk at Mission Boulevard and Nursery Avenue
TRA-5: Improvement in Operations at 25 Intersections under Alternative 1 Conditions Compared to No Project Conditions in 2035	None required
TRA-6: Reduction in Operations at 14 Intersections under Alternative 1 Conditions Compared to No Project Conditions in 2035	TRA-5: Relocate the Crosswalk at Mission Boulevard and Nursery Avenue

5.4.2 Alternative 2: Previously Studied Transportation System Management

Description

Alternative 2 emphasizes managerial, operational, and low-cost improvements to existing facilities as a means for improving the performance of the transportation system. Alternative 2 would also include modifications to three major east-west arterial corridors between I-880 and Mission Boulevard, upgrades to selected intersections, and measures to encourage transit use. The roadway-related modifications are intended to improve the peak hour capacity of the existing network with minimal right-of-way acquisition, as compared to the proposed project or any other build alternatives, or without the construction of major new transportation facilities or major right-of-way takes. The measures to encourage and accommodate increased transit use in the area focus on expansion of express bus services and the provision of additional park-and-ride facilities. The specific elements of Alternative 2 are defined below and summarized in Figure 5-3.

Alternative 2 was one of seven alternatives evaluated in project-level detail in the 2002 EIS/EIR (Caltrans and Federal Highway Administration 2002). The 2002 EIS/EIR concluded that the Alternative 2 would result in significant impacts on biological resources (wetlands impacts and potential wildlife impacts); geology, soils, and seismicity (seismic impacts due to construction within the Hayward Fault); hazards and hazardous materials (construction in the vicinity of potential hazardous waste sites); hydrology and water quality (increased runoff and minor modification of drainage system); noise and vibration (increased traffic noise levels); population and housing (relocation of residential and non-residential structures); public services, utilities, and recreation (impacts on recreational trails); and transportation and traffic (elimination of bike lanes, pedestrian facilities, and parking).

Roadway-Related Improvements

Alternative 2 would add one additional traffic lane in both travel directions, thereby expanding capacity for both morning and evening peak hour volumes on: 1) existing SR 84 along Thornton Avenue/Fremont Boulevard/Peralta Boulevard/Mowry Avenue (as modified below), 2) Decoto Road, and 3) Industrial Parkway, between I-880 on the west and Mission Boulevard on the east. Design speed would be 35 miles per hour. Alternative 2 intersection modifications, which, with one exception are located along each of the Alternative 2 arterials, would make traffic lane and geometric changes to improve future intersection operations. A major bottleneck in the existing SR 84 corridor would be eliminated by constructing, on a new alignment, two additional traffic lanes under two UPRR grade crossings of Mowry Avenue between Thane Street and Mission Boulevard.

Under Alternative 2, proposed project improvements on Decoto Road, Paseo Padre Parkway, and Fremont Boulevard would not be implemented; and none of the proposed project intersection improvements would be implemented. The new roadway would not be constructed between Paseo Padre Parkway and Mission Boulevard, and none of the bridges or grade separations would be constructed.

The Alternative 2 improvements would include:

- modification of the Route 84 alignment in Fremont to form a directional couplet using Dusterberry Way and Peralta Boulevard southbound/eastbound and Paseo Padre Parkway and Thornton Avenue northbound/westbound;
- addition of a third traffic lane in each direction on Thornton Avenue between I-880 and Dusterberry Way;
- addition of a third westbound lane on Thornton Avenue between Dusterberry Way and Paseo Padre Parkway;
- widening of northbound Paseo Padre Parkway between Peralta Boulevard and Thornton Avenue to provide a third traffic lane;
- provision of two additional traffic lanes along the south side of Mowry Avenue between Thane Street and Mission Boulevard, and widening the two existing UPRR overcrossings;
- modification of five signalized intersections at Thornton Avenue/Dusterberry Way, Thornton Avenue/Fremont Boulevard, Dusterberry Way/Peralta Boulevard, Peralta Boulevard/Fremont Boulevard, and Peralta Boulevard/Paseo Padre Parkway;
- implementation of signal coordination throughout the modified SR 84 alignment;
- elimination of all curbside parking along Thornton Avenue between I-880 and Paseo Padre Parkway, Dusterberry Way between Thornton Avenue and Peralta Boulevard, and Peralta Boulevard between Dusterberry Way and Mowry Avenue;
- elimination of bike lanes along both sides of Thornton Avenue between I-880 and Dusterberry Way, westbound only along Thornton Avenue between Dusterberry Way and Paseo Padre Parkway, and northbound only along Paseo Padre Parkway between Thornton Avenue and Peralta Boulevard;
- improvements to the signalized intersections at Mowry Avenue and Fremont Boulevard; and
- intersection improvements along Mission Boulevard at Mowry Avenue, Niles Canyon Road, Decoto Road, Whipple Road, and Industrial Parkway, which are proposed by others and assumed to be integrated into Alternative 2 improvements.

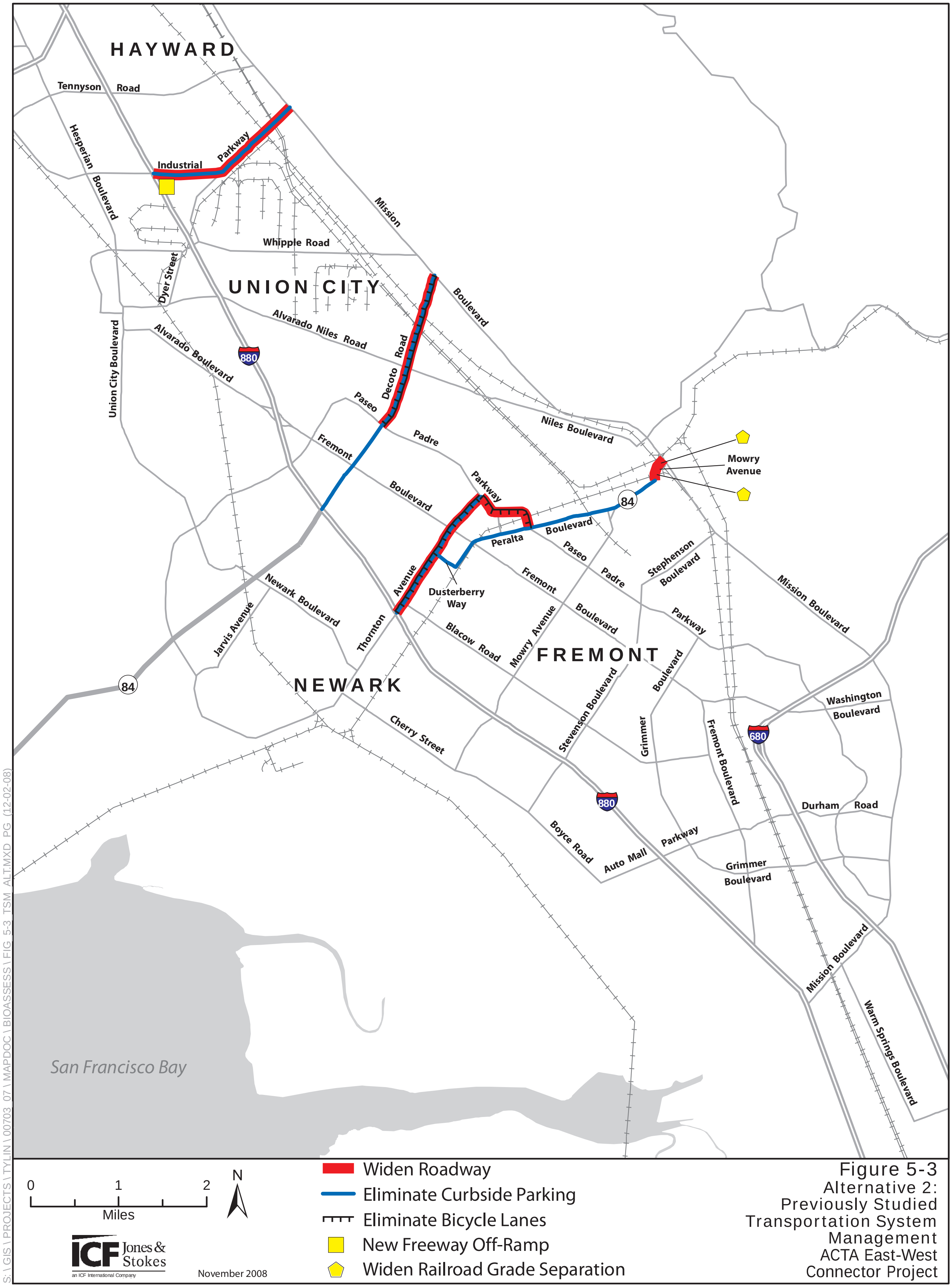

Figure 5-3
Alternative 2:
Previously Studied Transportation System Management
ACTA East-West Connector Project

Alternative 2 improvements along the Decoto Road corridor would include:

- addition of a third traffic lane in each direction between Paseo Padre Parkway and Mission Boulevard (extending the six-lane cross sections in Fremont between I-880 and Paseo Padre Parkway to be improved by the City);
- alteration of two signalized intersections along Decoto Road at Alvarado-Niles Road, and Union Square/Meyers Drive;
- signal coordination for the length of Decoto Road;
- modification of the concrete median on Bell Ranch Bridge over Alameda Creek from 18 to 12 feet in width;
- elimination of all curbside parking along Decoto Road; and
- elimination of bike lanes on Decoto Road in Union City.

Alternative 2 improvements along Industrial Parkway would include:

- addition of a third traffic lane in each direction between I-880 and Mission Boulevard;
- construction of a northbound off-ramp from I-880, connecting east of the existing pumping station;
- modification of two signalized intersections on Industrial Parkway at Ruus Road and Huntwood Avenue;
- elimination of all curbside parking along Industrial Parkway;
- elimination of curbside bus stop loading zones located outside of through traffic lanes; and
- elimination of curbside space for bike lanes.

Transit Improvements

Alternative 2 transit improvements would increase existing express bus service in the Dumbarton Bridge corridor and feeder bus service to both BART and Capitol Corridor rail service (San Jose-Auburn commuter rail). Peak hour bus service in the Dumbarton Bridge corridor would be improved from the current 15-minute to 10-minute headways.

Transit use and ridesharing would be promoted as part of Alternative 2 through increased park-and-ride service provided in the vicinity of SR 84. A new 100-space parking lot south of Decoto Road, between Cabrillo Drive and Fremont Boulevard in Fremont, would be constructed to accommodate additional bus service and carpools.

Comparison of Environmental Impacts: Alternative 2 to Proposed Project

To supplement the discussion below, Tables 5-7 and 5-8 (at the end of this chapter) provide a general and specific comparison of impacts by issue area for Alternative 2 and the proposed project.

Aesthetics

Under Alternative 2, visible improvements and modifications proposed along Decoto Road, SR 84, and Industrial Parkway would be conducted, including provision of widened roads in certain areas, median modification, elimination of street parking, and construction of a new ramp at I-880. None of the proposed project improvements would be implemented, and the visual setting in the affected areas would remain as they are under current conditions.

Alternative 2 would avoid all of the significant aesthetics impacts specifically identified for the proposed project (see discussion under Aesthetics in Section 5.4.1) because it would not entail construction and operation of the road as proposed in the specific areas identified for the proposed project. Alternative 2 would result in modification of the aesthetic setting, but because it proposes changes to an area that is already urbanized and contains no visual resources, it would not result in any significant impacts.

Air Quality

Alternative 2 would entail construction to widen and improve existing roads and intersections over a larger area than the proposed project. Construction would also include several new facilities, including two grade separations and park-and-ride lots. A significant construction impact was identified for the proposed project as a result of NO_X thresholds being exceeded under the worst-case, maximum-emissions construction day. Alternative 2 would result in similar or more construction and would also result in NO_X emissions and greenhouse gas emissions similar to the proposed project. Temporary increases in emissions during construction would be a significant and unavoidable impact. Caltrans and BAAQMD require implementation of Mitigation Measure AIR-1: Employ Measures to Reduce Criteria Pollutant Emissions during Construction.

As under the proposed project, regional and local traffic would continue to increase in the project area as projected, and this would result in future increases in traffic-related air emissions. Certain intersections would remain congested under Alternative 2, but Alternative 2 CO concentrations at congested intersections would likely remain well below the federal and state standards, as they would under the proposed project.

Alternative 2 would not result in any additional emissions not identified for the proposed project in Section 3.2, Air Quality.

Biological Resources

Although it proposes improvement and widening of roads within primarily urbanized areas, Alternative 2 would result in biological impacts resulting from construction work in flood channels, permanent loss of wetlands, and wildlife impacts. Alternative 2 would not entail construction in Crandall Creek, but it would not avoid Impact BIO-1: Degradation of Water Quality in Crandall Creek from Construction Activities Associated with the Roadway Widening because it would result in similar impacts on other urban channels and would require similar mitigation measures discussed under Impact BIO-1. As a result of construction work adjacent to and within the channels and the permanent impacts on wetlands resources (estimated at 0.005 acre of permanent impacts and 0.005 acre of temporary impacts on wetlands) Alternative 2 would not avoid Impacts BIO-8: Degradation of Water Quality in Aquatic Resources from Construction Activities and BIO-11: Loss of Wetlands and Other Waters of the United States and of the State. Because of work required within wetlands areas, Alternative 2 would result in potential impacts on California red-legged frogs, western pond turtles, and their habitat, and would not avoid Impact BIO-4: Loss of or Disturbance to California Red- Legged Frogs, California Tiger Salamanders, Western Pond Turtles, and their Habitat. Alternative 2 would entail construction activity that could potentially disturb nesting birds, and would not avoid Impact BIO-5: Potential Loss of Nesting Migratory Birds, including Raptors, or Loss of their Nests or Eggs. Therefore, there would be significant impacts that would result from the implementation of Alternative 2, and mitigation similar to that identified for the proposed project would be required to reduce these impacts to a less-than-significant level.

Alternative 2 would avoid several significant impacts identified for the proposed project. Alternative 2 would not require construction of new bridges in any channels or creeks; therefore, Alternative 2 would avoid impacts on steelhead (Impact BIO-6: Disturbance to Anadromous Steelhead and their Habitat from Construction Activities at Alameda Creek Flood Control Channel and BIO-12: Change in Steelhead Migratory Habitat Resulting from Installation of New Bridge at Alameda Creek Flood Control Channel). Avoiding construction in the willow riparian woodland and scrub within the undeveloped corridor would avoid impacts on this sensitive community (Impact BIO-9: Permanent Loss and Temporary Disturbance of a Sensitive Community—Willow Riparian Woodland and Scrub) and the potential to spread noxious weeds in the sensitive community (BIO-10: Potential Introduction or Spread of Noxious Weeds into a Sensitive Plant Community). Alternative 2 would not require tree removal; therefore, it would avoid Impact BIO-13: Loss of or Disturbance to Protected Trees.

Cultural Resources

Alternative 2 would change existing physical conditions but to a lesser degree than the proposed project would, as it would also entail roadway construction or associated grading. Alternative 2 would have no effect on the one known historic resource located in the project area, the Peterson farmhouse. Alternative 2 would entail earth disturbance and therefore would have the potential to affect any archaeological resources that may be present beneath the surface. Alternative 2 would not avoid Impacts CUL-1: Construction Impacts on Archaeological Resources from Roadway Widening and CUL-4: Construction Impacts on Archaeological Resources from New Roadway, and mitigation would be required. Earthwork would occur entirely within previously disturbed areas, resulting in less of a chance that subsurface artifacts could be discovered. Therefore, Alternative 2 could result in significant cultural resources impacts, but to a lesser degree than the proposed project.

Geology, Soils, and Seismicity

Under Alternative 2, roadway construction and associated grading and earthwork would be undertaken. No significant geology and soils impacts were identified for the proposed project, so Alternative 2 would not avoid any significant impacts assessed for the proposed project. In general, Alternative 2 would also not result in any additional significant geology, seismicity, and soils impacts not discussed in Section 3.5, Geology, Soils, and Seismicity. The improvements proposed in Alternative 2 do not cross the Hayward Fault Zone; therefore, Alternative 2 would not have an increased seismic risk from that of the proposed project.

Hazards and Hazardous Materials

Under Alternative 2, roadway construction and associated grading would be undertaken. Alternative 2 entails construction and operation of an improved road, similar to the proposed project; therefore, Alternative 2 would not avoid Impact HAZ-1: Creation of a Hazard to the Public or the Environment through the Routine Transport, Use, or Disposal of Hazardous Materials. Previous investigation of the Alternative 2 project area revealed an extensive amount of hazardous waste and release sites; therefore, construction under Alternative 2 would result in the potential exposure of workers to hazardous materials during construction and would not avoid Impact HAZ-2: Accidental Mobilization and Exposure of Workers and Public to Hazardous Materials during Construction. Like the proposed project, Alternative 2 construction would have the potential to interfere with emergency response or emergency evacuation plans; therefore, Alternative 2 would not avoid Impact HAZ-3: Impairment of the Implementation of or Physical Interference with an Adopted Emergency Response Plan or Emergency Evacuation Plan during Construction. Implementation of Alternative 2 could result in significant impacts on hazards and hazardous materials, and mitigation involving preparation and implementation of a hazardous materials spill prevention and control program and a traffic control plan during construction would be required to reduce such impacts to a less-than-significant level.

Alternative 2 would avoid Impact HAZ-4: Exposure of People or Structures to Increased Risk of Loss, Injury, or Death Involving Urban or Wildland Fires during Construction because it proposes construction in urban areas that are not subject to wildland fire.

Because the project-related improvements under Alternative 2 would be more geographically dispersed than those under the proposed project, more schools would be located in proximity to the improved roads, resulting in the potential for increased impacts with respect to Impact HAZ-5: Emission or Use of Hazardous Materials, Substances, or Waste within 0.25 mile of an Existing or Proposed School, when compared to the proposed project, because emissions would be received by more schools and more students. However, the emission levels would be similar to those of the proposed project, and would also be considered a less than significant hazardous materials impact.

Implementing Alternative 2 would not result in any additional hazards and hazardous materials impacts not discussed in Section 3.6, Hazards and Hazardous Materials.

Hydrology and Water Quality

Alternative 2 would entail construction or earth-disturbing activities in the vicinity of surface water bodies; therefore, it would not avoid Impacts HWQ-1: Degradation of Surface Water Quality from Construction-Related Earth-Disturbing Activities and HWQ-2: Contamination of Surface Water Quality from Leak or Accidental Spill of Hazardous Materials during Construction. Alternative 2 would result in a slight increase in the amount of impervious surface in the project area as a result of roadway widening and freeway ramp construction, which could increase stormwater runoff; therefore, Alternative 2 would not avoid Impact HWQ-3: Increased Runoff from New Impervious Surfaces and Adverse Impacts on Surface Waters. The other impacts on hydrology and water quality were identified as less than significant for the proposed project, and the same is true for Alternative 2. Implementing Alternative 2 would not result in any additional hydrology and water quality impacts not discussed in Section 3.7, Hydrology and Water Quality.

Land Use

Alternative 2 would entail construction to widen and improve existing roads and intersections over a larger area than the proposed project, resulting in substantial right-of-way impacts on residences and businesses in Union City and removal of on-street parking in both cites. These impacts would be greater under Alternative 2 than the proposed project.

Under Alternative 2, Decoto Road curb and sidewalks would not be improved, maintaining the existing non-conforming sections of right-of-way, curb, and sidewalk between Cabrillo Court and Paseo Padre Parkway. Such conditions would also persist on Fremont Boulevard. Bicycle lanes would not be provided or improved along Decoto Road and Fremont Boulevard; in some areas bike lanes would be removed. This would mark an inconsistency with the Fremont General Plan, the Fremont Ped Plan, and the Fremont Bike Plan. Alternative 2 would be inconsistent with these plans because it would remove existing bike lanes along Thornton Avenue within the Fremont city limits.

The new road in the undeveloped corridor between Paseo Padre Parkway and Mission Boulevard would also not be built, and this would be inconsistent with the Union City General Plan, which anticipates implementation of the proposed project. Alternative 2 would also be inconsistent with the Union City Pedestrian and Bicycle Master Plan and the EBRPD Master Plan, both of which anticipate trails and bike lanes to be provided in the new road. Alternative 2 would be inconsistent with the Union City General Plan and Union City Pedestrian and Bicycle Master Plan because it would remove bike lanes along Decoto Road within the Union City limits. Although Alternative 2 does not pose any significant conflicts with the subject planning documents, it is inconsistent with several plans because it does not complete intended improvements and removes certain improvements already in place (Impacts LUP-3: Potential Conflict with the Fremont Pedestrian Master Plan, LUP-5: Potential Conflict with the Alameda Countywide Bicycle Plan, and LUP-7: Consistency with the Union City Pedestrian and Bicycle Master Plan). Because it is inconsistent with these plans, Alternative 2 would avoid the beneficial impacts identified for the proposed project.

Noise and Vibration

Alternative 2 would entail construction to widen and improve existing roads and intersections over a larger area than the proposed project. Construction would also include several new facilities, including two grade separations and park-and-ride lots. Under Alternative 2, roadway construction and associated grading would result in project-related noise and vibration from grading, pile driving, paving, or other actions associated with roadway widening similar to that of the proposed project. Alternative 2 would not avoid Impact NOI-1: Exposure of Off-Site Noise-Sensitive Land Uses to Short-Term Construction Noise from Roadway Widening, which was identified as significant and unavoidable for the proposed project, nor would it avoid Impact NOI-2: Exposure of Off-Site Vibration-Sensitive Land Uses to Short-Term Construction Vibration from Roadway Widening. Alternative 2 would widen lanes on several streets and, thus, move vehicles closer to residences and business, with potential for associated operational increases in noise or vibration, but this is anticipated to be less than significant, as in the proposed project (Impacts NOI-3: Exposure of Noise-Sensitive Land Uses to Increased Traffic Noise from Roadway Widening and NOI-4: Exposure of Vibration-Sensitive Land Uses to Increased Traffic Vibration from Roadway Widening).

The only new road construction under Alternative 2 would be the new I-880 off-ramp at Industrial Way West. This is proposed in an industrial area surrounded mostly by parking lot space, where construction noise and a new source of permanent roadway noise would not be significant. Therefore, Impacts NOI-9: Exposure of Noise-Sensitive Land Uses to Operational Noise from Vehicles on New Roadway and NOI-10: Exposure of Vibration-Sensitive Land Uses to Increased Traffic from the New Roadway (identified as less than significant with mitigation and less than significant under the proposed project, respectively), would both be less than significant under Alternative 2.

Alternative 2 proposes to widen two existing grade separation structures, which would require shoofly construction and operation. These railroad crossings are located in proximity to residential development, but this development is not close as the residential area affected by the shooflies proposed under the proposed project, and the area also includes undeveloped land and industrial development that would not be as sensitive to the increased noise associated with temporary changes to the railroad alignment. Therefore, Impacts NOI-7: Exposure of Off-Site Noise-Sensitive Land Uses to Short-Term Increases in Railroad Noise during Construction of the New Roadway Grade Separation and NOI-8: Exposure of Off-Site Noise-Sensitive Land Uses to Short-Term Increases in Railroad Vibration during Construction of the New Roadway Grade Separation, which were identified as significant and unavoidable under the proposed project, would be substantially reduced under Alternative 2, but still significant and unavoidable.

In summary, noise impacts from implementation of Alternative 2 would be similar to that of the proposed project.

Population and Housing

Prior studies estimated that roadway and intersection widening in Alternative 2 would displace approximately nine single-family residences in Fremont. The residential displacement under Alternative 2 is considered significant but could be reduced to a less-than-significant level with appropriate compensation and relocation efforts. Accordingly, Alternative 2 would result in a significant impact that was not identified for the proposed project. As with the proposed project, Alternative 2 would not directly induce growth, and there would be no induced increase in population or housing throughout of the Cities of Fremont or Union City outside of planned development within each City. Alternative 2 would not result in indirect growth inducement within Union City, as would the proposed project north of the project area’s eastern end. However, implementing Alternative 2 would not preclude this growth from occurring. Significant population and housing impacts were not identified for the proposed project; therefore, implementing Alternative 2 would not avoid any significant population and housing impacts.

Public Services, Utilities, and Recreation

Under Alternative 2, roadway construction and associated grading would be undertaken, resulting in the potential interruption of stormwater drainage. Therefore, Alternative 2 would not avoid Impact PSR-1: Interruptions to Stormwater Drainage System during Construction. Similar to the proposed project, there would be no permanent change in public services, utilities, and service systems under Alternative 2. However, Alternative 2 would have road widening and improvements over a much larger area, but construction-related impacts would be similar to the proposed project. Alternative 2 would not have the beneficial recreational impact identified for the proposed project (Impact

PSR-3: Change in Demand for Neighborhood Parks, Regional Parks, or Recreational Facilities) because it would not construct new trails and bike lanes; furthermore, Alternative 2 would remove existing bike lanes to provide room for widened roads, and would thus have a significant and unavoidable impact on recreation that was not identified for the proposed project. Alternative 2 would not encroach on Union City parks, avoiding Impact PSR-4: Adverse Physical Effects on Existing Recreational Facilities.

Transportation and Traffic

Alternative 2 would entail construction along existing roadways, creating potential traffic delays, conflicts between construction vehicles and non-construction traffic, and other potentially hazardous conditions; therefore, Alternative 2 would not avoid Impact TRA-1: Temporary Increase in Construction-Related Truck and Auto Traffic, Decrease in Roadway Capacity, and Disruption of Vehicular and Non-motorized Travel during Construction, and the same mitigation identified for the proposed project would be required under Alternative 2. Alternative 2 proposes to widen two existing grade separation structures, which would require shoofly construction and operation and, accordingly, potential disruption in existing rail service. One of the grade separations supports tracks used by BART, and, as under the proposed project, disruption of BART service required to construct shoofly tie-ins would be considered a significant and unavoidable impact. Therefore, Alternative 2 would not avoid Impact TRA-2: Intermittent Interruption of Rail Service during Construction; mitigation measures identified for this impact under the proposed project would be required, but these measures would not reduce the impact to a less-than-significant level, and this impact would be considered significant and unavoidable.

Alternative 2 would have road widening and other improvements over a much larger area; therefore, construction-related impacts would be similar to the proposed project and could entail temporary closure of pedestrian and bicycle trails. These impacts are identified as less than significant with mitigation under the proposed project (TRA-3: Temporary Closure of Pedestrian and Bicycle Trails during Construction). However, as discussed below, Alternative 2 would result in permanent closure of bicycle facilities, which is an additional impact not assessed for the proposed project.

In regard to operation of the local automobile circulation system, Alternative 2 would affect traffic flow in a different manner than the proposed project because it would entail improvements to roads north and south of the project alignment, diverting traffic to those alternate east-west routes for vehicles traveling between I-880 and Mission Boulevard. Like the proposed project, the Alternative 2 improvements would likely reduce delay at certain intersections, but increase it at others. Therefore, Alternative 2 would have similar impacts in the 2015 and 2035 timeframes, including less-than-significant impacts for intersections where operations would be improved and significant impacts for intersections where operations would be reduced. These similar impacts include TRA-4: Improvement in Operations at 12 Intersections and Minor Reduction in

Operations at 2 Intersections under Proposed Project Conditions Compared to No Project Conditions in 2015, TRA-5: Reduction in Operations at 19 Intersections under Proposed Project Conditions Compared to No Project Conditions in 2015, TRA-6: Improvement in Operations at 21 Intersections under Proposed Project Conditions and Minor Reductions in Operations at 2 Intersections Compared to No Project Conditions in 2035, and TRA-7: Reduction in Operations at 18 Intersections under Proposed Project Conditions Compared to No Project Conditions in 2035.

As with the proposed project, it is likely that under Alternative 2 feasible mitigation is not available to reduce delay at the affected intersections, and the significant impacts would be unavoidable.

Alternative 2 would have an additional impact that is not attributed to the proposed project because it would remove bike lanes along Thornton Avenue and Decoto Road, inhibiting safe bicycle circulation and obstructing implementation of alternative transportation plans of Fremont and Union City.

Relationship to Project Objectives

Similar to the proposed project, Alternative 2 would result in some roadway widening construction, lane reconfiguration, and signal synchronization. This would meet the primary project objectives of reducing local traffic congestion and travel times, although because Alternative 2 does not propose any new roadways it is likely that this improvement would be less than that of the proposed project. By solely relying on improving existing roadways, Alternative 2 would not achieve the primary project objective of providing a new, direct east-west link in the local circulation system. Alternative 2 would also not meet the objective of maximizing use of publicly owned right-of-way because none of the reserved corridor would be used.

The reduction in congestion that would occur with Alternative 2 would likely improve air quality and transit operations, although it is likely that this would occur to a lesser extent than under the proposed project. Alternative 2 would not improve access to constructed and planned projects in Fremont and Union City or access to transit facilities and businesses in the vicinity. Because it would remove—rather than add—bicycle lanes from local roadways, and because it would not construct the new pedestrian features of the proposed project, Alternative 2 would meet the project objective of promoting non-motorized modes of transportation because it includes increasing bus service and constructing a park-and-ride lot. In summary, Alternative 2 would not meet as many of the project objectives as would the proposed project. Alternative 2 would meet some of the project objectives, but not as many as Alternative 1.The proposed project meets all of the project objectives.

5.4.3 Alternative 3: No Project Alternative

Description

Under Alternative 3, there would be no improvements to or widening of Decoto Road and Paseo Padre Parkway and no new roadway between Paseo Padre Parkway and Mission Boulevard. Motorists would continue to use other routes to travel east-west in south Alameda County. This includes east-west routes such as Industrial, Decoto Road, Mowry Avenue, and Stevenson as well as existing segments of SR 84, including segments of I-880, Thornton Avenue, Fremont Boulevard, Peralta Boulevard, and Mowry Avenue between I-880 and Mission Boulevard (Figure 5-1).

Under Alternative 3, Decoto Road and Paseo Padre Parkway would remain as they are under existing conditions. No widening would occur along Decoto Road, no right-of-way would be acquired from private owners, and no curb and sidewalk improvements would be made along Decoto Road. Existing signalized and unsignalized intersections would remain as they are under existing conditions. The Decoto Road/Fremont Boulevard intersection would not be improved, no right-of-way acquisition would occur, and no curb and sidewalk improvements would be made on Fremont Boulevard. The median on Paseo Padre Parkway would not be reduced to provide additional roadway width, and the median would not be landscaped.

Under Alternative 3, the new roadway would not be constructed between Paseo Padre Parkway and Mission Boulevard. The bridge crossings at the Alameda Creek Flood Control Channel and Old Alameda Creek would not be constructed, nor would the grade separations at the railroad tracks. Without the bridge construction at the channel and creek crossings, the overhaul of riparian vegetation within Old Alameda Creek would not be implemented, as biological mitigation would no longer be necessary. East of Old Alameda Creek, the alignment would remain covered in occasionally disked nonnative grasses. The Silva farmhouse would remain intact, and Quarry Lakes Drive would remain in its existing location. The New Basin, the 2C Basin, and the Line M Channel would be left in their current states. 11th Street would not be extended from the project alignment. It is anticipated that 11th Street would eventually be constructed as part of planned development north of the project alignment, and this road would dead end at or near the project alignment. 7th Street would not be reconfigured, the fringes of Drigon Park would be left in their current state, and the compressed natural gas (CNG) station at the Union City Corporation Yard would not be relocated.

Comparison of Environmental Impacts: Alternative 3 to Proposed Project

To supplement the discussion below, Tables 5-7 and 5-8 (at the end of this chapter) provide a general and specific comparison of impacts by issue area for Alternative 3 and the proposed project.

Aesthetics

Under Alternative 3, none of the visible improvements and modifications proposed along the existing roadway segment would be conducted, and none of the visible roadway would be built in the new roadway segment of the project alignment. Visual conditions would remain as they currently are.

Alternative 3 would avoid all significant aesthetics impacts identified for the proposed project. Because Alternative 3 would not entail any project-related construction activity, it would avoid Impacts AES-4: Temporary Degradation of Visual Character or Visual Quality along New Roadway Segment between Paseo Padre Parkway and Alvarado-Niles Road, and AES-11: New Source of Light and Glare along BART Corridor during Construction—the latter of which was identified as a significant and unavoidable impact from nighttime construction lighting near residences during shoofly construction. Because it would not build a new road within the undeveloped corridor, Alternative 1 would avoid Impacts AES-5: Change of Visual Character or Visual Quality along New Roadway Segment between Paseo Padre Parkway and Alvarado-Niles Road, and AES-8: New Source of Light and Glare from New Roadway between Paseo Padre Parkway and Alvarado-Niles Road. Because it would not entail the potential placement of soundwalls adjacent to residential property, it would avoid Impact AES-6: Potential Placement of Soundwalls Adjacent to Residential Property between Paseo Padre Parkway and Alvarado-Niles Road. Alternative 3 would not encroach into Arroyo Park; therefore, it would avoid Impact AES-7: Encroachment of Quarry Lakes Drive Realignment Option 2 (Four-Way Intersection) into Arroyo Park. Because it would not erect new street lights along the new road corridor between Paseo Padre Parkway and Mission Boulevard, Alternative 3 would avoid Impacts AES-9: New Source of Light and Glare from New Roadway between Paseo Padre Parkway and Alvarado-Niles Road and AES-12: New Source of Light and Glare from New Roadway between Alvarado-Niles Road and Mission Boulevard. Implementing Alternative 1 would not result in any additional aesthetics impacts not discussed in Section 3.1, Aesthetics.

Air Quality

Implementing Alternative 3 would avoid Impact AIR-1: Temporary Increase in Ozone Precursors (ROG and NOX), CO, and PM10 Emissions during Grading and Construction Activities, which was identified as a significant and unavoidable impact under the proposed project, because it would entail no project-related construction. This omission of project-related construction would also mean that Alternative 3 would not entail emission of greenhouse gasses, and Impact AIR-3: Increase in Greenhouse Gas Contaminant Emissions and its associated mitigation would be avoided. All other air quality impacts were identified as less than significant for the proposed project, and Alternative 3 would not avoid any other significant impacts. Under Alternative 3, traffic would continue to increase in the project area as projected, as a result of local and regional growth, and this would result in future increases in traffic-related air emissions. Alternative 3 would result in CO concentrations at different intersections than would the proposed project, because the proposed project would reduce congestion at some intersections, while increasing congestion at others. As under the proposed project, Alternative 3 CO concentrations would remain well below the federal and state standards.

Biological Resources

Alternative 3 would not entail constructing the roadway in the undeveloped corridor between Paseo Padre Parkway and Alvarado-Niles Road, and therefore would avoid all impacts on habitat, wildlife, and wetlands assessed for the proposed project. Conditions in the undeveloped corridor would remain in their current state, and enhancement of riparian vegetation near Old Alameda Creek would not occur. The existing detention basins would remain in place, as would the Line M Channel.

Alternative 3 would avoid all significant biological resources impacts identified for the proposed project. It would not entail construction near Crandall Creek, Alameda Creek Flood Control Channel, or Old Alameda Creek, and would thus avoid Impacts BIO-1: Degradation of Water Quality in Crandall Creek from Construction Activities Associated with the Roadway Widening and BIO-8: Degradation of Water Quality in Aquatic Resources from Construction Activities. Alternative 3 would not entail any permanent loss of wetlands and would thus avoid Impact BIO-11: Loss of Wetlands and Other Waters of the United States and of the State. Because Alternative 3 would not entail work in Old Alameda Creek or the detention basins in the project area's eastern portion, it would avoid impacts on California red-legged frogs, western pond turtles, and their habitat, and would avoid Impact BIO-4: Loss of or Disturbance to California Red- Legged Frogs, California Tiger Salamanders, Western Pond Turtles, and their Habitat. Avoiding construction in the willow riparian woodland and scrub in the undeveloped corridor would also avoid Impact BIO-9: Permanent Loss and Temporary Disturbance of a Sensitive Community—Willow Riparian Woodland and Scrub. Because Alternative 3 would not entail any project-related construction activity that would potentially disturb nesting birds, it would avoid Impact BIO-5: Potential Loss of Nesting Migratory Birds, including Raptors, or Loss of their Nests or Eggs. Alternative 3 would not entail work in the Alameda Creek Flood Control Channel and would not disturb steelhead and their habitat; therefore, it would avoid Impact BIO-6: Disturbance to Anadromous Steelhead and their Habitat from Construction Activities at Alameda Creek Flood Control Channel. Alternative 1 would not entail any activity that would potentially introduce or spread noxious weeds, and would avoid Impact BIO-10: Potential Introduction or Spread of Noxious Weeds into a

Sensitive Plant Community. Alternative 3 would have no impact on existing trees; therefore, it would avoid Impact BIO-13: Loss of or Disturbance to Protected Trees. In summary, there would be no significant impacts that would result from Alternative 3, and no mitigation would be required. Implementing Alternative 3 would also not result in any additional biological resource impacts not discussed in Section 3.3, Biological Resources.

Cultural Resources

Alternative 3 would leave physical conditions as they presently are, and would entail no roadway construction or associated grading. Therefore, Alternative 3 would have no effect on the one known historic resource located within the project area, the Peterson farmhouse, nor would it have an impact on archaeological resources that may exist below the ground but that remain undiscovered. Because it would not entail any earth disturbance and therefore would not affect any archaeological resources that may be present beneath the surface, Alternative 3 would avoid Impacts CUL-1: Construction Impacts on Archaeological Resources from Roadway Widening and CUL-4: Construction Impacts on Archaeological Resources from New Roadway, and no mitigation would be required. Implementing Alternative 3 would also not result in any additional cultural resources impacts not discussed in Section 3.4, Cultural Resources.

Geology, Soils, and Seismicity

Under Alternative 3, the proposed project would not be constructed and the existing roadways would remain under existing conditions. Alternative 3 would not change the geologic or soils conditions in the project area or on adjacent lands. No significant impacts were identified for geology and soils, and Alternative 3 would also not result in any significant impacts. Implementing Alternative 3 would not result in any additional geology, seismicity, and soils impacts not discussed in Section 3.5, Geology, Soils, and Seismicity.

Hazards and Hazardous Materials

Under Alternative 3, there would be no change in the conditions of hazards or hazardous materials in the project area or on adjacent lands. Alternative 3 would not entail handling or transporting hazardous materials, and would avoid Impact HAZ-1: Creation of a Hazard to the Public or the Environment through the Routine Transport, Use, or Disposal of Hazardous Materials. Alternative 3 would not entail any construction activity; therefore, it would not result in potential exposure of workers to hazardous materials during construction, would not interfere with emergency response or emergency evacuation plans, and would not expose people or structures to wildland fires, and Impacts HAZ-2: Accidental Mobilization and Exposure of Workers and Public to Hazardous Materials during Construction, HAZ-3: Impairment of the Implementation of or

Physical Interference with an Adopted Emergency Response Plan or Emergency Evacuation Plan during Construction, and HAZ-4: Exposure of People or Structures to Increased Risk of Loss, Injury, or Death Involving Urban or Wildland Fires during Construction would be avoided. Because there would be no project-related emissions associated with Alternative 3, there would be no emission within 0.25 mile of schools, and this alternative would result in no impact with respect to Impact HAZ-5: Emission or Use of Hazardous Materials, Substances, or Waste within 0.25 mile of an Existing or Proposed School. Therefore, there would be no significant impacts that would result through implementation of Alternative 3, and no mitigation would be required. Implementing Alternative 3 would not result in any additional hazards and hazardous materials impacts not discussed in Section 3.6, Hazards and Hazardous Materials.

Hydrology and Water Quality

Alternative 3 would not entail any construction or earth-disturbing activities and therefore would not degrade the quality of surface water bodies in the project area, avoiding Impact HWQ-1: Degradation of Surface Water Quality from Construction-Related Earth-Disturbing Activities and Impact HWQ-2: Contamination of Surface Water Quality from Leak or Accidental Spill of Hazardous Materials during Construction. Alternative 3 would also not increase the amount of impervious surface in the project area, and would avoid Impact HWQ-3: Increased Runoff from New Impervious Surfaces and Adverse Impacts on Surface Waters Implementing Alternative 3 would also not result in any additional hydrology and water quality impacts not discussed in Section 3.7, Hydrology and Water Quality.

Land Use and Planning

Under Alternative 3, the Decoto Road curb and sidewalks would not be improved, maintaining the existing non-conforming sections of right-of-way, curb, and sidewalk. Such conditions would also persist on Fremont Boulevard. Bicycle lanes would not be provided or improved along Decoto Road and Fremont Boulevard. This would all mark an inconsistency with the Fremont General Plan, the Fremont Ped Plan, and the Fremont Bike Plan. The proposed road would also not be built, and this would be inconsistent with the Union City General Plan, which anticipates implementation of the proposed project. Alternative 3 would also conflict with the Union City Pedestrian and Bicycle Master Plan and the East Bay Regional Park District Master Plan, both of which anticipate trails and bike lanes to be provided in the new roadway. By presenting conflicts with these plans, Alternative 3 would avoid the beneficial impacts identified for the proposed project (Impact LUP-3: Potential Conflict with the Fremont Pedestrian Master Plan, LUP-5: Potential Conflict with the Alameda Countywide Bicycle Plan, and LUP-7: Consistency with the Union City Pedestrian and Bicycle Master Plan) and result in significant impacts that do not occur under the proposed project.

Although Alternative 3 would not result in any improvements along Paseo Padre Parkway, it would not avoid the less than significant with mitigation impact identified for the proposed project (Impact LUP-4: Potential Conflict with the Fremont Bicycle Master Plan), because the existing deficiencies in bike lane clearance from gutter pans and sewer grates would persist. Therefore, Alternative 3 would not avoid any significant land use impacts associated with the proposed project.

Noise and Vibration

Under Alternative 3, project-related construction would not occur, and no noise or vibration from grading, pile driving, paving, or other actions would result. Alternative 3 would not widen lanes and thus move vehicles closer to residences and business, precluding any associated operational increases in noise or vibration. Existing noise and vibration from vehicles traveling Decoto Road and Paseo Padre Parkway would continue to be received by adjacent residences and businesses. The new road would not be constructed in the undeveloped corridor, and no project-related vehicle noise would be received at adjacent residences or park land. The shooflies would not be constructed, and railroad tracks would not be moved closer to residences in the vicinity; therefore, there would be no change in the railroad-related vibration experienced at adjacent residences.

Alternative 3 would avoid all significant noise and vibration impacts identified for the proposed project, including construction impacts and operational impacts. Alternative 3 would avoid Impacts NOI-1: Exposure of Off-Site Noise-Sensitive Land Uses to Short-Term Construction Noise from Roadway Widening and NOI-5: Exposure of Off-Site Noise-Sensitive Land Uses to Short-Term Construction Noise from New Roadway and Wetlands Mitigation Site Construction, both identified as significant and unavoidable, because it would not generate construction noise beyond the acceptable hours and limits published in the Cities' respective noise ordinances. Alternative 3 would avoid Impact NOI-2: Exposure of Off-Site Vibration-Sensitive Land Uses to Short-Term Construction Vibration from Roadway Widening and NOI-6: Exposure of Off-Site Vibration-Sensitive Land Uses to Short-Term Vibration from New Roadway Construction because it would not result in construction vibration. Alternative 3 would not entail grade separation construction, and therefore would avoid Impact NOI-7: Exposure of Off-Site Noise-Sensitive Land Uses to Short-Term Increases in Railroad Noise during Construction of the New Roadway Grade Separation and NOI-8: Exposure of Off-Site Noise-Sensitive Land Uses to Short-Term Increases in Railroad Vibration during Construction of the New Roadway Grade Separation, identified as significant and unavoidable because of increased noise and vibration from trains during the shoofly operations, respectively.

By not constructing the new roadway in the undeveloped corridor, Alternative 3 would avoid Impact NOI-9: Exposure of Noise-Sensitive Land Uses to Operational Noise from Vehicles on New Roadway and would not require construction of soundwalls near residences. However, noise on the existing roads would continue to increase as traffic increases as a result of projected regional and local growth.

Implementing Alternative 3 would not result in any additional noise impacts not discussed in Section 3.9, Noise and Vibration.

Population and Housing

No significant impacts were identified for population and housing; therefore, Alternative 3 would not avoid any significant impacts in this category. Alternative 3 would not result in the indirect growth inducement within Union City that was identified for the proposed project, as it would not enhance access to the redevelopment area north of the project area's eastern end, but implementing Alternative 3 would also not preclude this growth from occurring. Alternative 3 would not entail demolition of the Silva farmhouse, and therefore would not require relocating the current tenants. Implementing Alternative 3 would not result in any additional population and housing impacts not discussed in Section 3.10, Population and Housing.

Public Services, Utilities, and Recreation

Under Alternative 3, the proposed project would not be constructed and the existing roadways would remain as under existing conditions. There would be no change in public services, utilities and service systems, or the existing recreational facilities within and adjacent to the project area. Alternative 3 would avoid all significant impacts identified for the proposed project. Because it would not entail construction activity and therefore not have the potential to interrupt stormwater drainage, Alternative 3 would avoid Impact PSR-1: Interruptions to Stormwater Drainage System during Construction. Alternative 3 would avoid Impact PSR-4: Adverse Physical Effects on Existing Recreational Facilities by precluding the encroachments on Arroyo Park and Drigon Park. Therefore, there would be no significant impacts that would result from implementation of Alternative 3, and no mitigation would be required. Implementing Alternative 3 would not result in any additional public service impacts not discussed in Section 3.11, Public Services, Utilities, and Recreation.

Transportation and Traffic

Alternative 3 would avoid Impact TRA-1: Temporary Increase in Construction-Related Truck and Auto Traffic, Decrease in Roadway Capacity, and Disruption of Vehicular and Non-motorized Travel during Construction because it would not entail any project-related construction work, thus avoiding potential road closures, hazards, and conflicts between construction vehicles and non-construction vehicles. Alternative 3 would not entail the grade separation work of the proposed project and would not result in temporary interruption of rail operations. Therefore, Alternative 3 would avoid Impact TRA-2:

Intermittent Interruption of Rail Service during Construction. Because Alternative 3 would not entail trail closures, it would also avoid Impact TRA-3: Temporary Closure of Pedestrian and Bicycle Trails during Construction.

Under Alternative 3, traffic would continue to increase in the project area as a result of local and regional growth. As shown in Table 3.12-3 in Section 3.12 of this Draft EIR, nine of the studied intersections currently operate below acceptable LOS, as listed below.

- Decoto Road/Alvarado-Niles Road
- Decoto Road/Paseo Padre Parkway
- Decoto Road/Brookmill Drive
- Decoto Road/Fremont Boulevard
- Decoto Road/I-880 northbound ramps
- Decoto Road/I-880 southbound ramps
- Paseo Padre Parkway/Wyndham Drive
- Paseo Padre Parkway/Tamayo Street
- Paseo Padre Parkway/Peralta Boulevard

Without project implementation, delay at all of these intersections would continue to increase, as a result of the addition of regional and local traffic. As Table 3.12-6 in Section 3.12 shows, addition of future traffic in 2015 would reduce service at an additional eight intersections to unacceptable levels, as listed below:

- Decoto Road/7th Street
- Decoto Road/11th Street
- Decoto Road/Union Square
- Paseo Padre Parkway/Isherwood Way
- Paseo Padre Parkway/Thornton Avenue
- Fremont Boulevard/I-880 southbound ramps-Deep Creek Road
- Niles Boulevard/Nursery Avenue
- Mission Boulevard/Niles Canyon Road-Niles Boulevard

A total of 17 studied intersections would operate at unacceptable levels in 2015 under Alternative 3. The proposed project would increase the LOS at several of these locations, but would reduce LOS at other intersections. By 2035, nearly all of the studied intersections would reduce to unacceptable LOS under Alternative 3, as shown in Table 3.12-7 of Section 3.12. As in the 2015 analysis scenario, the proposed project would enhance service at many of these poorly operating intersections under 2035 conditions, but would reduce service at others.

Because Alternative 3 would not improve operations at the intersections improved under the proposed project, Alternative 3 would preclude the beneficial, less-than-significant impacts identified as Impact TRA-4: Improvement in Operations at 12 Intersections and Minor Reduction in Operations at 2 Intersections under Proposed Project Conditions Compared to No Project Conditions in 2015 and TRA-6: Improvement in Operations at 21 Intersections under Proposed Project Conditions and Minor Reductions in Operations at 2 Intersections Compared to No Project Conditions in 2035; and mitigation would be required to improve operations at these intersections to acceptable levels. Alternative 3 would not entail the project-specific significant impacts identified at several studied intersections where the proposed project is anticipated to further reduce LOS; however, the LOS at many of these intersections is also anticipated to be reduced under no-project conditions, as well. Additionally, Alternative 3 would not result in reduced delays and travel time. Therefore, Alternative 3 would not necessarily avoid Impacts TRA-5: Reduction in Operations at 19 Intersections under Proposed Project Conditions Compared to No Project Conditions in 2015 and TRA-7: Reduction in Operations at 18 Intersections under Proposed Project Conditions Compared to No Project Conditions in 2035.

It is anticipated that under the No Project alternative (Alternative 3), there would be significant and unavoidable traffic impacts because traffic would continue to worsen, there would be many locations operating at a level of service lower than LOS D, and there would be none of the beneficial impacts on operations from the proposed project, including the intersections where operations would improve.

Relationship to Project Objectives

While Alternative 3 could result in fewer impacts than the proposed project, and avoid altogether all of the impacts identified as significant and unavoidable for the proposed project, Alternative 3 does not meet any of the project objectives. Because it would not entail any improvement of the local roadway system, Alternative 3 would not meet the primary objective of reducing local traffic congestion and travel times in the transportation network in Fremont and Union City, and it would not provide a new direct east-west link in the transportation network. By not reducing traffic congestion, it would also not achieve the objectives of improving air quality and improving transit operations. By limiting local traffic thoroughfares to existing routes, ACTA would not achieve the project objectives that seek to implement planned transportation improvements upon which completed and planned developments in Fremont and Union City depend, and to ensure access to transit facilities and businesses in the project area.

By omitting construction in the undeveloped corridor between Paseo Padre Parkway and Alvarado-Niles Road, Alternative 3 would not achieve the objective of maximizing use of the publicly owned right-of-way for transportation purposes. In summary, Alternative 3 would not achieve any of the project objectives.

5.5 Summary: Comparison of Alternatives to the Proposed Project

This section provides a summary comparison of the project alternatives and the proposed project, including a summary of the environmental impacts, identification of an environmentally superior alternative, and a discussion regarding the ability of each to meet project objectives and MOU commitments.

5.5.1 Environmental Impacts

Table 5-7 provides a summary comparison of the overall impacts of each alternative compared to the proposed project for each issue area. For each issue area, it presents the overall impact conclusion (significance determination) for the alternative, and in parentheses, it states whether overall impacts are less than, greater than, or similar to those of the proposed project.

Table 5-8 provides a specific comparison of the project alternatives to the proposed project for each impact identified for the proposed project. Because a detailed quantitative analysis was not conducted for Alternatives 2 and 3, the significance determinations identified in Table 5-8 are based on the qualitative and comparative discussion presented above in Section 5.4.

Table 5-7. General Comparison of Alternatives Impact Conclusions to Proposed Project Impact Conclusions

Impact Area	**Alternative 1 (Historic Alignment in Union City)**	**Alternative 2 (Previously Studied Transportation System Management)**	**Alternative 3 (No Project)**
Aesthetics	SU (Less)	SU (Less)	NI (Less)
Air Quality-Construction	SU (Less)	SU (Similar)	NI (Less)
Air Quality-Operation	SU (Greater)	LS (Greater)	LS (Greater)
Biological Resources	LS (Less)	LS (Greater)	NI (Less)
Cultural Resources	LSM (Less)	LSM (Less)	NI (Less)
Geology, Soils, and Seismicity	LS (Similar)	LS (Similar)	NI (Similar)
Hazards and Hazardous Materials	LS (Less)	LSM (Similar)	NI (Less)
Hydrology and Water Quality	LSM (Less)	LSM (Similar)	NI (Similar)
Land Use and Planning	LS (Greater)	LS (Greater)	LS (Greater)
Noise and Vibration-Construction	SU (Less)	SU (Similar)	NI (Less)
Noise and Vibration-Operation	LSM (Less)	LSM (Similar)	NI (Less)
Population and Housing	LS (Similar)	LS (Greater)	NI (Similar)
Public Services, Utilities, and Recreation	LSM (Similar)	LSM (Similar)	NI (Less)
Transportation and Traffic-Construction	LSM (Less)	LSM (Similar)	NI (Less)
Transportation and Traffic-Operation	SU (Similar)	SU (Similar)	SU (Greater)
Relationship to Project Objectives	Meets the project objectives, but to a lesser extent than the proposed project	Meets the project objectives, but to a lesser extent than the proposed project	Meets none of the project objectives

NI = No Impact; LS = Less Than; LSM = Less Than Significant with Mitigation Incorporated; SU = Significant and Unavoidable (no feasible mitigation to reduce to less than significant level)

Table 5-8. Specific Comparison of Alternatives Impacts to Proposed Project Impacts

Impact	Proposed Project	Alternative 1 Historic Alignment in Union City	Alternative 2 Previously Studied Transportation System Management	Alternative 3 No Project
AES-1: Degradation of Visual Character or Visual Quality for Views Along Decoto Road and Paseo Padre Parkway	Less than Significant	No Impact	No Impact	No Impact
AES-2: Change to Scenic Vistas and Scenic Resources along Paseo Padre Parkway	Less than Significant	No Impact	No Impact	No Impact
AES-3: New Source of Substantial Light or Glare along Decoto Road and Paseo Padre Parkway	Less than Significant	No Impact	No Impact	No Impact
AES-4: Temporary Degradation of Visual Character or Visual Quality along New Roadway Segment between Paseo Padre Parkway and Alvarado-Niles Road	Less than Significant with Mitigation	Less than Significant with Mitigation	No Impact	No Impact
AES-5: Change of Visual Character or Visual Quality along New Roadway Segment between Paseo Padre Parkway and Alvarado-Niles Road	Less than Significant with Mitigation	Less than Significant	No Impact	No Impact
AES-6: Potential Placement of Soundwalls Adjacent to Residential Property between Paseo Padre Parkway and Alvarado-Niles Road	Less than Significant with Mitigation	No Impact	No Impact	No Impact
AES-7: Encroachment of Quarry Lakes Drive Realignment Option 2 (Four-Way Intersection) into Arroyo Park	Less than Significant with Mitigation	No Impact	No Impact	No Impact
AES-8: Obstruction of Scenic Vistas from Public Trails Adjacent to Old Alameda Creek	Less than Significant with Mitigation	No Impact	No Impact	No Impact
AES-9: New Source of Light and Glare from New Roadway between Paseo Padre Parkway and Alvarado-Niles Road	Less than Significant with Mitigation	No Impact	No Impact	No Impact
AES-10: Degradation of Visual Character or Visual Quality along the Redevelopment Corridor between Alvarado-Niles Road and Mission Boulevard	Less than Significant	Less than Significant	No Impact	No Impact
AES-11: New Source of Light and Glare along BART Corridor during Construction	Significant and Unavoidable	Significant and Unavoidable	No Impact	No Impact

Impact	Proposed Project	Alternative 1 Historic Alignment in Union City	Alternative 2 Previously Studied Transportation System Management	Alternative 3 No Project
AES-12: New Source of Light and Glare from New Roadway between Alvarado-Niles Road and Mission Boulevard	Less than Significant with Mitigation	Less than Significant with Mitigation	No Impact	No Impact
AIR-1: Temporary Increase in Ozone Precursors (ROG and NOX), CO, and PM10 Emissions during Grading and Construction Activities	Significant and Unavoidable	Less than Significant with Mitigation	Significant and Unavoidable	No Impact
AIR-2: Violation of Carbon Monoxide NAAQS or CAAQS	Less than Significant/ Beneficial	Less than Significant	Less than Significant	Less than Significant
AIR-3: Increase in Greenhouse Gas Contaminant Emissions	Less than Significant with Mitigation	Less than Significant with Mitigation	Less than Significant with Mitigation	No Impact
AIR-4: Increase in Localized MSAT Emissions	Less than Significant	Less than Significant	Less than Significant	Less than Significant
BIO-1: Degradation of Water Quality in Crandall Creek from Construction Activities Associated with the Roadway Widening	Less than Significant with Mitigation	No Impact	Less than Significant with Mitigation	No Impact
BIO-2: Loss of or Disturbance to Special-Status Plants	Less than Significant	Less than Significant	No Impact	No Impact
BIO-3: Loss of or Disturbance to Western Burrowing Owls or their Nesting and Foraging Habitat	Less than Significant	Less than Significant	No Impact	No Impact
BIO-4: Loss of or Disturbance to California Red- Legged Frogs, California Tiger Salamanders, Western Pond Turtles, and their Habitat	Less than Significant with Mitigation	Less than Significant with Mitigation	Less than Significant with Mitigation	No Impact
BIO-5: Potential Loss of Nesting Migratory Birds, including Raptors, or Loss of their Nests or Eggs	Less than Significant with Mitigation	Less than Significant with Mitigation	Less than Significant with Mitigation	No Impact
BIO-6: Disturbance to Anadromous Steelhead and their Habitat from Construction Activities at Alameda Creek Flood Control Channel	Less than Significant with Mitigation	No Impact	No Impact	No Impact
BIO-7: Loss of Disturbed or Non-Sensitive Habitats	Less than Significant	Less than Significant	Less than Significant	No Impact
BIO-8: Degradation of Water Quality in Aquatic Resources from Construction Activities	Less than Significant with Mitigation	Less than Significant with Mitigation	Less than Significant with Mitigation	No Impact

Impact	Proposed Project	Alternative 1 Historic Alignment in Union City	Alternative 2 Previously Studied Transportation System Management	Alternative 3 No Project
BIO-9: Permanent Loss and Temporary Disturbance of a Sensitive Community—Willow Riparian Woodland and Scrub	Less than Significant with Mitigation	No Impact	No Impact	No Impact
BIO-10: Potential Introduction or Spread of Noxious Weeds into a Sensitive Plant Community	Less than Significant with Mitigation	No Impact	Less than Significant	No Impact
BIO-11: Loss of Wetlands and Other Waters of the United States and of the State	Less than Significant with Mitigation	Less than Significant with Mitigation	Less than Significant with Mitigation	No Impact
BIO-12: Change in Steelhead Migratory Habitat Resulting from Installation of New Bridge at Alameda Creek Flood Control Channel	Less than Significant	Less than Significant	No Impact	No Impact
BIO-13: Loss of or Disturbance to Protected Trees	Less than Significant with Mitigation	Less than Significant with Mitigation	Less than Significant with Mitigation	No Impact
CUL-1: Construction Impacts on Archaeological Resources from Roadway Widening	Less than Significant with Mitigation	Less than Significant with Mitigation	No Impact	No Impact
CUL-2: Construction Impacts on Historic Resources from Roadway Widening	Less than Significant	Less than Significant	No Impact	No Impact
CUL-3: Operational Impacts on Historic Resources from Roadway Widening	Less than Significant	Less than Significant	No Impact	No Impact
CUL-4: Construction Impacts on Archaeological Resources from New Roadway	Less than Significant with Mitigation	Less than Significant with Mitigation	No Impact	No Impact
CUL-5: Change to Historic Resources from New Roadway	Less than Significant	Less than Significant	No Impact	No Impact
GEO-1: Potential Structural Damage and Injury Caused by Fault Rupture	Less than Significant	Less than Significant	Less than Significant	No Impact
GEO-2: Potential Structural Damage and Injury from Ground Shaking	Less than Significant	Less than Significant	Less than Significant	No Impact
GEO-3: Potential Structural Damage and Injury from Development on Unsuitable Materials or Materials Subject to Liquefaction	Less than Significant	Less than Significant	Less than Significant	No Impact

Impact	Proposed Project	Alternative 1 Historic Alignment in Union City	Alternative 2 Previously Studied Transportation System Management	Alternative 3 No Project
GEO-4: Potential Accelerated Runoff, Erosion, and Sedimentation from Grading Activities	Less than Significant	Less than Significant	Less than Significant	No Impact
GEO-5: Potential Structural Damage as a Result of Development on Expansive Soils	Less than Significant	Less than Significant	Less than Significant	No Impact
HAZ-1: Creation of a Hazard to the Public or the Environment through the Routine Transport, Use, or Disposal of Hazardous Materials	Less than Significant with Mitigation	Less than Significant with Mitigation	Less than Significant with Mitigation	No Impact
HAZ-2: Accidental Mobilization and Exposure of Workers and Public to Hazardous Materials during Construction	Less than Significant with Mitigation	Less than Significant with Mitigation	Less than Significant with Mitigation	No Impact
HAZ-3: Impairment of the Implementation of or Physical Interference with an Adopted Emergency Response Plan or Emergency Evacuation Plan during Construction	Less than Significant with Mitigation	Less than Significant with Mitigation	Less than Significant with Mitigation	No Impact
HAZ-4: Exposure of People or Structures to Increased Risk of Loss, Injury, or Death Involving Urban or Wildland Fires during Construction	Less than Significant with Mitigation	Less than Significant with Mitigation	No Impact	No Impact
HAZ-5: Emission or Use of Hazardous Materials, Substances, or Wastes within 0.25 mile of an Existing or Proposed School	Less than Significant	Less than Significant	Less than Significant	No Impact
HWQ-1: Degradation of Surface Water Quality from Construction-Related Earth-Disturbing Activities	Less than Significant with Mitigation	Less than Significant with Mitigation	Less than Significant with Mitigation	No Impact
HWQ-2: Contamination of Surface Water Quality from Leak or Accidental Spill of Hazardous Materials during Construction	Less than Significant with Mitigation	Less than Significant with Mitigation	Less than Significant with Mitigation	No Impact
HWQ-3: Increased Runoff from New Impervious Surfaces and Adverse Impacts on Surface Waters	Less than Significant with Mitigation	Less than Significant with Mitigation	Less than Significant with Mitigation	No Impact
HWQ-4: Water Quality Impacts from Discharges to CWA 303(d)-Listed Surface Water Bodies-Diazinon	Less than Significant	Less than Significant	Less than Significant	No Impact
HWQ-5: Potential Flood Hazards Associated with Levee or Dam Failure	Less than Significant	Less than Significant	Less than Significant	No Impact

Impact	Proposed Project	Alternative 1 Historic Alignment in Union City	Alternative 2 Previously Studied Transportation System Management	Alternative 3 No Project
LUP-1: Division of an Established Community	Less than Significant	Less than Significant	No Impact	No Impact
LUP-2: Potential Conflict with the Fremont General Plan	Less than Significant	Less than Significant	Less than Significant	No Impact
LUP-3: Potential Conflict with the Fremont Pedestrian Master Plan	Less than Significant/ Beneficial	No Impact (Beneficial Impact does not occur)	No Impact (Beneficial Impact does not occur)	No Impact (Beneficial Impact does not occur)
LUP-4: Potential Conflict with the Fremont Bicycle Master Plan	Less than Significant with Mitigation/ Beneficial	No Impact (Beneficial Impact does not occur)	Less than Significant (Beneficial Impact does not occur)	No Impact (Beneficial Impact does not occur)
LUP-5: Potential Conflict with the Alameda Countywide Bicycle Plan	Less than Significant/ Beneficial	No Impact (Beneficial Impact does not occur)	Less than Significant (Beneficial Impact does not occur)	No Impact (Beneficial Impact does not occur)
LUP-6: Potential Conflict with the Union City General Plan	Less than Significant	Less than Significant	Less than Significant	No Impact
LUP-7: Consistency with the Union City Pedestrian and Bicycle Master Plan	Less than Significant/ Beneficial	No Impact/Beneficial	Less than Significant (Beneficial Impact does not occur)	No Impact (Beneficial Impact does not occur)
LUP-8: Consistency with the East Bay Regional Park District Master Plan	Less than Significant	Less than Significant	Less than Significant	No Impact
NOI-1: Exposure of Off-Site Noise-Sensitive Land Uses to Short-Term Construction Noise from Roadway Widening	Significant and Unavoidable	No Impact	Significant and Unavoidable	No Impact
NOI-2: Exposure of Off-Site Vibration-Sensitive Land Uses to Short-Term Construction Vibration from Roadway Widening	Less than Significant with Mitigation	No Impact	Less than Significant with Mitigation	No Impact
NOI-3: Exposure of Noise-Sensitive Land Uses to Increased Traffic Noise from Roadway Widening	Less than Significant	No Impact	Less than Significant	No Impact
NOI-4: Exposure of Vibration-Sensitive Land Uses to Increased Traffic Vibration from Roadway Widening	Less than Significant	No Impact	Less than Significant	No Impact
NOI-5: Exposure of Off-Site Noise-Sensitive Land Uses to Short-Term Construction Noise from New Roadway and Wetlands Mitigation Site Construction	Significant and Unavoidable	Significant and Unavoidable	Less than Significant	No Impact

Impact	Proposed Project	Alternative 1 Historic Alignment in Union City	Alternative 2 Previously Studied Transportation System Management	Alternative 3 No Project
NOI-6: Exposure of Off-Site Vibration-Sensitive Land Uses to Short-Term Vibration from New Roadway Construction	Less than Significant with Mitigation	Less than Significant with Mitigation	Less than Significant with Mitigation	No Impact
NOI-7: Exposure of Off-Site Noise-Sensitive Land Uses to Short-Term Increases in Railroad Noise during Construction of the New Roadway Grade Separation	Significant and Unavoidable	Significant and Unavoidable	Significant and Unavoidable	No Impact
NOI-8: Exposure of Off-Site Noise-Sensitive Land Uses to Short-Term Increases in Railroad Vibration during Construction of the New Roadway Grade Separation	Significant and Unavoidable	Significant and Unavoidable	Significant and Unavoidable	No Impact
NOI-9: Exposure of Noise-Sensitive Land Uses to Operational Noise from Vehicles on New Roadway	Less than Significant with Mitigation	Less than Significant with Mitigation	Less than Significant	No Impact
NOI-10: Exposure of Vibration-Sensitive Land Uses to Increased Traffic from the New Roadway	Less than Significant	Less than Significant	Less than Significant with Mitigation	No Impact
NOI-C1: Contribution to Cumulative Impact on Noise Sensitive Receptors along Existing Roadways	Significant and Unavoidable	Significant and Unavoidable	Significant and Unavoidable	~~Significant and Unavoidable~~No Impact
POP-1: Indirect Inducement of Substantial Population Growth	Less than Significant	Less than Significant	Less than Significant	No Impact
POP-2: Displacement of a Substantial Number of Existing Housing Units or People	Less than Significant	Less than Significant	Less than Significant with Mitigation	No Impact
PSR-1: Interruptions to Stormwater Drainage System during Construction	Less than Significant with Mitigation	Less than Significant with Mitigation	Less than Significant with Mitigation	No Impact
PSR-2: Adverse Effects on the Capacity of Solid Waste Landfills	Less than Significant	Less than Significant	Less than Significant	No Impact
PSR-3: Change in Demand for Neighborhood Parks, Regional Parks, or Recreational Facilities	Beneficial	Beneficial	Beneficial	No Impact (Beneficial Impact does not occur
PSR-4: Adverse Physical Effects on Existing Recreational Facilities	Less than Significant with Mitigation	Less than Significant	No Impact	No Impact

Impact	Proposed Project	Alternative 1 Historic Alignment in Union City	Alternative 2 Previously Studied Transportation System Management	Alternative 3 No Project
TRA-1: Temporary Increase in Construction-Related Truck and Auto Traffic, Decrease in Roadway Capacity, and Disruption of Vehicular and Non-motorized Travel during Construction	Less than Significant with Mitigation	Less than Significant with Mitigation	Less than Significant with Mitigation	No Impact
TRA-2: Intermittent Interruption of Rail Service during Construction	Significant and Unavoidable	Significant and Unavoidable	Significant and Unavoidable	No Impact
TRA-3: Temporary Closure of Pedestrian and Bicycle Trails during Construction	Less than Significant with Mitigation	Less than Significant	Less than Significant	No Impact
TRA-4: Improvement in Operations at 12 Intersections and Minor Reduction in Operations at 2 Intersections under Proposed Project Conditions Compared to No Project Conditions in 2015	Less than Significant/ Beneficial	Less than Significant/ Beneficial	Less than Significant (Beneficial Impact does not occur)	Less than Significant (Beneficial Impact does not occur)
TRA-5: Reduction in Operations at 18 Intersections under Proposed Project Conditions Compared to No Project Conditions in 2015	Significant and Unavoidable	Significant and Unavoidable	Significant and Unavoidable	Significant and Unavoidable
TRA-6: Improvement in Operations at 21 Intersections under Proposed Project Conditions and Minor Reductions in Operations at 2 Intersections Compared to No Project Conditions in 2035	Less than Significant/ Beneficial	Less than Significant/ Beneficial	Less than Significant/ (Beneficial Impact does not occur)	Less than Significant (Beneficial Impact does not occur)
TRA-7: Reduction in Operations at 16 Intersections under Proposed Project Conditions Compared to No Project Conditions in 2035	Significant and Unavoidable	Significant and Unavoidable	Significant and Unavoidable	Significant and Unavoidable
SUMMARY				
Total Less than Significant Impacts (with or without mitigation)	~~69~~70	~~52~~53	~~45~~46	4
Total Significant and Unavoidable Impacts	10	8	8	~~3~~2
Total No Impacts (impacts avoided compared to no project)		19	26	~~73~~75
Total Beneficial Impacts realized (+) or precluded (-) compared to proposed project		+4 -3	+1 -5	0 -7

5.5.2 Environmentally Superior Alternative

CEQA requires that an EIR identify the environmentally superior alternative from among the range of reasonable alternatives that are evaluated. This would ideally be the alternative that results in fewer (or no) significant and unavoidable impacts. CEQA Guidelines Section 15126(d)(2) states that if the environmentally superior alternative is the no project alternative, the EIR shall also identify an environmentally superior alternative from among the other alternatives. When using tables 5-7 and 5-8 to compare the three alternatives with the proposed project, all three alternatives have less environmental impacts than the proposed project with the No Project Alternative (Alternative 3) having the least. However, because CEQA requires identification of an environmentally superior alternative other than the no project alternative, Alternative 1 (Historic Alignment in Union City) or Alternative 2 (Previously Studied Transportation System Management) must be identified as the environmentally superior alternative. Using the specific impacts identified in Table 5-8, Table 5-9 provides a comparison of the number of impacts of Alternatives 1 and 2.

Table 5-9. Comparing Impacts for Alternatives 1 and 2

	Alternative 1: Historic Alignment in Union City	**Alterative 2: Previously Studied Transportation System Management**
Less than Significant Impacts (with or without mitigation)	~~52~~53	~~45~~46
Significant and Unavoidable impacts	8	8
No Impact (compared to proposed project that does result in impact)	19	26
Beneficial Impacts realized (+) or precluded (-) compared to proposed project	+4 -3	+1 -5

When comparing the number of impacts, Alternatives 1 and 2 would result in similar less than significant impacts and the same number of significant and unavoidable impacts. Both Alternatives 1 and 2 have fewer environmental impacts than the proposed project because they do not involve construction of a new roadway between Paseo Padre Parkway and Alvarado-Niles Road. This is common for infrastructure and transportation projects when the alternatives represent a smaller project. To determine whether Alternative 1 or Alternative 2 is environmentally superior, the amount of residential or commercial displacement that would have a substantial socioeconomic impact was considered. The road widening proposed as part of Alternative 2 would result in a substantial socioeconomic impact that would not occur with implementation of the proposed project and, therefore, is not captured in Table 5-8. Taking this into consideration, Alternative 1 is considered the environmentally superior alternative compared to Alternative 2 and the proposed project.

5.5.3 Meeting Project Objectives

Table 5-10 provides a general comparison of how Alternatives 1 and 2, as well as the proposed project, meet the project objectives. The No Project Alternative does not meet project objectives and, therefore, is not included.

Table 5-10. Comparing Project Objectives

Project Objectives **Will the project:**	**Alternative 1: Historic Alignment in Union City**	**Alternative 2: Previously Studied Transportation System Management**	**Proposed Project: East-West Connector Project**
Reduce local traffic congestion?	Yes, similar to the proposed project. Alternative 1 would improve operations at more intersections than the proposed project and reduce operations at fewer intersections than the proposed project during both the 2015 and 2035 timeframes. However, when taken on a whole, the proposed project is anticipated to offer greater savings in travel time for the studied corridors and the system overall (see below).	Yes, but does not reduce to the same level in the project area as proposed project or Alternative 1. Although a quantitative analysis was not prepared for Alternative 2, it is anticipated that there would be some congestion reduction along individual corridors by widening and reconfiguring roadways and by signal synchronization, which would channel traffic from congestion corridors to improved corridors.	Yes. Although the proposed project would reduce operations at certain intersections while improving operations at others, it would reduce system-wide and corridor specific congestion during the peak hours.
Reduce local travel time?	Yes, but not as much as the proposed project. In the year 2035, Alternative 1 is anticipated to reduce travel time on specific roadway segments by up to 15% during the AM and PM peak hours and to reduce system-wide travel time by 18% during the PM peak hour, but increase the travel time by 7% during the AM peak. Whereas the proposed project is anticipated to reduce travel time on all seven studied corridors during both peak hours, Alternative 1 would offer less of a reduction and even slightly increase times on certain corridors. (Refer to Tables 5-3, 5-4, and 5-5).	Yes, but not as much as proposed project or Alternative 1. See above.	Yes. In the year 2035, the proposed project is anticipated to reduce travel time on specific roadway segments by 33-56% during the AM and PM peak hours and to reduce system-wide travel time by 12-19% during the AM and PM peak hours. (Refer to Tables 5-3, 5-4, and 5-5.)

Project Objectives Will the project:	Alternative 1: Historic Alignment in Union City	Alternative 2: Previously Studied Transportation System Management	Proposed Project: East-West Connector Project
Provide a more direct east-west link in the transportation network?	No. Alternative 1 would only provide a short segment of the planned east-west roadway. Local traffic would continue to use Alvarado-Niles Road and Decoto Road to access I-880, as under existing conditions.	No. Alternative 2 would rely on existing routes.	Yes. The proposed project would provide a new, direct east-west link from Paseo Padre Parkway to Mission Boulevard.
Improve air quality by decreasing local traffic congestion?	Yes, but less than the proposed project. Alternative 1 would reduce emissions due to improved operations and reduced congestion during the PM peak, but a slight increase in congestion during the AM peak would lead to slight increases in emissions during this timeframe.	Yes, but less than the proposed project and Alternative 1. The reduction in congestion that would occur with Alternative 2 would likely improve air quality and transit operations, although it is likely that this would occur to a lesser extent than under the proposed project.	Yes. The considerable reduction in system-wide congestion during the AM and PM peak hours would translate to a reduction in local pollutant emissions.
Implement planned transportation improvements upon which completed and planned developments in Fremont and Union City depend?	Yes, but less than the proposed project. Alternative 1 would construct a new 0.6 mile road providing improved access to recent and planned residential and commercial developments.	No. Alternative 2 would provide no new access to completed or planned development because it solely relies on improving existing roads.	Yes. The proposed project would construct a new 1.3 mile road providing improved access to recent and planned residential and commercial developments. However, it would not complete the full Route 84 project (also called the historic parkway) that is shown in the Fremont and Union City General Plan, and included in the Alameda County Congestion Management Agency's countywide traffic model.
Improve access to transit facilities and businesses in the vicinity?	Yes. The new roadway under Alternative 1 would improve access to the Union City BART Station and local businesses. The BART station could be accessed directly from the new roadway via 7th Street and 11th Street.	Partial. Alternative 2 includes increased bus service and construction of a new park-and-ride which would improve access to transit facilities, but not as directly as the reduced travel time that would occur from implementing the proposed project and constructing the new roadway.	Yes. The new roadway and widening of existing roadways would improve access to the Union City BART Station and local businesses. The BART station could be accessed directly from the new roadway via 7th Street and 11th Street.

Project Objectives **Will the project:**	**Alternative 1: Historic Alignment in Union City**	**Alternative 2: Previously Studied Transportation System Management**	**Proposed Project: East-West Connector Project**
Improve transit operations in the vicinity by reducing congestion along existing and future transit routes?	Yes, but not as much as proposed project. Alternative 1 would improve transit operations by reducing congestion during the PM peak, but a slight increase in congestion during the AM peak would lead to slight reduction in transit service. Alternative 1 would also provide potential for new transit service on the new road.	Partial. Alternative 2 would improve transit operations by increasing bus service, but it would not directly provide potential for new transit service along the improved roadways and new roadway.	Yes. The proposed project would improve transit operations by reducing congestion during the AM and PM peaks, thereby facilitating flow of bus service. The proposed project would also provide potential for new transit service on the new road.
Promote the use of non-motorized transport?	Yes, but not as much as the proposed project. Alternative 1provides a bike and pedestrian corridor along the new 0.6 mile roadway, linking to existing and planned bike and pedestrian features in other Union City roadways.	Yes, but differently than the proposed project. Alternative 2 includes increased bus service and construction of a park-and-ride lot to encourage bus and transit travel. However, it would eliminate several miles of bike lanes in various streets, discouraging bicycle travel.	Yes. It provides a continuous bike and pedestrian corridor for 3 miles from just east of I-880 to Mission Boulevard, and enhances pedestrian and bicycle facilities along adjoining roadways.
Maximize the use of publicly owned right-of-way in the Historic Corridor for transportation purposes?	Partially. It would use 0.6 miles of the reserved corridor for transportation uses.	No. It does not use any portion of the reserved corridor.	Yes. The proposed project would use 1.3 miles of the reserved corridor for transportation uses.
Improve flood control by incorporating Line M diversion channel?	Yes	No	Yes
Summary	Meets the project objectives, but to a lesser extent than the proposed project.	Meets the project objectives, but to a lesser extent than the proposed project and Alternative 1	Meets all the project objectives.

Note: A quantitative analysis was not conducted for Alternative 2. This table is intended to be qualitative and comparative. However, because a quantitative analysis was conducted for the proposed project and Alternative 1, quantification and detail are provided where appropriate.

5.5.4 Meeting MOU Requirements

The MOU constitutes a commitment by the signing agencies (ACTA, Caltrans, Fremont, and Union City) to implement the proposed project, but it also states that if the proposed project is not chosen as the preferred alternative at the conclusion of the environmental process, then Alternative 1 (Historic Alignment in Union City) would be implemented, which is the reason it has been evaluated at the same level of detail as the proposed project. Alternatives 2 and 3 would not meet MOU requirements. The MOU has been included in its entirety in Appendix A of the Draft EIR.

5.5.5 Process for Making a Decision on the Project

CEQA requires an EIR to identify the environmentally superior alternative from among the range of reasonable alternatives that are evaluated. CEQA does not require an agency to select the environmentally superior alternative. In response to preparing an EIR, a Lead Agency may: disapprove a project because it has significant environmental effects; require changes in a project to reduce or avoid a significant environmental effect; or approve a project despite its significant environmental effects, if the proper findings and statement of overriding considerations are adopted.

When making a decision on the project, ACTA will consider the environmental impacts of the project as identified in the Draft EIR, the comments on the Draft EIR and responses to those comments, and the ability to meet the project objectives and the commitments made in the MOU.

Chapter 6
Agency Consultation

Chapter 6
Agency Consultation

The Lead Agency and Responsible Agencies, listed below, have participated in monthly project team development meetings throughout the environmental review process.

- Alameda County Transportation Authority, Lead Agency
- Caltrans District 4, Responsible Agency
- City of Fremont, Responsible Agency
- City of Union City, Responsible Agency

The agencies that have permitting or approval authority or that may use this Draft EIR for their decision-making are identified in Table 6-1. These agencies have been informed of the proposed project through the notice of preparation (NOP) and scoping process, and some have participated in meetings with members of the project development team and engineering staff to discuss project design and operation and to obtain input on permitting issues associated with the proposed project. The status of agency consultation conducted to date is indicated in Table 6-1. Additionally, the agencies were provided the opportunity to review and comment on the Draft EIR, and several agencies provided comments (refer to Volume 2 of the Final EIR).

Table 6-1. Agency Consultation Conducted to Date

Agency	Required Permits, Approvals , or Other Entitlements	Reason Required	Consultation Conducted to Date
Alameda County Flood Control District	Encroachment Permit	Has jurisdiction over Alameda Creek Flood Control Channel and Line M Channel	Received the NOP. There has been ongoing coordination to develop the conceptual design of the proposed bridge over the Alameda Creek Flood Control Channel and the Line M Channel bifurcation structure and diversion pipeline facilities.
Alameda County Water District	Approval or Permit	Works in Alameda Creek Flood Control Channel	Received the NOP and provided comments. District staff attended project team development meetings and was consulted on issues related to water quality, groundwater, and aquifer.
Bay Area Air Quality Control Board	Demolition Permit	Asbestos and other issues associated with demolishing the Silva farmhouse	Received the NOP.
Bay Area Rapid Transit	Encroachment Permit	Grade separation and shoofly construction affecting BART tracks	Received the NOP. Meetings were held with District staff, and they were consulted on issues related to project design, constructability, and potential disruption during construction
California Department of Transportation	Encroachment Permit	Intersection improvements affecting Mission Boulevard at east end of the project alignment	Responsible agency and has been participating in project team development meetings. Department staff was consulted on issues related to preliminary design and project background.
California Department of Fish and Game	Section 1602 Streambed Alteration Agreement	Disturbance to Alameda Creek Flood Control Channel and Old Alameda Creek.	Received the NOP. Attended the U.S. Army Corps of Engineers Interagency Meeting on February 13, 2008 (see U.S. Army Corps of Engineers below).
California State Historic Preservation Office	Section 106 Consultation	Potential impacts on the Peterson Farm	Received the NOP.
California Public Utilities Commission	Approval of BART crossing and commercial rail crossing	Alignment requires construction of grade separation and alteration of the BART and UPRR crossings.	Received the NOP and provided comments.

Agency	Required Permits, Approvals , or Other Entitlements	Reason Required	Consultation Conducted to Date
City of Fremont	Planning Commission approval, City Council approval, and Public Works Encroachment Permit	Portion of project alignment within City of Fremont	Responsible agency and has been participating in project team development meetings. Also consulted on issues related to preliminary design, General Plan, and planned projects within Fremont.
City of Union City	Planning Commission approval, City Council approval, Public Works Encroachment Permit, and Fire Department approval/permits	Portion of project alignment within City of Union City. Relocation of the compressed natural gas station refueling island at the Union City Corporation Yard.	Responsible agency and has been participating in project team development meetings. Also consulted on issues related to preliminary design, General Plan, and planned projects within Union city.
East Bay Regional Park District	Encroachment Permit	Construction of bridge over Alameda Creek Flood Control Channel, affecting EBRPD trails	Received the NOP and provided comments.
Regional Water Quality Control Board	Section 401 Water Quality Certification; possible Waste Discharge Requirements	Discharge to Old Alameda Creek and fill within Corps jurisdictional wetlands/waters; possible discharge to state waters	Received the NOP. Attended the U.S. Army Corps of Engineers Interagency Meeting on February 13, 2008 (see U.S. Army Corps of Engineers below).
Union Pacific Railroad	Right-of-Entry Construction and Maintenance Agreement	Grade separation and shoofly construction affecting UPRR tracks	Received the NOP and provided comments. Meetings were held with UPRR staff, and they were also consulted on issues related to project design, constructability, and potential disruption during construction.

Agency	Required Permits, Approvals , or Other Entitlements	Reason Required	Consultation Conducted to Date
U.S. Army Corps of Engineers	Section 404 Permit	Disturbance to jurisdictional waters and wetlands of the United States	ACTA presented the proposed project at the U.S. Army Corps of Engineers Interagency Meeting on February 13, 2008. In addition to the Corps, there were representatives from the Regional Water Quality Control Board, California Department of Fish and Game, and Alameda County Vector Control. The proposed project was introduced to the agencies, and the permitting issues were discussed. Issues concerning jurisdictional waters of the United States include the proposed crossings at Alameda Creek Flood Control Channel and Old Alameda Creek, as well as alterations and improvements to the Alameda County Flood Control District Line M Channel and other stormwater infrastructure. ACTA presented two design methods for crossing Old Alameda Creek: 1) a bridge extending over the creek at both locations, as presented in the NOP; or 2) an at-grade crossing using a culvert, as suggested by members of the public during the EIR scoping process. The agencies indicated a preference for bridges because they would have fewer impacts on the creek. Additionally, a wetlands delineation report was prepared and verified by the Corps on August 11, 2008.
U.S. Fish and Wildlife Service	Section 7 Consultation under federal Endangered Species Act	Potential impacts on California red-legged frog pending protocol-level surveys	Received the NOP. ACTA sent a letter dated January 11, 2008, to USFWS requesting technical assistance and seeking concurrence with the January 15, 2002 letter from USFWS stating that the proposed project is not likely to adversely affect California red-legged frog habitat. In response, USFWS requested protocol-level surveys to confirm the determination. ACTA is planning to conduct these surveys January through August, 2009. Protocol surveys require four rounds of daytime and nighttime surveys that are at least 2 weeks apart, including a late summer/early fall survey, to allow the surveyors the opportunity to see frogs in many different life stages.
National Marine Fisheries Service	Section 7 Consultation under federal Endangered Species Act	Potential impacts on steelhead in Alameda Creek Flood Control Channel	Received the NOP.

Chapter 7
References

Chapter 7
References

7.1 Written References

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Acronyms and Abbreviations

$\mu g/m^3$	micrograms per cubic meter
AADT	Average Annual Daily Traffic
AB 32	Assembly Bill 32
AB 939	Assembly Bill 939
ABAG	Association of Bay Area Governments
AC Transit	Alameda Contra Costa Transit
ACCWP	Alameda Countywide Clean Water Program
ACE	Altamont Commuter Express
ACFCWCD	Alameda County Flood Control and Water Conservation District
ACTA	Alameda County Transportation Authority
ACWD	Alameda County Water District
ADA	Americans with Disabilities Act
Alquist-Priolo Act	Alquist-Priolo Earthquake Fault Zoning Act
APN	assessor parcel number
ARB	California Air Resources Board
AREMA	American Railway Engineering and Maintenance of Way Association
AST	above-ground storage tank
ASTM	American Society for Testing and Materials
BAAQMD	Bay Area Air Quality Management District
BART	Bay Area Rapid Transit District
basin plan	water quality control plan
BMP	best management practice
C_2F_6	perfluoroethane
CAA	federal Clean Air Act as amended in 1990
CAAQS	California's ambient air quality standards
Cal-EPA	California Environmental Protection Agency
Cal-OSHA	California Occupational Safety and Health Administration
Caltrans	California Department of Transportation
CBSC	California Building Standards Code
CCAA	California Clean Air Act of 1988
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act
CF_4	perfluoromethane
CFC	chlorofluorocarbon
CFR	Code of Federal Regulations

cfs	cubic feet per second
CH_4	methane
CNDDB	California Department of Fish and Game Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNG	compressed natural gas
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
-CO_2e	carbon dioxide equivalent
Corps	U.S. Army Corps of Engineers
CPUC	California Public Utilities Commission
CRHR	California Register of Historical Resources
CRLF	California red-legged frog (*Rana aurora draytonii*)
CTC	California Transportation Commission
CTS	California tiger salamander
CWA	federal Clean Water Act
d.u./acre	dwelling units per acre
dB	decibel
dBA	A-weighted decibel
dbh	diameter at breast height
DFG	California Department of Fish and Game
DHS	California Department of Health Services
DOT	U.S. Department of Transportation
DPS	distinct population segment
DTSC	California Department of Toxic Substances Control
EBRPD	East Bay Regional Park District
EDR	Environmental Data Resources
EIR	environmental impact report
EIS	environmental impact statement
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	flood insurance rate map
FR	*Federal Register*
Fremont Register	Fremont Register of Historic Resources
GHG	greenhouse gas
GIS	geographic information system
HAP	hazardous air pollutant
HCFC	hydrochlorofluorocarbon
HFC	hydrofluorocarbon
I-680	Interstate 680
I-880	Interstate 880
in/sec	inches per second
I-OS	Institutional Open Space
IRIS	Integrated Risk Information System

L_{dn}	day-night average sound level
L_{eq}	equivalent sound level
L_{max} and L_{min}	maximum and minimum sound level measured over a period of time
LOS	level of service
LT	long-term
MBTA	Migratory Bird Treaty Act
mg/L	milligrams per liter
Mission Boulevard	Mission Boulevard (State Route 238)
MMT	million metric tons
MOU	memorandum of understanding
MSAT	mobile source air toxic
msl	mean sea level
N	Neighborhood Commercial
N_2O	nitrous oxide
NAAQS	national ambient air quality standards
NAHC	Native American Heritage Commission
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOP	notice of preparation
NO_X	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NTU	nephelometric turbidity unit
NWP	nationwide permit
O_3	ozone
OHWM	ordinary high water mark
OS	Open Space
PCB	polychlorinated biphenyl
PFC	perfluorocarbon
PG&E	Pacific Gas and Electric Company
PI	Private Institutional
PM10	particulate matter smaller than 10 microns in diameter
PM2.5	particulate matter smaller than 2.5 microns in diameter
Porter-Cologne Act	Porter-Cologne Water Quality Control Act
ppm	parts per million
PPV	peak particle velocity
PRC	Public Resources Code
proposed project	East-West Connector Project
RDC	Research and Development Campus
RMS	root-mean-square
ROG	reactive organic gas
RT	Retail Commercial
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SF_6	sulfur hexafluoride

SFBAAB	San Francisco Bay Area Air Basin
shoofly	temporary rail track
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SO_2	sulfur dioxide
SR	State Route
ST	short-term
SWPPP	stormwater pollution prevention plan
SWQMP	stormwater quality management plan
TAC	toxic air contaminant
TCM	traffic control measure
TH	Thoroughfare Commercial
TIP	Transportation Improvement Plan
TMDL	total maximum daily load
TPH	total petroleum hydrocarbon
TSM	Transportation Systems Management
UBC	Uniform Building Code
UPRR	Union Pacific Railroad
USC	U.S. Government Code
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	underground storage tank
V/C	volume to capacity
VMT	vehicle miles traveled
VOC	volatile organic compound
VTA	Santa Clara Valley Transportation Authority
WDR	waste discharge requirement
WQO	Water Quality Objective