

Interstate 5/Genesee Avenue Interchange Reconstruction Project

SAN DIEGO COUNTY, CALIFORNIA
DISTRICT 11 – SD – 05, KP R46.1/R49.1 (PM R28.6/R30.5)
EA 022330; PI 1100000012; SCH No. 2010091064
Federal Project No. HPLU 5004(145)

Initial Study with Mitigated Negative Declaration / Environmental Assessment with Finding of No Significant Impact



Prepared by the
State of California Department of Transportation

The environmental review, consultation, and any other action required in accordance with applicable Federal laws for this project is being, or has been, carried out by Caltrans under its assumption of responsibility pursuant to 23 U.S.C. 327.



June 2011

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Reconstruction of the Interstate 5/Genesee Avenue interchange and related improvements to the freeway, on- and off-ramps, and the Voigt Drive overcrossing, and realignment of a portion of Gilman Drive, from KP R46.1 (PM R28.6) to R49.1 (PM R30.5)

**INITIAL STUDY with Mitigated Negative Declaration /
ENVIRONMENTAL ASSESSMENT with
Finding of No Significant Impact**

Submitted Pursuant to: (State) Division 13, California Public Resources Code
(Federal) 42 USC 4332(2)(C)

THE STATE OF CALIFORNIA
Department of Transportation


Date of Approval


Bruce L. April
Deputy District Director, Environmental
District 11
California Department of Transportation

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MITIGATED NEGATIVE DECLARATION

Pursuant to: Division 13, Public Resources Code

Project Description

The California Department of Transportation (Caltrans), in cooperation with the City of San Diego (City), proposes to improve the Interstate 5 (I-5)/Genesee Avenue interchange and make related improvements to the freeway, on- and off-ramps, Voigt Drive overcrossing, and Gilman Drive (Project).

Determination

Caltrans has prepared an Initial Study for this Project and, following public review, has determined from this study that the Proposed Project would not have a significant effect on the environment for the following reasons:

The Proposed Project would have no effect on agricultural resources, air quality, climate change, community character, cultural resources, geology and soils, growth, hazardous wastes or materials, hydrology and water quality, land use, mineral resources, population and housing, public services, recreation, or utilities and emergency services.

The Proposed Project would have no significant impacts on traffic, aesthetics, biological resources, temporary construction noise, or paleontology because the following measures would reduce potential effects to insignificance:

Traffic

1. A public awareness campaign informing public about the Project and promoting alternate modes of transportation and alternate routes.
2. Motorist information strategies, including portable changeable message signs (PCMSs) and the Caltrans Highway Information Network (CHIN).
3. Incident management, including Construction Zone Enhanced Enforcement Project (COZEED), which includes assistance in moving disabled vehicles and increased California Highway Patrol (CHP) visibility, and additional Freeway Service Patrol.
4. Various construction strategies to minimize traffic disturbance such as determining the best times for lane or ramp closures, a "Delay Clause" that penalizes contractor for failure to reopen lanes as specified, and coordination to avoid conflicts with other projects or special events at nearby businesses, hospitals, of the University of California, San Diego (UCSD).
5. Alternate route strategies may include temporary detours, traffic signal modifications, and adjustments to ramp meters to accommodate diverted traffic.

Aesthetics

1. Development and implementation of a comprehensive landscape concept plan. This plan would be consistent with corridor-wide design themes developed by the office of the District 11 Landscape Architect. This plan would include planting and irrigation layouts that specify plant materials and container sizes. Types of landscape features would include:
 - Drought tolerant and sustainable landscape palettes.
 - Trees planted between the freeway traveler's viewpoint and retaining walls taller than 3 meters (m; 10 feet [ft]) tall, where feasible.
 - Vine planting sufficient to cover 90 percent of retaining walls within five years to reduce the visual impact of the walls and to act as a graffiti deterrent.
 - Median oleanders would be replaced where they cannot be preserved.
 - Slopes graded to 2:1 or flatter to sustain landscape planting and irrigation. Grading design and operations would include techniques such as slope rounding, slope sculpting, and variable gradients to mimic the appearance of natural topography. Steeper slopes may be possible if they are serrated and contain benches wide enough to accept plants from 15-gallon containers.
2. Bicycle lanes, pedestrian lighting, wider sidewalks and other urban amenities on the local street sections of structures would be consistent with local Community Plan guidelines and the corridor-wide design themes.
3. Lighting and signage attachments would occur at pilasters or be incorporated in other architectural features and be consistent with corridor-wide design themes developed by the office of the District 11 Landscape Architect.
4. Visible sections of retaining walls would receive color and texture treatments consistent with corridor-wide design themes developed by the office of the District 11 Landscape Architect.
5. Structure design would be enhanced with architectural features consistent with corridor-wide design themes developed by the office of the District 11 Landscape Architect.
6. Retaining walls would be designed to visibly blend with graded slopes using techniques such as slope rounding, slope sculpting, and variable gradients to mimic the appearance of natural topography when feasible.
7. Enhanced landscape plantings, including more densely spaced vines, a wider variety of vines, some with seasonal color, and more trees would be planted in front of the retaining wall on the south side of Genesee Avenue, east of I-5, and the retaining walls on both sides of I-5 south of Genesee Avenue, where possible.

Biological Resources

1. Indirect impacts to sensitive habitats and species shall be mitigated by the implementation of the following measures:

- All sensitive habitats (including non-native grasslands) outside the impact areas would be designated as environmentally sensitive areas. These environmentally sensitive areas would be fenced with orange plastic snow fencing, and no personnel, debris, or equipment would be allowed in the environmentally sensitive areas. Fencing would be installed in a manner that would not impact habitats to be avoided and such that it is clearly visible to personnel on foot and operating heavy equipment. Fencing would be maintained throughout the construction period to preclude human entry into the Multi-Habitat Planning Area (MHPA). No construction activities, materials, or equipment would be permitted outside the fenced Project footprint. Caltrans would submit the final plans for initial clearing and grubbing of habitat and Project construction to the U.S. Fish and Wildlife Service (USFWS) for approval, at least five days prior to initiating Project impacts (except for impacts resulting from clearing to install temporary fencing). These final plans would include photographs that show the fenced limits of impact and all areas to be impacted or avoided. If work occurs beyond the fenced or demarcated limits of impact, all work would cease until the problem has been remedied to the satisfaction of USFWS. Any impacts that occur beyond the approved fenced area would be offset in consultation with USFWS. Temporary construction fencing would be removed upon Project completion.
- Proposed post-construction Best Management Practices (BMPs) would include the use of appropriate devices/techniques such as landscaping/revegetation and vegetated swales/grass strips. Energy dissipaters would reduce the velocity and downstream erosion potential of runoff leaving the Project area and would help maintain pre-development velocity rates. All site design BMPs would reduce long-term urban contaminant generation by minimizing runoff volumes and velocities, removing accumulated contaminants, and increasing infiltration.
- Bioswales would be planted with appropriate species. Slopes adjacent to developed urban areas would be vegetated with native and drought tolerant non-invasive species selected by the landscape architect in coordination with the biologist and others. Interchanges located in urban areas would be landscaped with native or ornamental non-invasive species.
- Drainage from the construction area and new and proposed developed areas in and adjacent to the preserve would not drain directly into the MHPA. Topography of the site is such that MHPA lands directly adjacent to the project are at a higher elevation. The Project would use biofiltration to treat road runoff prior to discharge into receiving water bodies. The use of structural and non-structural BMPs and the restriction of grading and paving activity during significant rain events would reduce potential impacts associated with construction. The project design would comply with Caltrans Municipal Stormwater Permit criteria of the State Water Resources Control Board and the Clean Water Act Section 401 Water Quality Certification issued by the Regional Water Quality Control Board for the Project. Erosion and sediment control devices used for the Project, including fiber rolls and bonded fiber matrix, would be made from biodegradable materials such as jute, with no plastic mesh, to avoid creating a wildlife entanglement hazard.
- Caltrans would ensure that the following conditions would be implemented during Project construction:
 - Contractors and construction personnel would strictly limit their activities, vehicles, equipment, and construction materials to the fenced Project footprint;

- The Project site would be kept as clean of debris as possible. All food-related trash items would be enclosed in sealed containers and regularly removed from the site;
 - Pets of construction personnel would not be allowed on the Project site;
 - All equipment maintenance, staging, and dispensing of fuel, oil, coolant, or any other such activities would occur within the fenced Project impacts limits. The changing of oil, refueling, and other actions that could result in a release of a hazardous substance would be restricted to designated areas that are a minimum of 30.5 m (100 ft) from any drainages. Such designated areas would be surrounded with berms, sandbags, or other barriers to further prevent the accidental spill of fuel, oil, or chemicals. Any accidental spills would be immediately contained, cleaned up, and properly disposed;
 - Impacts from fugitive dust would be avoided and minimized through watering and other appropriate measures; and
 - Cut and fill would be balanced within the Project or the construction contractor would identify the source or disposal location. All spoils and material disposal will be disposed of properly.
2. Temporary and permanent impacts to Diegan coastal sage scrub (including disturbed) would be mitigated by implementation of the following mitigation measures:
- Mitigation for temporary impacts to 0.4 ha (1.1 ac) of Diegan coastal sage scrub (including disturbed) would include (1) temporary revegetation on site (at a 1:1 ratio) by hydroseeding with a Diegan coastal sage scrub plant palette and (2) off-site creation of Diegan coastal sage scrub (at a 2:1 ratio). The slopes would be temporarily revegetated until the proposed I-5 North Coast Corridor project is implemented, at which time the final slopes would be permanently revegetated.
 - Mitigation for permanent impacts to 1.9 ha (4.7 ac) of Diegan coastal sage scrub (including disturbed) is proposed at a 2:1 ratio with off-site creation of Diegan coastal sage scrub at the Pardee (Deer Canyon) Mitigation Parcel.

The draft mitigation plan for the Pardee (Deer Canyon) Mitigation Parcel has been reviewed by the resource agencies, and the final draft has been completed and is in review.

A perpetual biological conservation easement or other conservation mechanism acceptable to USFWS would be recorded over the areas preserved, restored, and/or enhanced by the Project at the Pardee (Deer Canyon) Mitigation Parcel. The conservation mechanism would specify that no easements or activities (e.g., fuel modification zones, public trails, drainage facilities, walls, maintenance access roads) that would result in soil disturbance and/or vegetation removal would be allowed within the biological conservation easement areas. Caltrans anticipates that the mitigation parcel would be placed into a conservation easement or other conservation mechanism prior to initiating Project impacts; however, annual reports would be provided on the mitigation parcel's status until the conservation mechanism has been placed.

Caltrans would prepare a perpetual long-term management, maintenance, and monitoring plan (e.g., a Habitat Management Plan [HMP]) for the Pardee (Deer Canyon) Mitigation Parcel. The HMP would include, but not be limited to, the following: method of protecting the resources in perpetuity (e.g., conservation easement), monitoring schedule, measures to prevent human and exotic species encroachment, funding

mechanism, and contingency measures if problems occur. The City has agreed to own and manage the mitigation parcel with a management endowment that would be paid by Caltrans, in accordance with the requirements of the TransNet Memorandum of Agreement. Caltrans would establish a non-wasting endowment in an amount approved by USFWS based on a Property Analysis Record or similar cost estimation method to secure the ongoing funding for the perpetual long-term management, maintenance, and monitoring of the biological conservation easement area by an entity approved by USFWS. Caltrans would submit a draft HMP including a description of perpetual management, maintenance, and monitoring actions, and the Property Analysis Record or other cost estimation results for the non-wasting endowment to USFWS for approval. Caltrans would submit the final HMP to USFWS and transfer the funds for the non-wasting endowments to the appropriate management entities. Caltrans anticipates that preparation of the HMP and transferring of the funds for the non-wasting endowment would not occur prior to initiating Project impacts; however, annual reports would be provided on the status until the final HMP has been provided and the endowment funds have been transferred.

3. Impacts to coyote brush scrub would be minimized by implementation of the following measures:
 - Mitigation for temporary impacts to 0.1 ha (0.2 ac) of coyote brush scrub would include off-site creation of Diegan coastal sage scrub (at a 2:1 ratio) and temporary revegetation on site (at a 1:1 ratio) by hydroseeding with a Diegan coastal sage scrub plant palette. The slopes would be temporarily revegetated until the proposed I-5 North Coast Corridor project is implemented, at which time the final slopes would be permanently revegetated.
 - Mitigation for permanent impacts to 0.3 ha (0.7 ac) of coyote brush scrub is proposed at a 2:1 ratio with off-site creation of Diegan coastal sage scrub at the Pardee (Deer Canyon) Mitigation Parcel.
4. Temporary and permanent impacts to non-native grassland would be minimized by implementation of the following measures:
 - Temporary impact areas would be hydroseeded with native grassland and forb palette for erosion control measures.
 - Mitigation for permanent impacts to 3.5 ha (8.7 ac) of non-native grassland is proposed at a 0.5:1 ratio with off-site preservation of 1.7 ha (4.4 ac) of non-native grassland at the Pardee (Deer Canyon) Mitigation Parcel.
5. Mitigation for temporary (0.02 ha [0.05 ac]) and permanent impacts (0.45 ha [1.12 ac]) to southern willow scrub is proposed at a 3:1 ratio. The southern willow scrub is considered jurisdictional wetland by the California Department of Fish and Game (CDFG). The off-site mitigation for southern willow scrub (including disturbed) would be completed at the Pardee (Deer Canyon) Mitigation Parcel.
6. Mitigation for temporary and permanent impacts to drainage/streambed under U.S. Army Corps of Engineers (Corps) jurisdiction is proposed at a 1:1 ratio. Mitigation for temporary and permanent impacts to Corps jurisdictional wetland would be completed at the Pardee (Deer Canyon) Mitigation Parcel. No net loss of wetlands would occur with the implementation of mitigation. A total of 0.04 ha (0.09 ac) of mitigation would be provided for impacts to Corps jurisdictional area.

7. The following avoidance and minimization measures would minimize impacts to special status animal species and raptors:
 - Temporary and permanent impacts to Diegan coastal sage scrub habitat (including disturbed) would be reduced through the implementation of avoidance and minimization measures described in Measure 2 for Biological Resources.
 - All native vegetation, trees, and large shrubs shall be cleared outside the breeding season of southern California rufous-crowned sparrow, northern harrier and other raptors, and other migratory birds (February 15 through August 31) to avoid breeding birds. If Project construction occurs during the breeding season, pre-construction surveys and avoidance of nesting birds would be required by a biologist approved by USFWS. If nesting southern California rufous-crowned sparrow, northern harrier or other raptor, or other migratory birds are observed/detected within the Project limits, construction would not be permitted to commence until the conclusion of the breeding season (August 31), or until all young have fledged. No direct impacts to nests are allowed during the breeding season.
 - All lighting (including night lighting during construction) installed in the vicinity of the MHPA, native vegetation communities, and/or other open space areas would be directed away or shielded to prevent light overspill. Streetlights would be low-intensity and shielded to minimize illumination of the adjacent habitat. Night lighting of construction areas would be of the lowest illumination necessary for human safety, selectively placed, shielded, and directed away from natural habitats.

8. Implementation of the following avoidance and minimization measures would reduce direct and indirect impacts to coastal California gnatcatcher:
 - Temporary and permanent impacts to gnatcatcher habitat would be reduced through the implementation of avoidance and minimization measures described in Measures 2 and 3 for Biological Resources.
 - All native vegetation, trees, and large shrubs shall be cleared outside the coastal California gnatcatcher and migratory bird breeding season (February 15 through August 31) to avoid breeding birds. If ornamental vegetation clearing occurs during the breeding season pre-construction surveys and avoidance of nesting birds would be required by a biologist approved by USFWS. If nesting gnatcatchers are observed/detected within a proposed impact area, on-site clearing would be suspended until the end of the breeding season (August 31), or until all young have fledged. No direct impacts from Project operations (post construction) to nests are allowed during the breeding season.
 - A biologist would be present on site during initial clearing and grubbing, as well as weekly during Project construction located within 152 m (500 ft) of off-site gnatcatcher habitat to ensure compliance with all conservation measures. The Project biologist would be familiar with the habitats, plants, and wildlife in the Project area to ensure that issues relating to biological resources are appropriately and lawfully managed.
 - To minimize construction noise impacts to nesting gnatcatchers, all pile driving for the Project that would occur near habitats that support gnatcatchers would be conducted between September 1 and February 14 to avoid the gnatcatcher breeding

season (or sooner than September 1 if the Project biologist can demonstrate to the satisfaction of USFWS that all nesting is complete).

9. Implementation of the following avoidance and minimization measures would reduce impacts associated with invasive species:
 - A qualified biologist would review the Project landscape concept plans to ensure that no invasive species (as listed in the California Invasive Plant Inventory) are included.
 - A biological monitor would educate construction crews (prior to construction) on the benefits of cleaning equipment prior to ingress and egress.
 - Upon completion of grading, all areas of temporary disturbance would be revegetated with native species or ornamental landscaping to limit colonization by invasive species.
 - Following installation of revegetation and landscaping, such areas would be monitored and maintained to minimize invasive species.
 - In compliance with Executive Order 13112, and subsequent guidance from the FHWA, the landscaping and erosion control included in the Project would not use species listed as noxious weeds. In areas of particular sensitivity, extra precautions would be taken if invasive species are found in or adjacent to the construction areas. Such precautions could include the inspection and cleaning of construction equipment and eradication strategies to be implemented should an invasion occur.

Noise

To avoid unnecessary annoyances from construction noise, the following construction noise control measures would be implemented:

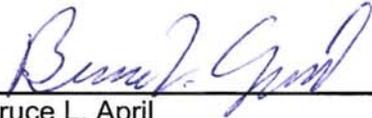
- Compliance with Caltrans' Standard Specifications 7-1.011 (2006d) Sound Control Requirements. "The contractor would comply with all local sound control and noise level rules, regulations and ordinances which apply to any work performed pursuant to the contract. Each internal combustion engine, used for any purpose on the job or related to the job, would be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine would be operated on the project without said muffler."
- Idling equipment would be turned off.
- A noise-control monitoring program would be implemented to limit the impacts.
- Noisier operations would be performed during the times least sensitive to receptors.

Paleontology

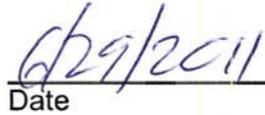
1. The following mitigation measures would effectively avoid or address potential impacts to paleontological resources from the Project.
 - A qualified principal paleontologist (Master of Science [M.S.] or Doctor of Philosophy [Ph.D.] in paleontology or geology familiar with paleontological procedures and techniques) would be retained to be present at pre-grading meetings to consult with grading and excavation contractors.
 - A paleontological monitor, under the direction of the qualified principal paleontologist, would be on site to inspect cuts for fossils at all times during original grading

involving sensitive geologic formations. As grading progresses, the qualified paleontologist and paleontological monitor would have the authority to reduce the scope of the monitoring program to an appropriate level if it is determined that the potential for impacts to paleontological resources are lower than anticipated.

- When fossils are discovered, the paleontologist (or paleontological monitor) would recover them. Construction work in these areas would be halted or diverted to allow recovery of fossil remains in a timely manner. During the monitoring and recovery phases, the paleontologist (or paleontological monitor) would routinely collect stratigraphic data to provide a stratigraphic context for any recovered fossils.
- During the monitoring and recovery phases, the paleontologist (or paleontological monitor) would routinely collect stratigraphic data to provide a stratigraphic context for any recovered fossils.
- Fossil remains collected during the monitoring and salvage portion of the mitigation program would be cleaned, repaired, sorted and cataloged.
- Prepared fossils, along with copies of all pertinent field notes, photos and maps, would then be deposited in a scientific institution with paleontological collections.
- A final report would be completed that outlines the results of the mitigation program.



Bruce L. April
Deputy District Director, Environmental
District 11
California Department of Transportation



Date

CALIFORNIA DEPARTMENT OF TRANSPORTATION

FINDING OF NO SIGNIFICANT IMPACT

FOR

Interstate 5/Genesee Avenue Interchange Reconstruction Project

The California Department of Transportation (Caltrans) has determined that the Build Alternative will have no significant impact on the human environment. This Finding of No Significant Impact (FONSI) is based on the attached Environmental Assessment (EA) which has been independently evaluated by Caltrans and determined to adequately and accurately discuss the need, environmental issues, and impacts of the proposed project and appropriate mitigation measures. It provides sufficient evidence and analysis for determining that an Environmental Impact Statement (EIS) is not required. Caltrans takes full responsibility for the accuracy, scope, and content of the attached EA (and other documents as appropriate).

The environmental review, consultation, and any other action required in accordance with applicable Federal laws for this project is being, or has been, carried-out by Caltrans under its assumption of responsibility pursuant to 23 U.S.C. 327.

6/29/2011

Date of Approval

Bruce L. April

Bruce L. April

Deputy District Director, Environmental
District 11

California Department of Transportation

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SUMMARY

SUMMARY

S.1 INTRODUCTION

The California Department of Transportation (Caltrans), as assigned by the Federal Highway Administration (FHWA), and in cooperation with the City of San Diego (City), proposes to improve the Interstate 5 (I-5)/Genesee Avenue interchange and make related improvements to the freeway, on- and off-ramps, Voigt Drive overcrossing, and Gilman Drive. The proposed I-5/Genesee Interchange Reconstruction Project is hereafter referred to as "Project." Caltrans is the lead agency for California Environmental Quality Act (CEQA) compliance and for National Environmental Policy Act (NEPA) compliance of the Project pursuant to 23 U.S.C. 327.

The Project is included in the San Diego Association of Governments (SANDAG) 2030 San Diego Regional Transportation Plan: Pathways for the Future (2030 RTP) adopted on November 30, 2007 (SANDAG 2007) and the Financially Constrained 2010 Regional Transportation Improvement Program (2010 RTIP) adopted on December 14, 2010 (SANDAG 2010). The total project cost (in 2010 dollars) is estimated at \$145 million pursuant to 23 U.S.C. 327.

S.2 OVERVIEW OF PROJECT STUDY AREA

The Project study area encompasses a segment of the I-5 corridor that extends approximately 3.0 kilometers (km; 1.9 miles [mi]) between the La Jolla Village Drive northbound on-ramp/southbound off-ramp to the south at kilometer post (KP) R46.1 (post mile [PM] R28.6) and the Sorrento Valley Road interchange to the north at KP R49.1 (PM R30.5), a segment of Genesee Avenue that extends approximately 1.0 km (0.6 mi) from Science Center Drive to the Scripps Memorial Hospital entrance driveway, a segment of Voigt Drive that extends approximately 0.5 km (0.3 mi) in length, and a segment of Gilman Drive that extends approximately 0.3 km (0.2 mi) in length.

The Project site is located in western San Diego County, within the City's University City Community Plan area, which is located in the central western portion of the City. The Project site is approximately 2.4 km (1.5 mi) east of the Pacific Ocean and 5.5 km (3.4 mi) north of State Route 52. The Project area includes a portion of I-5, a major north-south freeway. Within the Project study area, I-5 is an eight-lane divided freeway with four lanes in each direction that are each 3.6 meters (m; 12 feet [ft]) in width. The inside shoulders are approximately 2.4 m (8 ft) wide, while the outside shoulders are approximately 3.0 m (10 ft) wide. The existing median is approximately 5.9 m (19 ft) wide and is unpaved beyond the shoulders. The horizontal alignment of I-5 is relatively straight between La Jolla Village Drive and Genesee Avenue and then curves gently to the east, north of Genesee Avenue. The vertical alignment of the freeway slopes upward at a 1.6-percent grade from La Jolla Village Drive to just south of the Voigt Drive overcrossing, and then slopes downward at a 3-percent grade to the north end of the Project study area.

S.3 PURPOSE AND NEED

Purpose of the Project

The purpose of the Project is to:

- Complete the continuity of Genesee Avenue as a six-lane primary arterial facility from North Torrey Pines Road to Regents Road, as identified in the University Community Plan
- Improve traffic flow and reduce congestion on Genesee Avenue and at the I-5/Genesee Avenue interchange
- Provide improvements of sufficient length to effectively address environmental matters and traffic concerns
- Not preclude the ultimate I-5 freeway condition¹
- Allow the widened Genesee Avenue overcrossing to meet current Caltrans standards for vertical clearance
- Improve general access and mobility within the University area, including bike and pedestrian access at the I-5/Genesee Avenue interchange

Need for the Project

The need for the Project arises from freeway, roadway, and intersection current capacities, which are mostly unacceptable; future transportation demands; a roadway that is not up to current Caltrans and City standards; and modal interrelationships and system linkages, as discussed in this section.

Capacity and Transportation Demand

The I-5/Genesee Avenue interchange currently experiences considerable congestion during peak-hour periods, resulting in unacceptable levels of service (LOS) and congested conditions. The terminology "level of service" is used to provide a "qualitative" evaluation based on certain "quantitative" calculations that are related to empirical values associated with the roadway or intersection capacity. LOS is a measure developed in the Highway Capacity Manual as a means for documenting the performance of roadways and intersections. LOS A is defined as excellent while LOS F is defined as poor or unacceptable. LOS E and F are unacceptable for the City of San Diego. Vehicle queues at both I-5 ramp intersections with Genesee Avenue currently exceed storage lengths of lanes during morning, midday, and evening peak hours. These queues impede traffic flows and contribute to congestion in the Project area. In addition, the segment of Genesee Avenue between the southbound I-5 ramps and the northbound I-5 ramps currently operates at an unacceptable LOS.

Existing operations at the Genesee Avenue interchange are not up to current Caltrans and City standards and will worsen over time as a result of growth and associated traffic volume increases in the Project area. Specifically, the San Diego County region is anticipated to

¹ The ultimate configuration for this segment of I-5, after the implementation of the Proposed Project and the full implementation of the I-5 North Coast Corridor project, would consist of one high-occupancy vehicle lane, one auxiliary lane, and five general purpose lanes in each direction as indicated in the ultimate layout plan for the I-5 North Coast Corridor project.

increase from a population of approximately 3.1 million in 2004 to 4.0 million in 2030 and the University community is expected to increase from a population of approximately 54,100 in 2007 to 61,300 in 2030 (SANDAG 2008). The following paragraph highlights how the Project area is not up to current Caltrans and City standards using Year 2030 No Build conditions as an example.

According to the Traffic Operational Analysis (2008), under the Year 2030 No Build conditions, both I-5 intersections with Genesee Avenue would operate at LOS F with significant delays during the morning and evening peak periods. Both intersections would operate at approaching or above capacity during morning, mid-day, and evening peak hours based on intersection lane vehicle (ILV) methodology. Also under Year 2030 No Build conditions, all ramp merge/diverge locations would operate at LOS F in at least one of the peak periods analyzed. The segment of Genesee Avenue between the southbound I-5 ramps and northbound I-5 ramps would operate at LOS F. Lastly, in the Year 2030 No Build conditions, both the mainline and weaving² volumes would be over capacity for the southbound I-5 weave in the morning and evening peak periods and for the northbound I-5 weave in the evening peak period. Only the weaving volumes would be over capacity for the northbound I-5 weave in the morning peak period, instead of the mainline and weaving volumes being over capacity as in the previously discussed scenarios.

Roadway Deficiencies

The Project proposes to widen the Genesee Avenue overcrossing structure to increase the roadway LOS to current City standards. The existing Genesee Avenue overcrossing structure has a vertical clearance of 4.6 m (15.2 ft). This vertical clearance does not meet current Caltrans' standards. Current standards require a vertical clearance of 5.1 m (16.5 ft). Due to this existing vertical shortage, any widening of the existing structure would also not meet vertical clearance standards. Therefore, the Project proposes to replace the existing bridge with a wider structure that conforms to Caltrans' vertical clearance standards. The new overcrossing would be increased from 23.2 m (76.1 ft) to 47.2 m (154.9 ft) in width. Additionally, the existing overcrossing structure is not long enough to span the ultimate width of the planned I-5 widening improvements. Such freeway widening improvements would not occur as part of the Project, but are planned by Caltrans as a separate future project. Therefore, the proposed structure would be lengthened from 73.3 m (240.5 ft) to 91.8 m (301.2 ft), which would not preclude the ultimate I-5 freeway condition. The increased structure length would increase the depth of the structure. The increased structure depth and the current non-standard vertical clearance, combined with the need to maintain falsework clearance during construction and maintain current vertical clearance requirements in the future if I-5 is widened, require that the profile along Genesee Avenue be raised. The height of the bridge deck would be increased from 6.1 m (20.0 ft) to 10.3 m (33.8 ft) and the proposed vertical clearance when this Project is complete would be 6.8 m (22.2 ft). The vertical clearance would be decreased if I-5 is widened in the future, but would continue to meet current vertical clearance requirements.

Modal Interrelationships and System Linkages

The Project area has a large concentration of business/employment land uses in the region. Maintaining or improving the accessibility of and mobility within this area is essential to the continued economic health of the region. Genesee Avenue is designated as a Regionally

² Weaving is defined as the crossing of two or more traffic streams traveling in the same general direction along a significant length of highway.

Significant Arterial by SANDAG and is part of the Regionally Significant Transportation Network, which consists of interstate freeways, state highways, arterial corridors, and regional transit services, as well as arterial streets that accommodate larger volumes of traffic. All of these multi-modal facilities and services are considered essential to meeting the mobility and accessibility goals of the region. The Project would include the appropriate length of roadway and freeway improvements considering the existing and anticipated future environmental and traffic conditions of the regional transportation network. Specifically, the Project would be of sufficient length to provide a connecting link to facilitate traffic circulation between the east and west sides of I-5. The length of the Genesee Avenue overcrossing would allow for anticipated future freeway widening.

In addition, the Project would allow for future planned improvements to the transportation system, and would not preclude the ultimate I-5 freeway condition. Project features have been designed to be compatible with and allow for such future planned improvements in the Project area. Proposed overcrossings, ramp improvements, auxiliary lanes, and road improvements would provide for the ultimate improved I-5 configuration, inclusive of High Occupancy Vehicle (HOV) lanes. Additionally, bicycle and pedestrian facilities are proposed that would be consistent with planned multi-modal transportation facilities and goals in the Project area.

S.4 PROJECT DESCRIPTION

Proposed Build Alternative (Project)

The Project would reconstruct the I-5/Genesee Avenue interchange to accommodate widening of Genesee Avenue and meet vertical clearance requirements for the overcrossing. Construction of the Project would not preclude the ultimate I-5 freeway condition. The Project would replace the existing Genesee Avenue four-lane overcrossing with a new six-lane overcrossing. The new overcrossing structure would be wider, longer, and higher than the existing structure, and would be shifted slightly to the north (the centerline would shift approximately 16.1 m [53 ft]) so that the existing overcrossing could continue to carry traffic during construction of the new overcrossing. The four ramps at the Genesee Avenue interchange also would be widened and lengthened to accommodate increased (future year [2030]) traffic flows and the proposed overcrossing structure.

The Project includes the addition of auxiliary lanes in both directions between the Genesee Avenue ramps and the adjacent ramps for La Jolla Village Drive and Sorrento Valley Road. A ramp meter would be installed at the Sorrento Valley Road southbound on-ramp to control the volume of potential weaving traffic coming from Sorrento Valley Road during peak periods. Along with the ramp meter, two additional lanes would be added, including an HOV bypass. One additional lane would be added to the Sorrento Valley Road northbound off-ramp.

Implementation of the auxiliary lanes between Genesee Avenue and La Jolla Village Drive would require replacement of the Voigt Drive overcrossing. The Voigt Drive overcrossing structure would be designed such that it does not preclude implementation of other currently planned roadway and transit improvements at that location. The future projects that are currently being planned are the ultimate widening of I-5 and direct access ramps³ under the proposed I-5 North Coast Corridor project and a Light Rail Transit (LRT) crossing of I-5 adjacent to Voigt Drive under the Mid-Coast Corridor project. To account for these future projects, the

³ Direct access ramps provide direct access from roadways to high-occupancy vehicle lanes in the center of the freeway.

Voigt Drive overcrossing would be lowered, lengthened, and widened. The existing Voigt Drive overcrossing has a vertical clearance of 9.1 m (29.8 ft), which is higher than the required vertical clearance of 5.1 m (16.5 ft). The Project proposes to lower the profile of Voigt Drive and provide a 6.0 m (19.7 ft) vertical clearance. Lowering the profile of the Voigt Drive overcrossing would allow for improved profile geometry on the planned direct access ramps that would tie into the Voigt Drive overcrossing. Lowering the profile of the Voigt Drive overcrossing also would allow for the planned LRT crossing of I-5 to be grade separated from the planned direct access ramps. The new structure also would be longer to account for the future planned widening of I-5 under the proposed I-5 North Coast Corridor project and an LRT crossing of I-5 adjacent to Voigt Drive under the Mid-Coast Corridor project. The new Voigt Drive overcrossing would be constructed slightly to the north (the centerline would shift approximately 11.2 m [36.7 ft]) so that the existing overcrossing could continue to carry traffic during construction of the new overcrossing. The Project also includes realignment of a portion of Gilman Drive and modifications to its intersection with Voigt Drive.

The Project would be designed to accommodate pedestrian and bicycle traffic, as well as vehicular traffic, within the Project corridor. The proposed overcrossing structure would include a Class II bike lane⁴ that is 1.8 m (6 ft) wide in each direction. The City of San Diego Bicycle Master Plan also identifies an existing Class III bike route⁵ along the shoulders of I-5 connecting Genesee Avenue and Sorrento Valley Road. The proposed interchange improvements would include a two-way Class I bike path⁶ along the southbound I-5 shoulder with a barrier separating the bike path from the vehicular traffic. Accordingly, the proposed improvements would include a bicycle and pedestrian link between the eastern and western sides of I-5 and would be consistent with planned multi-modal transportation facilities and goals in the Project area.

Both the Genesee Avenue and Voigt Drive overcrossings would be improved for bicyclist and pedestrian access and operations. The Genesee Avenue interchange would include a sidewalk that is 2 m (6.6 ft) wide on the north side of Genesee Avenue, bike lanes in both directions, striped/signalized pedestrian crossings and Americans with Disabilities Act- (ADA-) compliant pedestrian ramps at each intersection. The Voigt Drive overcrossing would include sidewalks and bike lanes. Existing free-right turns at the Genesee Avenue interchange would be removed to avoid conflicts with pedestrian and bicycle traffic.

The Project also would involve the relocation of existing utilities that are located on the Genesee Avenue and Voigt Drive overcrossings. These utilities would be re-installed on the replacement overcrossings.

It is anticipated that construction staging would occur in a disturbed area between the Sorrento Valley Road southbound on-ramp and the I-5 freeway that was previously used for construction staging for the I-5/Interstate 805 (I-805) merge. Other construction staging areas and access routes would be located within disturbed or developed areas within Caltrans right-of-way (R/W).

It is anticipated that construction of the Project would not require borrow. A portion of the excess soil would be used as an earthen buttress to stabilize an ancient landslide in the northwest quadrant of the I-5/Genesee Avenue interchange as part of this Project. The

⁴ A Class II bike lane shares the right-of-way with a roadway or walkway. It is indicated by a bikeway pictograph on the pavement and a continuous stripe on the pavement or separated by a continuous or intermittent curb or other low barrier.

⁵ A Class III bike route shares the right-of-way with a roadway or walkway. It is not indicated by a continuous stripe on the pavement or separated by any type of barrier, but it is identified as a bikeway with signs.

⁶ A Class I bike path is intended for the exclusive use of bicycles. While it may parallel a roadway, it is physically separated by distance or a vertical barrier.

remainder of the excess soil would be disposed of off site in accordance with Caltrans' standard specifications.

The Project would be landscaped in accordance with the measures identified in the Visual Impact Analysis and the proposed I-5 North Coast Corridor Project Design Guidelines. Architectural features, textures, integral concrete colors, and the creative use of materials would be used in the Project to create shadow lines and relief, and to reduce apparent scale. Enhanced surface materials such as mosaic tile and weathering steel may also be used if it meets the community design goals. Trees, shrubs, and vines would be used to provide erosion control and to prevent graffiti.

It is anticipated that the Proposed Project would be constructed in two phases. The first phase would include reconstruction of the I-5/Genesee interchange, the addition of auxiliary lanes north of Genesee Avenue, and improvements to the Sorrento Valley Road on- and off-ramps. The second phase of Project construction would include the addition of auxiliary lanes south of Genesee Avenue, replacement of the Voigt Drive overcrossing, and realignment of Gilman Drive. Per the Traffic Management Plan, construction phases would be split up into stages. Phase 1 (construction of the I-5/Genesee Avenue interchange) would include four stages and Phase 2 (construction of Voigt Drive and Gilman Drive) would include three stages. Stages would be coordinated to minimize impacts to traffic flows. Construction of the first phase is anticipated to begin in 2014 and to be completed in 2016. Construction of the second phase would begin between 2015 and 2020 to coincide with the schedule for the proposed I-5 North Coast Corridor project and is expected to last two years.

No Build Alternative

Under the No Build Alternative, none of the proposed improvements would be implemented, and the I-5/Genesee Avenue interchange would remain in its current configuration. This alternative would not address the fact that existing and projected operations at the Genesee Avenue interchange are not up to Caltrans and City standards. It is expected that current and future development in the area would generate traffic volumes far beyond what the I-5/Genesee Avenue interchange can accommodate in its existing configuration. The Project, which is consistent with regional goals in SANDAG's Regional Comprehensive Plan (RCP) and planned transportation facilities within the University City community and along the I-5 corridor, would not be implemented, and existing congestion would be exacerbated through growth planned in the City and in the region in general.

S.5 PERMITS AND APPROVALS NEEDED

The following permits, reviews, and approvals would be required for Project construction:

| Agency | Permit/Approval | Status |
|---|--|---------------|
| California Coastal Commission | Consolidated Coastal Development Permit | Pending |
| United States Fish and Wildlife Service (USFWS) | Section 7 Consultation for threatened and endangered species | Completed |
| United States Army Corps of Engineers | Clean Water Act Section 404 Nationwide Permit | Pending |

| Table S-1 (cont.) REQUIRED PERMITS AND APPROVALS | | |
|---|--|---------------|
| Agency | Permit/Approval | Status |
| California Department of Fish and Game | Section 1602 Streambed Alteration Agreement | Pending |
| San Diego Regional Water Quality Control Board (RWQCB) | Section 401 Water Quality Certification | Pending |
| | Conformance with General Groundwater Extraction Waste Discharge Permit | Pending |
| State Water Resources Control Board (SWRCB) | Conformance with Caltrans Permit for Storm Water Discharges From Caltrans Properties, Facilities, and Activities | Active |
| | General Construction Activity Storm Water Permit | Active |
| California Public Utilities Commission | Utility Construction Permit Request | Pending |

S.6 PROJECT IMPACTS

Project impacts associated with the Project that are analyzed in this document include those relating to land use; growth; community impacts; utilities and emergency services; traffic and transportation/pedestrian and bicycle facilities; visual/aesthetics; cultural resources; hydrology and floodplain; water quality and storm water runoff; geology/soils/seismic/topography; paleontological resources; hazardous waste/materials; air quality; noise and vibration; and biological resources, including natural communities, wetlands and other waters, plant and animal species, threatened and endangered species, invasive species, cumulative, and climate change. Table S-2 provides a complete summary of potential impacts and avoidance, minimization, and/or mitigation measures of the Project and the No Build Alternative.

Revisions in the Project plans would avoid the effects or mitigate the effects to an acceptable level and there is no substantial evidence, in light of the whole record before the agency, that the Project may have a substantial adverse effect on the environment.

**Table S-2
SUMMARY OF EFFECTS AND AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES**

| Issue | Impacts Related to I-5/Genesee Interchange Reconstruction Project and Proposed Measures to Minimize Harm | Impacts Related to the No Build Alternative |
|--------------------|---|---|
| Land Use | No impact | This alternative would not comply with RTP, RTIP, RCP, General Plan, and University Community Plan. No mitigation measures are proposed. |
| Growth | No impact | No impact |
| Community Impacts | No impact | No impact |
| Utilities | <p>Relocations of some utilities may be required. Implementation of the following avoidance and minimization measure would avoid or minimize impacts to utilities:</p> <ul style="list-style-type: none"> Caltrans and the construction contractor would coordinate with utility providers during construction to finalize utility relocation and/or removal efforts. | No impact |
| Emergency Services | <p>Emergency services would likely be inconvenienced during construction of the Project. Implementation of the following avoidance and minimization measure would avoid or minimize impacts to emergency services:</p> <ul style="list-style-type: none"> A Traffic Management Plan would be implemented to provide passage for emergency vehicles on roadways that would be temporarily affected during Project construction. In addition, construction plans generally require the contractor to coordinate with local emergency services so that public safety is not threatened. | Emergency services would likely experience deteriorating response times due to increased traffic congestion. No mitigation measures are proposed. |

**Table S-2 (cont.)
SUMMARY OF EFFECTS AND AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES**

| Issue | Impacts Related to I-5/Genesee Interchange Reconstruction Project and Proposed Measures to Minimize Harm | Impacts Related to the No Build Alternative |
|----------------------------|--|---|
| Traffic and Transportation | <p>A potential impact to traffic and transportation could occur as a result of construction activities prior to implementation of a project feature/minimization measure:</p> <ul style="list-style-type: none"> To minimize impacts to traffic and transportation, implementation of the Traffic Management Plan (2008) would be included as a part of the Project. <p>The Genesee Avenue corridor is being designed to accommodate pedestrian and bicycle traffic in addition to vehicular traffic. The following measures would avoid/minimize impacts to pedestrian and bicycle facilities:</p> <ul style="list-style-type: none"> Improve bicycle facilities. The University City Community Plan identifies Genesee Avenue as a Class II bike lane facility from North Torrey Pines Road to State Route 52. This facility has been fully implemented except for the portion across I-5 because the existing overcrossing structure is not wide enough to accommodate bike lanes. The proposed overcrossing structure would include sufficient space for a bike lane in each direction. The University City Community Plan also identifies a Class III bike path along the shoulders of I-5 connecting Genesee Avenue and Sorrento Valley Road. The proposed interchange improvements also would include a two-way Class I bike path along the southbound I-5 shoulder with a barrier separating the bike path from the vehicular traffic. Improve pedestrian accessibility. Both the Genesee Avenue and Voigt Drive overcrossings would include improved pedestrian access. The Genesee Avenue overcrossing would include a standard width sidewalk and striped/signalized pedestrian crossings and ADA-compliant pedestrian ramps at each intersection. The Voigt Drive overcrossing would include oversized (3-meter-wide [10-foot-wide]) sidewalks, striped crosswalks, and ADA-compliant pedestrian ramps. | <p>Intersections, roadways, freeways, and ramps would operate below acceptable levels (LOS F) in 2012 and/or 2030. The 2012 and 2030 freeway weave and intersection queuing analyses concluded that impacts would occur. No mitigation measures are proposed.</p> |

| SUMMARY OF EFFECTS AND AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES | | |
|---|---|--|
| Table S-2 (cont.) | | |
| Issue | Impacts Related to I-5/Genesee Interchange Reconstruction Project and Proposed Measures to Minimize Harm | Impacts Related to the No Build Alternative |
| Visual/Aesthetics | <p>Retaining walls proposed along I-5 and Genesee Avenue generally would introduce new visual elements within the I-5 corridor visual environment, resulting in an impact to visual/aesthetics resources prior to implementation of Project features and minimization measures.</p> <p>Visual mitigation for impacts to the I-5 corridor would consist of adhering to the following design requirements in cooperation with the Caltrans District 11 Landscape Architect.</p> <ul style="list-style-type: none"> • Development and implementation of a comprehensive landscape concept plan. This plan would be consistent with corridor-wide design themes developed by the office of the District 11 Landscape Architect. This plan would include planting and irrigation layouts that specify plant materials and container sizes. Types of landscape features include: <ul style="list-style-type: none"> ○ Drought-tolerant and sustainable landscape palettes. ○ Trees planted between the freeway traveler's viewpoint and retaining walls taller than 3 m (10 ft) tall, where feasible. ○ Vine planting sufficient to cover 90 percent of retaining walls within five years to reduce the visual impact of the walls and to act as a graffiti deterrent. ○ Median oleanders would be replaced where they cannot be preserved. ○ Slopes graded to 2:1 or flatter to sustain landscape planting and irrigation. Grading design and operations would include techniques such as slope rounding, slope sculpting, and variable gradients to mimic the appearance of natural topography. Steeper slopes may be possible if they are serrated and contain benches wide enough to accept plants from 15-gallon containers. • Bicycle lanes, pedestrian lighting, wider sidewalks, and other urban amenities on the local street sections of structures would be consistent with local Community Plan guidelines and the corridor-wide design themes. | No impact |

**Table S-2 (cont.)
SUMMARY OF EFFECTS AND AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES**

| Issue | Impacts Related to I-5/Genesee Interchange Reconstruction Project and Proposed Measures to Minimize Harm | Impacts Related to the No Build Alternative |
|---------------------------|--|---|
| Visual/Aesthetics (cont.) | <ul style="list-style-type: none"> ● Lighting and signage attachments would occur at pilasters or be incorporated in other architectural features and be consistent with corridor-wide design themes developed by the office of the District 11 Landscape Architect. ● Visible sections of retaining walls would receive color and texture treatments consistent with corridor-wide design themes developed by the office of the District 11 Landscape Architect. ● Structure design would be enhanced with architectural features consistent with corridor-wide design themes developed by the office of the District 11 Landscape Architect. ● Retaining walls would be designed to visibly blend with graded slopes using techniques such as slope rounding, slope sculpting, and variable gradients to mimic the appearance of natural topography when feasible. ● Enhanced landscape plantings, including more densely spaced vines, a wider variety of vines, some with seasonal color, and more trees would be planted in front of the walls, where possible. <p>These measures may take longer than five years to be effective, but eventually would reduce the apparent scale of the walls and reduce the contrast of these structures with the existing and retained undeveloped slopes and vegetation.</p> | No impact |

**Table S-2 (cont.)
SUMMARY OF EFFECTS AND AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES**

| Issue | Impacts Related to I-5/Genesee Interchange Reconstruction Project and Proposed Measures to Minimize Harm | Impacts Related to the No Build Alternative |
|--------------------------|---|---|
| Cultural Resources | <p>Construction may result in discovery of cultural resources or human remains. The following avoidance and minimization measures would be implemented:</p> <ul style="list-style-type: none"> • If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area would be diverted until a qualified archaeologist can assess the nature and significance of the find. • If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities would cease in any area or nearby area suspected to overlie remains, and the County Coroner contacted. Pursuant to Public Resources Code Section 5097.98, if the remains are thought to be Native American, the coroner would notify the Native American Heritage Commission who would then notify the Most Likely Descendant (MLD). The person who discovered the remains would contact Caltrans District Senior Environmental Planner for Cultural Resources, so that they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable. | No impact |
| Hydrology and Floodplain | <p>The Project would result in new impervious surfaces (approximately 4.76 ha [11.76 ac]). The Project would slightly encroach into a mapped 100-year floodplain; impacts would be minimal. Avoidance and minimization measures include appropriate sizing and location of proposed and existing drainage facilities, using appropriately sized energy dissipation structures at all drainage outlets to reduce flow velocities prior to discharge, minimizing Project encroachment into mapped floodplains, and matching existing curb and pavement grades for proposed improvements within floodplains.</p> | No impact |

**Table S-2 (cont.)
SUMMARY OF EFFECTS AND AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES**

| Issue | Impacts Related to I-5/Genesee Interchange Reconstruction Project and Proposed Measures to Minimize Harm | Impacts Related to the No Build Alternative |
|--------------------------------------|---|---|
| Water Quality and Storm Water Runoff | <p>Potential short-term water quality impacts related to Project construction include erosion/sedimentation, on-site use and storage of construction-related hazardous materials (e.g., fuels, etc.), proposed reuse of soil containing aerially deposited lead, potential presence and removal/disposal of materials containing asbestos and creosote, and disposal of extracted groundwater (if required). Long-term water quality impacts resulting from operation and maintenance of the Project involve the generation and discharge of constituents, such as total suspended solids, total dissolved solids, nutrients, metals, and trash, which could affect downstream receiving waters. Avoidance and minimization measures related to water quality concerns include the use of construction site BMPs to prevent or minimize the potential short-term impacts of construction operations, as well as design pollution prevention BMPs, and treatment and maintenance BMPs for the long-term potential impacts.</p> | No impact |
| Geology/Soils/ Seismic/ Topography | <p>The Project is susceptible to seismic hazards including ground rupture, ground acceleration, and liquefaction. Proposed grading activities would increase the potential for erosion and transport of eroded material (sedimentation) downstream of the study area. Avoidance or minimization measures would involve implementing recommendations from the Project geotechnical analysis such as design criteria, construction methodologies, field observations/testing, and site-specific geotechnical analysis, as well as conforming to applicable regulatory requirements and industry standards. Construction-related erosion and sediment control measures would be implemented as part of required water quality conformance. Implementation of the geotechnical recommendations and conformance with applicable regulatory/industry standards would effectively avoid or address potential short- and long-term impacts related to geology/seismicity/ soils.</p> | No impact |

**Table S-2 (cont.)
SUMMARY OF EFFECTS AND AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES**

| Issue | Impacts Related to I-5/Genesee Interchange Reconstruction Project and Proposed Measures to Minimize Harm | Impacts Related to the No Build Alternative |
|--------------|--|---|
| Paleontology | <p>Project implementation could result in potential impacts to paleontological resources associated with short-term (construction) activities such as excavation and grading, although such impacts are considered long term because the associated loss of resource values would be permanent. The following measures would effectively avoid or address potential impacts to paleontological resources from the Project.</p> <ul style="list-style-type: none"> • A qualified principal paleontologist (Master of Science [M.S.] or Doctor of Philosophy [Ph.D.] in paleontology or geology familiar with paleontological procedures and techniques) would be retained to be present at pre-grading meetings to consult with grading and excavation contractors. • A paleontological monitor, under the direction of the qualified principal paleontologist, would be on site to inspect cuts for fossils at all times during original grading involving sensitive geologic formations. As grading progresses, the qualified paleontologist and paleontological monitor would have the authority to reduce the scope of the monitoring program to an appropriate level if it is determined that the potential impacts to paleontological resources are lower than anticipated. • When fossils are discovered, the paleontologist (or paleontological monitor) would recover them. Construction work in these areas would be halted or diverted to allow recovery of fossil remains in a timely manner. • During the monitoring and recovery phases, the paleontologist (or paleontological monitor) would routinely collect stratigraphic data to provide a stratigraphic context for any recovered fossils. • Fossil remains collected during the monitoring and salvage portion of the mitigation program would be cleaned, repaired, sorted and cataloged. • Prepared fossils, along with copies of all pertinent field notes, photos and maps, would then be deposited in a scientific institution with paleontological collections. • A final report would be completed that outlines the results of the mitigation program. | No impact |

**Table S-2 (cont.)
SUMMARY OF EFFECTS AND AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES**

| Issue | Impacts Related to I-5/Genesee Interchange Reconstruction Project and Proposed Measures to Minimize Harm | Impacts Related to the No Build Alternative |
|---------------------------|---|---|
| Hazardous Waste/Materials | <p>According to the aerially deposited lead (ADL) site investigation, exposed soil is not a hazardous waste with regard to ADL. Lead-based paint and asbestos-containing materials may exist on site. An impact could potentially result from construction activities that disturb surfaces with lead-based paint, treated wood, and/or asbestos-containing materials, if present. No other hazardous wastes or materials in the vicinity or on site pose a risk.</p> <p>The following measures would avoid, minimize, and/or mitigate for the presence of asbestos-containing material, treated wood, and lead-based paint hazards (if present) on site:</p> <ul style="list-style-type: none"> • Contract specifications would include a line item for loading, transportation, and disposal of any contaminated soil and/or groundwater generated/encountered during Project construction. • Bridge railing gaskets and any other materials found during construction containing asbestos containing-materials shall be handled using proper Health and Safety precautions, and the materials shall be properly disposed as hazardous waste according to federal, state, and local regulations. Asbestos-containing materials would be removed by a licensed asbestos abatement contractor. The certified asbestos consultant also would conduct abatement project planning, monitoring (including air monitoring), oversight, and reporting. • Yellow paint striping on the Genesee Avenue overcrossing and portions of the roadway contain lead-based paint. If yellow paint striping or yellow thermoplastic paint stripe of pavement marking is removed by itself, it shall be contained and collected immediately so that it is not emitted into ambient air and disposed at a Class I Landfill facility. A licensed abatement contractor would remove lead-based paint under the oversight of a qualified contractor prior to removal and demolition of the painted materials. • Treated wood waste must be managed as a non-hazardous designated waste by being disposed of at a landfill facility permitted to accept such wastes. | No impact |

**Table S-2 (cont.)
SUMMARY OF EFFECTS AND AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES**

| Issue | Impacts Related to I-5/Genesee Interchange Reconstruction Project and Proposed Measures to Minimize Harm | Impacts Related to the No Build Alternative |
|-----------------------------------|---|---|
| Hazardous Waste/Materials (cont.) | <ul style="list-style-type: none"> Because of the potential hazard from exposure of workers and the public to lead-contaminated soil and other potential hazards, a Certified Industrial Hygienist would prepare a site-specific Lead, Asbestos, and Treated Wood Compliance Plan prior to grading. In addition, site workers who may potentially be exposed to chemical hazards during the Project would have completed a training program meeting the requirements of 29 CFR 1910.120 and 8 CFR 1532.1 The plans developed by the Certified Industrial Hygienist would include a hazard analysis, and would describe dust control measures, air monitoring, signage, work practices, emergency response plans, personal protective equipment, decontamination, and documentation. | No impact |
| Air Quality | <p>A temporary impact could potentially result from construction activities that produce emissions.</p> <p>Implementation of the following measures would minimize any air quality affects resulting from construction activities:</p> <ul style="list-style-type: none"> The construction contractor shall comply with Caltrans' Standard Specifications Section 7-1.01F and Section 10 of Caltrans' Standard Specifications (2006d). Apply water or dust palliative to exposed soil surfaces at the Project site as frequently as necessary to control fugitive dust emissions. Spread soil binder on any unpaved roads used for construction purposes, and all construction parking areas. Wash off trucks as they leave the Project site as necessary to control fugitive dust emissions. Use track-out reduction measures such as gravel pads at access points to minimize dust and mud deposits on roads affected by construction traffic. Remove dust and mud that are deposited on paved, public roads due to construction activity and traffic to decrease particulate matter. | No impact |

**Table S-2 (cont.)
SUMMARY OF EFFECTS AND AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES**

| Issue | Impacts Related to I-5/Genesee Interchange Reconstruction Project and Proposed Measures to Minimize Harm | Impacts Related to the No Build Alternative |
|------------------------|---|---|
| Air Quality (cont.) | <ul style="list-style-type: none"> • Cover transported loads of soils and wet materials prior to transport, or provide adequate freeboard (space from the top of the material to the top of the truck) to reduce PM₁₀ and deposition of particulate matter during transportation. • Install mulch or plant vegetation as soon as practical after grading to reduce windblown particulate in the area. • Properly tune and maintain construction equipment and vehicles. Use low sulfur fuel in all construction equipment as provided in California Code of Regulations Title 17, Section 93114. <p>Locate equipment and materials storage areas as far away from residential and park uses as practical.</p> | No impact |
| Noise | <p>To avoid unnecessary annoyances from construction noise, the following construction noise control measures would be implemented:</p> <ul style="list-style-type: none"> • Compliance with Caltrans' Standard Specifications 7-1.011 (2006d) Sound Control Requirements. "The contractor would comply with all local sound control and noise level rules, regulations and ordinances which apply to any work performed pursuant to the contract. Each internal combustion engine, used for any purpose on the job or related to the job, would be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine would be operated on the Project without said muffler." • Idling equipment would be turned off. • Noise-control monitoring program would be implemented to limit the impacts. • Noisier operations would be performed during the times least sensitive to receptors. | No impact |

**Table S-2 (cont.)
SUMMARY OF EFFECTS AND AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES**

| Issue | Impacts Related to I-5/Genesee Interchange Reconstruction Project and Proposed Measures to Minimize Harm | Impacts Related to the No Build Alternative |
|---------------------|---|---|
| Noise (cont.) | <p>The Noise Report states that calculations based on preliminary design data indicate that a sound wall would reduce noise levels by 5 dBA at R15A and R15B, which would reduce the sound level at those locations to below the NAC. The sound wall at Warren Field would need to be 204 m (669 ft) long with a maximum height of 2.4 m (8 ft). The Noise Abatement Decision Report deems the wall to be feasible; however, a wall in this location would not be reasonable due to cost. A cost estimate shows that the wall would cost \$424,788. While the wall would provide a reduction in noise, the cost per residence is higher than the cost per residence allowance, thus rendering the wall unreasonable to construct. If during final design, conditions have substantially changed, noise abatement may not be necessary. The final decision of the noise abatement would be made upon completion of the Project design and the public involvement processes.</p> | No impact |
| Natural Communities | <p>Final mitigation ratios and the location for off-site mitigation would be determined during the permit process. Mitigation ratios within this document are based on mitigation requirements for recent, similar Caltrans projects.</p> <p>Given that Caltrans is proposing additional improvements along this portion of I-5 as part of the proposed I-5 North Coast project, which overlaps with this Project, areas subject to temporary impacts would be hydroseeded with an appropriate native species palette.</p> <p>Permanent impacts to 1.9 ha (4.7 ac) of Diegan coastal sage scrub (including disturbed), 0.3 ha (0.7 ac) of coyote brush scrub, and 3.5 ha (8.7 ac) of non-native grassland (including disturbed) would occur. In addition, temporary impacts to 0.4 ha (1.1 ac) of Diegan coastal sage scrub (including disturbed), 0.1 ha (0.2 ac) of coyote brush scrub, and 0.9 ha (2.2 ac) of non-native grassland (including disturbed) would occur. Direct impacts to natural communities within the Multi-Habitat Planning Area (MHPA) would include 0.2 ha (0.6 ac) of temporary impacts and 1.1 ha (2.8 ac) of permanent impacts.</p> | No impact |

| Table S-2 (cont.) SUMMARY OF EFFECTS AND AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES | | |
|---|--|---|
| Issue | Impacts Related to I-5/Genesee Interchange Reconstruction Project and Proposed Measures to Minimize Harm | Impacts Related to the No Build Alternative |
| Natural Communities (cont.) | <p>The following measures would minimize impacts to natural communities:</p> <p><u>Natural Communities</u></p> <p><i>Diegan Coastal Sage Scrub (including disturbed).</i> Avoidance and minimization efforts have been incorporated into the Project design. Impacts to Diegan coastal sage scrub would be minimized through the installation of retaining walls and construction of manufactured 2:1 slopes rather than 4:1 to minimize the grading footprint. All sensitive habitats (including Diegan coastal sage scrub) outside the impact areas would be designated as environmentally sensitive areas. These environmentally sensitive areas would be fenced with orange plastic snow fencing, and no personnel, debris, or equipment would be allowed in the environmentally sensitive areas. Fencing would be installed in a manner that would not impact habitats to be avoided and such that it is clearly visible to personnel on foot and operating heavy equipment. Fencing would be maintained throughout the construction period to preclude human entry into the MHPA. No construction activities, materials, or equipment would be permitted outside the fenced Project footprint. Caltrans would submit the final plans for initial clearing and grubbing of habitat and Project construction to USFWS for approval, at least five days prior to initiating Project impacts (except for impacts resulting from clearing to install temporary fencing). These final plans would include photographs that show the fenced limits of impact and all areas to be impacted or avoided. If work occurs beyond the fenced or demarcated limits of impact, all work would cease until the problem has been remedied to the satisfaction of USFWS. Any impacts that occur beyond the approved fenced area would be offset in consultation with USFWS. Temporary construction fencing would be removed upon Project completion.</p> <p>Temporary and permanent impacts to Diegan coastal sage scrub (including disturbed) would be minimized by implementation of the following measures:</p> | No impact |

**Table S-2 (cont.)
SUMMARY OF EFFECTS AND AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES**

| Issue | Impacts Related to I-5/Genesee Interchange Reconstruction Project and Proposed Measures to Minimize Harm | Impacts Related to the No Build Alternative |
|-----------------------------|--|---|
| Natural Communities (cont.) | <ul style="list-style-type: none"> • Mitigation for temporary impacts to 0.4 ha (1.1 ac) of Diegan coastal sage scrub (including disturbed) would include (1) temporary revegetation on site by hydroseeding with a Diegan coastal sage scrub plant palette and (2) off-site creation of Diegan coastal sage scrub (at a 2:1 ratio). The slopes would be temporarily revegetated until the proposed I-5 North Coast Corridor project is implemented, at which time the final slopes would be permanently revegetated. • Mitigation for permanent impacts to 1.9 ha (4.7 ac) of Diegan coastal sage scrub (including disturbed) is proposed at a 2:1 ratio with off-site creation of Diegan coastal sage scrub. <p>Off-site Diegan coastal sage scrub creation is proposed at the Pardee (Deer Canyon) Mitigation Parcel.</p> <p>The draft mitigation plan for the Pardee (Deer Canyon) Mitigation Parcel has been reviewed by the resource agencies, and the final draft has been completed and is in review.</p> <p>A perpetual biological conservation easement or other conservation mechanism acceptable to USFWS would be recorded over the areas preserved, restored, and/or enhanced by the Project at the Pardee (Deer Canyon) Mitigation Parcel. The conservation mechanism would specify that no easements or activities (e.g., fuel modification zones, public trails, drainage facilities, walls, maintenance access roads) that would result in soil disturbance and/or vegetation removal would be allowed within the biological conservation easement areas. Caltrans anticipates that the mitigation parcel would be placed into a conservation easement or other conservation mechanism prior to initiating Project impacts; however, annual reports would be provided on the mitigation parcel's status until the conservation mechanism has been placed.</p> <p>Caltrans would prepare a perpetual long-term management, maintenance, and monitoring plan (e.g., a Habitat Management Plan [HMP]) for the Pardee (Deer Canyon) Mitigation Parcel. The HMP would</p> | No impact |

**Table S-2 (cont.)
SUMMARY OF EFFECTS AND AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES**

| Issue | Impacts Related to I-5/Genesee Interchange Reconstruction Project and Proposed Measures to Minimize Harm | Impacts Related to the No Build Alternative |
|-----------------------------|---|---|
| Natural Communities (cont.) | <p>include, but not be limited to, the following: method of protecting the resources in perpetuity (e.g., conservation easement), monitoring schedule, measures to prevent human and exotic species encroachment, funding mechanism, and contingency measures if problems occur. The City has agreed to own and manage the mitigation parcel with a management endowment that would be paid by Caltrans, in accordance with the requirements of the TransNet Memorandum of Agreement. Caltrans would establish a non-wasting endowment in an amount approved by USFWS based on a Property Analysis Record or similar cost estimation method to secure the ongoing funding for the perpetual long-term management, maintenance, and monitoring of the biological conservation easement area by an entity approved by USFWS. Caltrans would submit a draft HMP including a description of perpetual management, maintenance, and monitoring actions, and the Property Analysis Record or other cost estimation results for the non-wasting endowment to USFWS for approval. Caltrans would submit the final HMP to USFWS and transfer the funds for the non-wasting endowments to the appropriate management entities. Caltrans anticipates that preparation of the HMP and transferring of the funds for the non-wasting endowment would not occur prior to initiating Project impacts; however, annual reports would be provided on the status until the final HMP has been provided and the endowment funds have been transferred.</p> <p><i>Coyote Brush Scrub.</i> Avoidance and minimization efforts have been incorporated into the Project design. Impacts to coyote brush scrub would be minimized through the installation of retaining walls to minimize the grading footprint. All sensitive habitats (including coyote brush scrub) outside the impact areas would be designated as environmentally sensitive areas. These environmentally sensitive areas would be fenced with orange plastic snow fencing, and no personnel, debris, or equipment would be allowed in the environmentally sensitive areas.</p> | No impact |

**Table S-2 (cont.)
SUMMARY OF EFFECTS AND AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES**

| Issue | Impacts Related to I-5/Genesee Interchange Reconstruction Project and Proposed Measures to Minimize Harm | Impacts Related to the No Build Alternative |
|-----------------------------|---|---|
| Natural Communities (cont.) | <p>Impacts to coyote brush scrub would be minimized by implementation of the following measures:</p> <ul style="list-style-type: none"> • Mitigation for temporary impacts to 0.1 ha (0.2 ac) of coyote brush scrub would include off-site creation of Diegan coastal sage scrub (at a 2:1 ratio) and temporary revegetation on site (at a 1:1 ratio) by hydroseeding with a Diegan coastal sage scrub plant palette. The slopes would be temporarily revegetated until the proposed I-5 North Coast Corridor project is implemented, at which time the final slopes would be permanently revegetated. • Mitigation for permanent impacts to 0.3 ha (0.7 ac) of coyote brush scrub is proposed at a 2:1 ratio with off-site creation of Diegan coastal sage scrub at the Pardee (Deer Canyon) Mitigation Parcel. <p><i>Non-native Grassland (including disturbed).</i> Avoidance and minimization efforts have been incorporated into the Project design. All sensitive habitats (including non-native grasslands) outside the impact areas would be designated as environmentally sensitive areas. These environmentally sensitive areas would be fenced with orange plastic snow fencing, and no personnel, debris, or equipment would be allowed in the environmentally sensitive areas. Temporary impacts to species occupying or using non-native grasslands would be minimized through the implementation of the following measure:</p> <ul style="list-style-type: none"> • Temporary impact areas would be hydroseeded with a native grassland and forb palette for erosion control measures. <p>Permanent impacts to non-native grassland would be minimized by implementation of the following measure:</p> <ul style="list-style-type: none"> • Mitigation for permanent impacts to 3.5 ha (8.7 ac) of non-native grassland is proposed at a 0.5:1 ratio with off-site preservation of non-native grassland at the Pardee (Deer Canyon) Mitigation Parcel. | No impact |

**Table S-2 (cont.)
SUMMARY OF EFFECTS AND AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES**

| Issue | Impacts Related to I-5/Genesee Interchange Reconstruction Project and Proposed Measures to Minimize Harm | Impacts Related to the No Build Alternative |
|------------------------------------|--|---|
| <p>Natural Communities (cont.)</p> | <p><u>Multiple Species Conservation Program</u></p> <p>The Project has been designed to minimize impacts to the MHPA. Direct impacts to natural communities within the MHPA would include 0.2 ha (0.6 ac) of temporary impacts and 1.1 ha (2.8 ac) of permanent impacts. The loss of these habitats would be minimized through implementation of the mitigation identified for the habitats above, and implementation of the mitigation described below for Wetlands and Other Waters (for impacts to southern willow scrub [including disturbed] within the MHPA).</p> <p>Direct and indirect impacts due to adjacency concerns related to fugitive dust and invasive species would be avoided or minimized to acceptable levels through Project design, and implementation of the following avoidance and minimization measures:</p> <ul style="list-style-type: none"> ● All sensitive habitats outside the impact areas would be designated as environmentally sensitive areas. These environmentally sensitive areas would be fenced with orange plastic snow fencing, and no personnel, debris, or equipment would be allowed in the environmentally sensitive areas. ● Fugitive dust would be minimized through the application of water or chemical palliatives to active construction areas and unpaved surfaces. Areas of temporary impacts would be hydroseeded with a Diegan coastal sage scrub or native grassland and forb plant palette for temporary revegetation and would contain only native species. ● Invasive plant species would not be used in Project landscaping. ● Site design BMPs are intended to control construction and post-development runoff, erosion potential, and contaminant generation. Construction-related BMPs would include: <ul style="list-style-type: none"> ○ Installing erosion and sediment control devices such as silt fences, fiber rolls, bonded fiber matrix, mulching, and gravel bags in appropriate locations; ○ Placing temporary filters at storm drain inlets (e.g., gravel bags/filter fabric); ○ Stabilizing construction entrances; ○ Designating containment areas for material storage (e.g., covering/berming of soil stockpiles); | <p>No impact</p> |

**Table S-2 (cont.)
SUMMARY OF EFFECTS AND AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES**

| Issue | Impacts Related to I-5/Genesee Interchange Reconstruction Project and Proposed Measures to Minimize Harm | Impacts Related to the No Build Alternative |
|-----------------------------|---|---|
| Natural Communities (cont.) | <ul style="list-style-type: none"> o Providing containment areas for solid waste storage and concrete washout; and o Using energy dissipators in appropriate locations. <p>Post-construction BMPs would include the use of appropriate devices/techniques such as landscaping/revegetation and vegetated swales/grass strips. Energy dissipators would reduce the velocity and downstream erosion potential of runoff leaving the Project area and would help maintain pre-development velocity rates. All site design BMPs would reduce long-term urban contaminant generation by minimizing runoff volumes and velocities, removing accumulated contaminants, and increasing infiltration.</p> <p>Bioswales would be planted with appropriate species. Slopes adjacent to developed urban areas would be vegetated with native and drought tolerant non-invasive species selected by the landscape architect in coordination with the biologist and others. Interchanges located in urban areas would be landscaped with native or ornamental non-invasive species.</p> <p>Drainage from the construction area and new and proposed developed areas in and adjacent to the preserve would not drain directly into the MHPA. Topography of the site is such that MHPA lands directly adjacent to the project are at a higher elevation. The Project would use biofiltration to treat road runoff prior to discharge into receiving water bodies. The use of structural and non-structural BMPs and the restriction of grading and paving activity during significant rain events would reduce potential impacts associated with construction. The project design would comply with Caltrans Municipal Stormwater Permit criteria of the State Water Resources Control Board and the Clean Water Act Section 401 Water Quality Certification issued by the Regional Water Quality Control Board for the Project. Erosion and sediment control devices used for the Project, including fiber rolls and bonded fiber matrix, would be made from biodegradable materials such as jute, with no plastic mesh, to avoid creating a wildlife entanglement hazard.</p> | No impact |

**Table S-2 (cont.)
SUMMARY OF EFFECTS AND AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES**

| Issue | Impacts Related to I-5/Genesee Interchange Reconstruction Project and Proposed Measures to Minimize Harm | Impacts Related to the No Build Alternative |
|------------------------------------|--|---|
| <p>Natural Communities (cont.)</p> | <p>Caltrans would ensure that the following conditions would be implemented during Project construction:</p> <ul style="list-style-type: none"> ● Contractors and construction personnel would strictly limit their activities, vehicles, equipment, and construction materials to the fenced Project footprint; ● The Project site would be kept as clean of debris as possible. All food-related trash items would be enclosed in sealed containers and regularly removed from the site; ● Pets of construction personnel would not be allowed on the Project site; ● All equipment maintenance, staging, and dispensing of fuel, oil, coolant, or any other such activities would occur within the fenced Project impacts limits. The changing of oil, refueling, and other actions that could result in a release of a hazardous substance would be restricted to designated areas that are a minimum of 30.5 m (100 ft) from any drainages. Such designated areas would be surrounded with berms, sandbags, or other barriers to further prevent the accidental spill of fuel, oil, or chemicals. Any accidental spills would be immediately contained, cleaned up, and properly disposed; ● Impacts from fugitive dust would be avoided and minimized through watering and other appropriate measures; and ● Cut and fill would be balanced within the Project or the construction contractor would identify the source or disposal location. All spoils and material disposal will be disposed of properly. | <p>No impact</p> |

**Table S-2 (cont.)
SUMMARY OF EFFECTS AND AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES**

| Issue | Impacts Related to I-5/Genesee Interchange Reconstruction Project and Proposed Measures to Minimize Harm | Impacts Related to the No Build Alternative |
|---------------------------|--|---|
| Wetlands and Other Waters | <p>The Project would temporarily impact 0.02 ha (0.05 ac) and permanently impact 0.45 ha (1.12 ac) of southern willow scrub (including disturbed), for a total wetland impact of 0.47 ha (1.17 ac). The Project would impact 0.04 ha (0.09 ac) of Corps jurisdictional areas and 0.47 ha (1.17 ac) of CDFG jurisdictional areas. Water quality could be affected during construction or operation by potential surface runoff, including sedimentation, fertilizers, and car petroleum products. Decreased water quality may affect vegetation, aquatic animals, and terrestrial wildlife that depend upon these resources.</p> <p>The following avoidance and minimization measures would minimize impacts to wetlands and other waters:</p> <p><u>Wetland and Riparian Habitats/Jurisdictional Areas</u></p> <p>The Project has been designed to avoid and/or minimize temporary and permanent impacts to wetland and riparian habitats/jurisdictional areas. The area of impact in other portions of the Project site has been reduced with the use of retaining walls that minimize the Project grading footprint.</p> <p>Southern willow scrub impacts would be mitigated at a 3:1 ratio at the Pardee (Deer Canyon) mitigation site. The site is located near other areas successfully restored to wetland habitat and is suitable for wetland creation. Caltrans proposes to create approximately 5.0 ha (12.3 ac) of southern willow scrub to meet the no net loss requirement for wetland impacts along either side of the existing cobble channel, without impacting the channel itself within the Pardee (Deer Canyon) Mitigation Parcel. Wetland impacts from several other projects also would be mitigated at this site.</p> | No impact |

**Table S-2 (cont.)
SUMMARY OF EFFECTS AND AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES**

| Issue | Impacts Related to I-5/Genesee Interchange Reconstruction Project and Proposed Measures to Minimize Harm | Impacts Related to the No Build Alternative |
|-----------------------------------|---|---|
| Wetlands and Other Waters (cont.) | <p>Wetland communities occur in proximity to the Project footprint in several areas, including freshwater marsh (including disturbed) within approximately 1.5 m (5 ft), southern cottonwood-willow riparian forest within approximately 96.0 m (315 ft), emergent wetland within approximately 41.2 m (135 ft), open water within approximately 1.5 m (5 ft), and disturbed wetland within approximately 54.9 m (180 ft) from the Project site. Additionally, the freshwater marsh (including disturbed), southern willow scrub (including disturbed), open water and emergent wetland communities located outside the direct impact areas would be designated as environmentally sensitive areas. These environmentally sensitive areas would be fenced with orange plastic snow fencing, and no personnel, debris, or equipment would be allowed in the environmentally sensitive areas.</p> <p>No net loss of wetlands would occur with the implementation of mitigation. Approximately 1.46 ha (3.60 ac) of southern willow scrub is required for mitigation for impacts to southern willow scrub and drainage/ streambed.</p> | No impact |
| Plant Species Animal Species | <p>No impact</p> <p>The Project would impact riparian habitat; therefore, there is a potential to impact yellow warbler and yellow-breasted chat. Impacts to this habitat have been minimized and to date, neither of these species has been detected in the riparian habitat to be impacted; thus, no avoidance, minimization, or mitigation measures would be required for those species.</p> <p>Avoidance and minimization efforts have been incorporated into the Project design to reduce impacts to habitat supporting orange-throated whiptail, southern California rufous-crowned sparrow, northern harrier, northwestern San Diego pocket mouse, San Diego black-tailed jackrabbit, San Diego desert woodrat, and southern mule deer. Such avoidance and minimization efforts include installation of retaining walls and construction of manufactured slopes with 2:1 slopes rather than 4:1 to minimize the grading footprint. Avoidance efforts include designating all sensitive habitats (including those occupied by sensitive animal species) outside the impact areas as environmentally sensitive areas, fencing environmentally sensitive areas with orange plastic snow</p> | No impact No impact |

**Table S-2 (cont.)
SUMMARY OF EFFECTS AND AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES**

| Issue | Impacts Related to I-5/Genesee Interchange Reconstruction Project and Proposed Measures to Minimize Harm | Impacts Related to the No Build Alternative |
|------------------------|---|---|
| Animal Species (cont.) | <p>fencing, and prohibiting personnel, debris, or equipment within the environmentally sensitive areas. Temporary and permanent impacts to Diegan coastal sage scrub (including disturbed) and non-native grassland would be reduced through the implementation of avoidance and minimization measures described above for Natural Communities. The following avoidance and minimization measure would reduce impacts to special status animal species and raptors:</p> <ul style="list-style-type: none"> • All native vegetation, trees, and large shrubs shall be cleared outside the breeding season of southern California rufous-crowned sparrow, northern harrier and other raptors, and other migratory birds (February 15 through August 31) to avoid breeding birds. If Project construction occurs during the breeding season, pre-construction surveys and avoidance of nesting birds would be required by a biologist approved by USFWS. If nesting southern California rufous-crowned sparrow, northern harrier or other raptor, or other migratory birds are observed/detected within the Project limits, construction would not be permitted to commence until the conclusion of the breeding season (August 31), or until all young have fledged. No direct impacts to nests are allowed during the breeding season. • All lighting (including night lighting during construction) installed in the vicinity of the MHPA, native vegetation communities, and/or other open space areas would be directed away or shielded to prevent light overspill. Streetlights would be low-intensity and shielded to minimize illumination of the adjacent habitat. Night lighting of construction areas would be of the lowest illumination necessary for human safety, selectively placed, shielded, and directed away from natural habitats. | |

**Table S-2 (cont.)
SUMMARY OF EFFECTS AND AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES**

| Issue | Impacts Related to I-5/Genesee Interchange Reconstruction Project and Proposed Measures to Minimize Harm | Impacts Related to the No Build Alternative |
|-----------------------------------|--|---|
| Threatened and Endangered Species | <p>The Project would impact Diegan coastal sage scrub, the preferred habitat of the coastal California gnatcatcher (<i>Polioptila californica californica</i>). Implementation of the Project would result in temporary impacts to 0.2 ha (0.4 ac) and permanent impacts to 1.5 ha (3.7 ac) of Diegan coastal sage scrub, and temporary impacts to 0 ha (0.1 ac) and permanent impacts to 0.4 ha (1.0 ac) of disturbed Diegan coastal sage scrub. Direct impacts to Diegan coastal sage scrub would occur where one pair of coastal California gnatcatcher was observed/detected.</p> <p>In addition, Project construction would generate noise that could potentially result in a temporary impact to coastal California gnatcatcher. Noise-related direct impacts would occur if coastal California gnatcatchers were displaced from their nests and failed to breed. Construction-related noise would result in a limited impact to coastal California gnatcatchers given the relatively high existing ambient noise from the adjacent roadway and that the construction noise would be temporary.</p> <p>No permanent indirect impacts would occur given that ambient noise levels were 61.1 dBA L_{eq} at the southern measurement location and 66.4 dBA L_{eq} at the northern measurement location, and noise levels are not likely to rise substantially (2 dB[A] or less) during operation of the new facilities.</p> | No impact |

**Table S-2 (cont.)
SUMMARY OF EFFECTS AND AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES**

| Issue | Impacts Related to I-5/Genesee Interchange Reconstruction Project and Proposed Measures to Minimize Harm | Impacts Related to the No Build Alternative |
|---|--|---|
| Threatened and Endangered Species (cont.) | <p>The following avoidance and minimization measures would effectively avoid or minimize impacts to threatened and endangered species:</p> <p><u>Coastal California Gnatcatcher</u></p> <p>Avoidance and minimization efforts have been incorporated into the Project design to minimize impacts to habitat supporting coastal California gnatcatcher, including installation of retaining walls and construction of manufactured slopes with 2:1 slopes rather than 4:1 to minimize the grading footprint. Avoidance efforts also include designating all sensitive habitats (including those occupied by coastal California gnatcatcher) outside the impact areas as environmentally sensitive areas, fencing environmentally sensitive areas with orange plastic snow fencing, and prohibiting personnel, debris, or equipment within the environmentally sensitive areas.</p> <p>Temporary and permanent impacts to Diegan coastal sage scrub (including disturbed) habitat would be reduced through the implementation of avoidance and minimization measures described above for Natural Communities. In addition, implementation of the following avoidance and minimization measure would reduce direct and indirect impacts to coastal California gnatcatcher:</p> <ul style="list-style-type: none"> • All native vegetation, trees, and large shrubs shall be cleared outside the coastal California gnatcatcher and other migratory bird breeding season (February 15 through August 31) to avoid breeding birds. If ornamental vegetation clearing occurs during the breeding season pre-construction nesting bird surveys and avoidance of nesting birds would be required by a biologist approved by USFWS. If nesting gnatcatchers are observed/detected within a proposed impact area, on-site clearing would be suspended until the end of the breeding season (August 31), or until all young have fledged. No direct impacts to nests are allowed during the breeding season. • A biologist would be present on site during initial clearing and grubbing, as well as weekly during Project construction located within 152 m (500 ft) of off-site gnatcatcher habitat to ensure compliance with | No impact |

**Table S-2 (cont.)
SUMMARY OF EFFECTS AND AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES**

| Issue | Impacts Related to I-5/Genesee Interchange Reconstruction Project and Proposed Measures to Minimize Harm | Impacts Related to the No Build Alternative |
|---|--|---|
| Threatened and Endangered Species (cont.) | <p>all conservation measures. The Project biologist would be familiar with the habitats, plants, and wildlife in the Project area to ensure that issues relating to biological resources are appropriately and lawfully managed.</p> <ul style="list-style-type: none"> To minimize construction noise impacts to nesting gnatcatchers, all pile driving for the Project that would occur near habitats that support gnatcatchers would be conducted between September 1 and February 14 to avoid the gnatcatcher breeding season (or sooner than September 1 if the Project biologist can demonstrate to the satisfaction of USFWS that all nesting is complete). | |
| Invasive Species | <p>Construction activities could result in the further spread of invasive plant species within the BSA.</p> <p>Implementation of the following avoidance and minimization measures would reduce impacts associated with invasive species:</p> <ul style="list-style-type: none"> A qualified biologist would review the Project landscape concept plans to ensure that no invasive species (as listed in the California Invasive Plant Inventory) are included. A biological monitor would educate construction crews (prior to construction) on the benefits of cleaning equipment prior to ingress and egress. Upon completion of grading, all areas of temporary disturbance would be revegetated with native species or ornamental landscaping to limit colonization by invasive species. Following installation of revegetation and landscaping, such areas would be monitored and maintained to minimize invasive species In compliance with EO 13112, and subsequent guidance from the FHWA, the landscaping and erosion control included in the Project would not use species listed as noxious weeds. In areas of particular sensitivity, extra precautions would be taken if invasive species are found in or adjacent to the construction areas. Such precautions could include the inspection and cleaning of construction equipment and eradication strategies to be implemented should an invasion occur. | No impact |
| Cumulative Impacts | Project-related contributions to the visual and biological environment would not be cumulatively considerable. | No impact |

**Table S-2 (cont.)
SUMMARY OF EFFECTS AND AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES**

| Issue | Impacts Related to I-5/Genesee Interchange Reconstruction Project and Proposed Measures to Minimize Harm | Impacts Related to the No Build Alternative |
|----------------|---|---|
| Climate Change | <p>Due to the reduction in vehicle hours traveled and improved traffic flow following Project buildout, carbon dioxide (CO₂) emissions should be reduced.</p> <p>To the extent that it is applicable or feasible for the Project and through coordination with the Project Development Team, the following measures would be included in the Project to reduce the GHG emissions and potential climate change impacts from the Project:</p> <ul style="list-style-type: none"> • Landscaping would use reclaimed water, where possible. Currently 30 percent of the electricity used in California is used for the treatment and delivery of water. Use of reclaimed water helps conserve this energy, which reduces greenhouse gas (GHG) emissions from electricity production. • Landscaping would be utilized to reduce surface warming and through photosynthesis decreases CO₂. The Project proposes planting of ornamental, drought tolerant trees, shrubs, vines, and groundcover on modified slopes, medians, and landscaped strips. This vegetation would help offset any potential CO₂ emissions increase. • According to Caltrans Standard Specification Provisions, idling time for lane closure during construction is restricted to 10 minutes in each direction; in addition, the contractor must comply with San Diego Air Quality Management District's rules, ordinances, and regulations in regard to air quality restrictions. • Caltrans and the California Highway Patrol are working with regional agencies to implement intelligent transportation systems (ITS) to help manage the efficiency of the existing highway system. ITS is commonly referred to as electronics, communications, or information processing used singly or in combination to improve the efficiency or safety of a surface transportation system. • The City of San Diego provides ridesharing services and park-and-ride facilities to help manage the growth in demand for highway capacity. | No impact |

CHAPTER 1.0

PROPOSED PROJECT

CHAPTER 1.0 – PROPOSED PROJECT

1.1 INTRODUCTION

The California Department of Transportation (Caltrans), as assigned by the Federal Highway Administration (FHWA), and in cooperation with the City of San Diego (City), proposes to improve the Interstate 5 (I-5)/Genesee Avenue interchange and make related improvements to the freeway, on- and off-ramps, Voigt Drive overcrossing, and Gilman Drive. The proposed I-5/Genesee Interchange Reconstruction Project is hereafter referred to as the “Project.” Caltrans is the lead agency for California Environmental Quality Act (CEQA) compliance and for National Environmental Policy Act (NEPA) compliance of the Project pursuant to 23 U.S.C. 327. The Project study area encompasses a segment of the I-5 corridor between the La Jolla Village Drive northbound on-ramp/southbound off-ramp to the south at kilometer post (KP) R46.1 (post mile [PM] R28.6) and the Sorrento Valley Road interchange to the north at KP R49.1 (PM 30.5) that is approximately 3.0 kilometers (km; 1.9 miles [mi]) long, a segment of Genesee Avenue from Science Center Drive to the Scripps Memorial Hospital entrance driveway that is approximately 1.0 km (0.6 mi) long, a segment of Voigt Drive that is approximately 0.5 km (0.3 mi) long, and a segment of Gilman Drive that is approximately 0.3 km (0.2 mi) long. The Project site’s regional location and vicinity are shown in Figures 1-1 and 1-2, respectively.

The Project is located in western San Diego County, within the City’s University City Community Plan area, which is located in the central western portion of the City. The Project site is approximately 2.4 km (1.5 mi) east of the Pacific Ocean and 5.5 km (3.4 mi) north of State Route 52. The Project area includes a portion of the I-5 corridor, a major north-south freeway facility that begins at the California/Mexico border in San Ysidro and continues north to the Washington/Canada border. I-5 is part of the National Highway System and provides for interstate and international mobility of goods and people. Within the Project study area, I-5 is an eight-lane divided freeway with four lanes that are 3.6 meters (m; 12 feet [ft]) wide in each direction. The inside shoulders are approximately 2.4 m (8 ft) wide, while the outside shoulders are approximately 3.0 m (10 ft) wide. The existing median is approximately 5.9 m (19 ft) wide and is unpaved beyond the shoulders. The horizontal alignment of I-5 is relatively straight between La Jolla Village Drive and Genesee Avenue and then curves gently to the east, north of Genesee Avenue. The vertical alignment of the freeway slopes upward at a 1.6-percent grade from La Jolla Village Drive to just south of the Voigt Drive overcrossing, and then slopes downward at a 3-percent grade to the north end of the Project study area.

Genesee Avenue was constructed in the 1960s as a four-lane road with a median that is 5.5 m (18 ft) wide. The existing Genesee Avenue overcrossing structure (BR-57-0527) at I-5 was constructed in 1966 with four travel lanes, left-turn lanes (eastbound Genesee Avenue to northbound I-5 on-ramp and westbound Genesee Avenue to southbound I-5 on-ramp), and a median that is 0.6 m (2 ft) wide. The overcrossing is a four-span, cast-in-place, pre-stressed, reinforced concrete structure with an overall span of 73.3 m (240.5 ft). The structure is approximately 23.2 m (76.1 ft) wide. The existing Genesee Avenue overcrossing structure has a vertical clearance of 4.6 m (15.2 ft) which prevents the overcrossing from being widened without compromising the Caltrans’ vertical clearance requirements. The I-5/Genesee Avenue interchange is a four-quadrant diamond interchange with Genesee Avenue crossing over I-5. Traffic controls at the ramp intersections are signalized with free-right turns at all on- and off-ramps.

The University City Community Plan (hereafter referred to as “Community Plan;” July 7, 1987, and last updated in 1990) identifies Genesee Avenue as a six-lane primary arterial from North

Torrey Pines Road to Regents Road. The Community Plan identifies four separate projects to widen Genesee Avenue to its designated six-lane configuration. None of the projects, however, specifically identify improvements to the overcrossing structure. Within the Project study area, Genesee Avenue from North Torrey Pines Road to I-5 (west of I-5) and from I-5 to Campus Point Drive (east of I-5) is a six-lane roadway. This leaves the widening of the overcrossing structure as the last remaining element in the construction of the six-lane primary arterial portion of Genesee Avenue identified in the Community Plan.

The existing overcrossing has become a choke point resulting in considerable traffic congestion during the morning and evening peak travel periods. These congested operating conditions affect mobility within the University City area (east/west access across I-5), as well as access to/from the Project area via I-5 and the Genesee Avenue interchange.

Planning for improvements to the Genesee Avenue overcrossing/interchange to eliminate this choke point began in the mid 1980s. Several studies and a Project Study Report (PSR) were prepared to evaluate various possible improvements to the Genesee Avenue interchange. These studies were eventually superseded by a more comprehensive PSR¹ (approved by the San Diego Association of Governments [SANDAG] in January 2005) that evaluated improvements to the Sorrento Valley Road interchange to the north and the connecting section of I-5 in coordination with improvements to the Genesee Avenue interchange.

The total project cost (in 2010 dollars) is estimated at \$145 million.

1.2 PURPOSE AND NEED

1.2.1 Purpose of the Project

The purpose of the Project is to:

- Complete the continuity of Genesee Avenue as a six-lane primary arterial facility from North Torrey Pines Road to Regents Road, as identified in the University Community Plan
- Improve traffic flow and reduce congestion on Genesee Avenue and at the I-5/Genesee Avenue interchange
- Provide improvements of sufficient length to effectively address environmental matters and traffic concerns
- Not preclude the ultimate I-5 freeway condition
- Allow the widened Genesee Avenue overcrossing to meet current Caltrans standards for vertical clearance
- Improve general access and mobility within the University area, including bike and pedestrian access at the I-5/Genesee Avenue interchange

1.2.2 Need for the Project

The need for the Project arises from freeway, roadway, and intersection current capacities, which are mostly unacceptable; future transportation demands; a roadway that is not up to

¹ I-5 Corridor/Sorrento Valley Road and Genesee Avenue Interchanges Project Study Report, URS, October 2004.

current Caltrans and City standards; and modal interrelationships and system linkages, as discussed in this section.

Capacity and Transportation Demand

Capacity

A traffic operational analysis (2008) was prepared for the Project, pursuant to methodology defined in the 2000 Highway Capacity Manual (HCM; Transportation Research Board 2000) and Caltrans standards. The traffic report analyzes traffic conditions at roadway segments, intersections, freeway ramps, and freeway segments (including merge/diverge and weaving) in the Project area under existing and future conditions.

The I-5/Genesee Avenue interchange currently experiences congestion during peak-hour periods, resulting in unacceptable levels of service (LOS) and congested conditions. Figure 2.5-1 depicts the relative levels of congestion and speed associated with each LOS grade. The northbound I-5 ramps/Genesee Avenue intersection currently operates at LOS F during the morning and evening peak-hour periods, and the southbound I-5 ramps/Genesee Avenue intersection currently operates at LOS E during the evening peak-hour period. Using the intersection lane vehicle (ILV) procedure, both I-5 ramp intersections with Genesee Avenue were determined to currently operate near or below capacity during all peak-hour periods.

Vehicle queues at both I-5 ramp intersections with Genesee Avenue currently exceed storage lengths of lanes during morning, mid-day, and evening peak hours. On the existing Genesee Avenue overcrossing, vehicle queues occur in the eastbound and westbound direction, causing queue lengths to extend past the overcrossing approaches onto Genesee Avenue and the I-5 off-ramps. Lengthy queues also occur on the I-5 northbound and southbound off-ramps at Genesee Avenue during peak hours, resulting in queues that back up into the I-5 main lines. These queues impede traffic flows and contribute to congestion in the Project area. In addition, the roadway segment of Genesee Avenue between the southbound I-5 ramps and the northbound I-5 ramps currently operates at an unacceptable LOS (LOS E).

It is noted that some of the aforementioned issues are related to the fact that the City of San Diego recently widened Genesee Avenue from four to six lanes between I-5 and Campus Point Drive; however, the City did not widen the freeway overcrossing structure or Genesee Avenue within the Caltrans right-of-way (R/W). This has caused these locations to be pinch points (or “chokepoints”) and has resulted in LOS and operations that are not up to current Caltrans and City standards, as previously described.

Existing operations at the Genesee Avenue interchange are not up to current Caltrans and City standards and will worsen over time as a result of growth and associated traffic volume increases in the Project area. The following paragraph highlights how the Project area is not up to current Caltrans and City standards using Year 2030 No Build conditions as an example. Under these conditions, both intersections would operate at LOS F during the morning and evening peak periods. Both I-5 ramp intersections with Genesee Avenue would operate at approaching or above capacity during morning, mid-day, and evening peak hours based on ILV methodology. Also under Year 2030 No Build conditions, all ramp merge/diverge locations would operate at LOS F in at least one of the peak periods analyzed. The segment of Genesee Avenue between the southbound I-5 ramps and northbound I-5 ramps would operate at LOS F. Lastly, in the Year 2030 No Build conditions, both the mainline and weaving volumes would be over capacity for the southbound I-5 weave in the morning and evening peak periods and for the

northbound I-5 weave in the evening peak period. Only the weaving volumes would be over capacity for the northbound I-5 weave in the morning peak period, instead of the mainline and weaving volumes being over capacity as in the previously discussed scenarios.

Vehicle queues at the I-5 southbound and northbound ramps at Genesee Avenue under 2030 conditions would continue to impede traffic flows along Genesee Avenue and the I-5 ramps at Genesee Avenue, and would spill over into the I-5 mainlines.

Transportation Demand

Development within the Project area has resulted in population growth and associated traffic that has and will continue to increase demand and capacity on the surrounding roadway and freeway system. Between 2004 and 2030, the San Diego region's population is projected to increase by 32 percent, with an increase of approximately one million people. Within that same period, the population within the University community is projected to increase 11 percent. Residential and employment densities in the University community are also expected to increase by 4 percent and 6 percent, respectively (SANDAG 2006b). These population increases and resultant demand for additional housing, employment, and public facilities will encumber the existing transportation system by adding additional vehicles to the roadway and freeway system in the Project area. Additional vehicles would cause the existing issues to worsen and the demand for roadway and freeway capacities to increase.

Roadway Deficiencies

The Project proposes to widen the Genesee Avenue overcrossing structure to increase the roadway LOS to current City standards. The existing Genesee Avenue overcrossing structure has a vertical clearance of 4.6 m (15.2 ft). This vertical clearance does not meet current Caltrans' standards. Current standards require a vertical clearance of 5.1 m (16.5 ft). Due to this existing vertical shortage, any widening of the existing structure would also not meet vertical clearance standards. Therefore, the Project proposes to replace the existing bridge with a wider structure that does conform to Caltrans' vertical clearance standards. The new overcrossing would be increased from 23.2 m (76.1 ft) to 47.2 m (154.9 ft) in width. Additionally, the existing overcrossing structure is not long enough to span the ultimate width of the planned I-5 widening improvements. Such freeway widening improvements would not occur as part of the Project, but are planned by Caltrans as a separate future project. Therefore, the proposed structure would be lengthened from 73.3 m (240.5 ft) to 91.8 m (301.2 ft), which would not preclude the ultimate I-5 freeway condition. The increased structure length would increase the depth of the structure. The increased structure depth and the current non-standard vertical clearance, combined with the need to maintain falsework clearance during construction and maintain current vertical clearance requirements in the future when I-5 is widened, require that the profile along Genesee Avenue be raised. The height of the bridge deck would be increased from 6.1 m (20.0 ft) to 10.3 m (33.8 ft) and the proposed vertical clearance when this Project is complete would be 6.8 m (22.2 ft). The vertical clearance would be decreased once I-5 is widened in the future, but would continue to meet current vertical clearance requirements. Refer to the Subchapter 1.4, Project Description, for additional details.

Modal Interrelationships and System Linkages

The Project area has a large concentration of business/employment land uses. Maintaining or improving the accessibility of and mobility within this area is essential to the continued economic health of the region. I-5 is a part of the National Highway System and Federal Surface

Transportation Assistance Act “National Network” route for oversized trucks, and provides a significant corridor for the movement of goods and people. The Community Plan identifies Genesee Avenue as an essential facility and a primary auto-oriented street that provides access and mobility within the Project area. Furthermore, Genesee Avenue is designated as a Regionally Significant Arterial by SANDAG and is part of the Regionally Significant Transportation Network, which primarily consists of interstate freeways, state highways, arterial corridors, and regional transit services, as well as arterial streets that accommodate larger volumes of traffic. All of these multi-modal facilities and services are considered essential to meeting the mobility and accessibility goals of the region.

Project implementation would complete the planned widening of Genesee Avenue to its six-lane arterial classification, as designated in the Community Plan. The Project would replace the existing Genesee Avenue overcrossing to accommodate six travel lanes, which would connect to the existing six-lane segment of Genesee Avenue to the west and the six-lane segment of Genesee Avenue east of the overcrossing. The Project, therefore, would be a connecting link to facilitate traffic circulation between the east and west sides of the I-5.

The Project would allow for future planned improvements to the transportation system, and would not preclude the ultimate I-5 freeway condition. Project features have been designed to be compatible with and allow for such future planned improvements in the Project area. Planned overcrossings, ramp improvements, auxiliary lanes, and road improvements would provide for the ultimate improved I-5 configuration, inclusive of High Occupancy Vehicle (HOV) lanes. The project would not preclude the development of the Super Loop Transit Project or the Mid-Coast Corridor Project. Existing transit systems, consisting of the Metropolitan Transit System and the University of California (San Diego) system, would also not be precluded.

Additionally, bicycle and pedestrian facilities are proposed for the Project that would be consistent with planned multi-modal transportation facilities and goals in the Project area. The proposed Genesee Avenue overcrossing would include a sidewalk and bicycle lanes. The Voigt Drive overcrossing also would include sidewalks and bicycle lanes.

Independent Utility and Logical Termini

The Project would include the appropriate length of roadway and freeway improvements considering the existing and anticipated future environmental and traffic conditions of the regional transportation network. The length (and width) of the proposed improvements was chosen based on the need to alleviate existing and anticipated traffic congestion. In addition, the Project was designed to create linkage between the eastern and western sides of the I-5, which is an identified link in the Community Plan and the City of San Diego Bikeway Master Plan. Class II bike lanes² are designated along Genesee Avenue, Voigt Drive, and Gilman Drive within the proposed improvements area. Freeway shoulder bike access is provided along I-5 between Genesee Avenue and Sorrento Valley Road, and is designated as a Class III bike route³. Improvements were chosen to ensure the Project would function properly without requiring additional improvements elsewhere that are not already planned. As stated previously, the Project considered other reasonable foreseeable transportation improvements and would not preclude the proposed I-5 North Coast Corridor project. Refer to Subchapter 2.5,

² A Class II bike lane shares the right-of-way with a roadway or walkway. It is indicated by a bikeway pictograph on the pavement and a continuous stripe on the pavement or separated by a continuous or intermittent curb or other low barrier.

³ A Class III bike route shares the right-of-way with a roadway or walkway. It is not indicated by a continuous stripe on the pavement or separated by any type of barrier, but it is identified as a bikeway with signs.

Traffic and Transportation/Pedestrian and Bicycle Facilities, for specific details on how the Project would be of appropriate length to address traffic and circulation issues.

1.3 PROJECT DESCRIPTION

The Project entails reconstruction of the I-5/Genesee Avenue interchange and related improvements to the freeway, on- and off-ramps, Voigt Drive overcrossing, and Gilman Drive within the City (Figures 1-3a and 1-3b). The Project area includes a portion of the I-5 corridor between the La Jolla Village Drive northbound on-ramp/southbound off-ramp to the south at KP R46.1 (PM R28.6) and the Sorrento Valley Road interchange to the north at KP R49.1 (PM 30.5), as well as segments of Genesee Avenue, Voigt Drive, and Gilman Drive. The purpose of the Project is to reduce congestion and improve the operational efficiency of the I-5/Genesee Avenue interchange.

1.4 PROJECT ALTERNATIVES

This subchapter describes the Project alternatives that were developed by a multi-disciplinary team to achieve the Project purpose and need while avoiding or minimizing environmental impacts. The alternatives described and evaluated in this Initial Study/Environmental Assessment (IS/EA) include the proposed build alternative (Project; i.e., Alternative G2) and the No Build Alternative.

1.4.1 Proposed Build Alternative (Project)

The Project would reconstruct the I-5/Genesee Avenue interchange to accommodate widening of Genesee Avenue and meet vertical clearance requirements for the overcrossing. Construction of the Project would not preclude the ultimate I-5 freeway condition. The Project would replace the existing Genesee Avenue four-lane overcrossing with a new six-lane overcrossing. The new overcrossing structure would be wider, longer, and higher than the existing structure, and would be shifted slightly to the north (the centerline would shift approximately 16.1 m [53 ft]) so that the existing overcrossing could continue to carry traffic during construction of the new overcrossing. Details of the proposed overcrossing are provided below under "Genesee Avenue Overcrossing." The four ramps at the Genesee Avenue interchange also would be widened and lengthened to accommodate increased (future year [2030]) traffic flows and the proposed overcrossing structure. Details of the proposed ramp improvements are provided below under "Auxiliary Lanes and Ramp Improvements."

Traffic volumes on the section of I-5 within the Project area in the year 2030 are expected to increase congestion on I-5 and increase queuing on Genesee Avenue. Auxiliary lanes on I-5 are proposed to the north and south of the interchange to improve traffic flow where vehicles are entering and exiting the freeway at Genesee Avenue. The Project includes the addition of auxiliary lanes in both directions between the Genesee Avenue ramps and the adjacent ramps for La Jolla Village Drive and Sorrento Valley Road. A ramp meter would be installed at the Sorrento Valley Road southbound on-ramp to control the volume of potential weaving traffic coming from Sorrento Valley Road during peak periods. Along with the ramp meter, two additional lanes would be added, including an HOV bypass. This improvement would help reduce congestion on I-5 and improve the operation of weaving maneuvers for traffic exiting at Genesee Avenue. One additional lane would be added to the Sorrento Valley Road northbound off-ramp, which, combined with the northbound auxiliary lane, would improve the operation of weaving maneuvers for traffic entering from Genesee Avenue and exiting at Sorrento Valley Road.

Implementation of the auxiliary lanes between Genesee Avenue and La Jolla Village Drive would require replacement of the Voigt Drive overcrossing. The location of the existing overcrossing foundations precludes any widening of the freeway. The Voigt Drive overcrossing structure would be designed such that it does not preclude implementation of other currently planned roadway and transit improvements at that location. The future projects that are currently being planned include the ultimate widening of I-5 and direct access ramps⁴ under the proposed I-5 North Coast Corridor project and a Light Rail Transit (LRT) crossing of I-5 adjacent to Voigt Drive under the Mid-Coast Corridor project. To account for these future projects, the Voigt Drive overcrossing would be lowered, lengthened, and widened. The existing Voigt Drive overcrossing has a vertical clearance of 9.1 m (29.8 ft), which is higher than the required vertical clearance of 5.1 m (16.5 ft). The Project proposes to lower the profile of Voigt Drive and provide a 6.0-m (19.7-ft) vertical clearance. Lowering the profile of the Voigt Drive overcrossing would allow for improved profile geometry on the planned direct access ramps that would tie into the Voigt Drive overcrossing. Lowering the profile of the Voigt Drive overcrossing also would allow for the planned LRT crossing of I-5 to be grade separated from the planned direct access ramps. The new structure would also be longer to account for the future planned widening of I-5 under the proposed I-5 North Coast Corridor project. The new Voigt Drive overcrossing would be constructed slightly to the north (the centerline would shift approximately 11.2 m [36.7 ft]) so that the existing overcrossing could continue to carry traffic during construction of the new overcrossing. Details of the proposed Voigt Drive overcrossing are provided below under “Voigt Drive Overcrossing and Gilman Drive Realignment.”

The proposed modifications to the Voigt Drive overcrossing, as previously described, include changes to both the horizontal and vertical alignment of Voigt Drive approaching the overcrossing. As a result of these changes, the portion of Gilman Drive approaching the Voigt Drive intersection also would need to be reconstructed to meet the revised geometry and lowered grade. The Gilman Drive reconstruction would be designed such that it does not preclude implementation of other currently planned roadway and transit improvements at that location. Planned future projects that could impact this section of Gilman Drive include the ultimate widening of I-5 under the proposed I-5 North Coast Corridor project and an LRT crossing of I-5 adjacent to Voigt Drive under the Mid-Coast Corridor project. To account for these future projects, the reconstructed portion of Gilman Drive would be realigned to the west and the profile modified.

The Project would be designed to accommodate pedestrian and bicycle traffic, as well as vehicular traffic, within the Project corridor. The Community Plan and the City of San Diego Bikeway Master Plan identify Genesee Avenue as a Class II bike lane facility from North Torrey Pines Road to State Route 52. This facility has been implemented except for the portion across I-5 because the existing overcrossing structure is not wide enough to accommodate bike lanes. The proposed overcrossing structure would include a Class II bike lane that is 1.8 m (6 ft) wide in each direction. The City of San Diego Bicycle Master Plan also identifies an existing Class III bike route along the shoulders of I-5 connecting Genesee Avenue and Sorrento Valley Road. The Project would include a two-way Class I bike path⁵ along the southbound I-5 shoulder with a barrier separating the bike path from the vehicular traffic. Accordingly, the proposed improvements would include a bicycle and pedestrian link between the eastern and western

⁴ Direct access ramps provide direct access from roadways to high-occupancy vehicle lanes in the center of the freeway.

⁵ A Class I bike path is intended for the exclusive use of bicycles. While it may parallel a roadway, it is physically separated by distance or a vertical barrier.

sides of I-5 and would be consistent with planned multi-modal transportation facilities and goals in the Project area.

Both the Genesee Avenue and Voigt Drive overcrossings would be improved for bicyclist and pedestrian access. The Genesee Avenue overcrossing would include a sidewalk that is 2 m (6.6 ft) wide, striped/signalized pedestrian crossings, and Americans with Disabilities Act- (ADA-) compliant pedestrian ramps at each intersection. The Voigt Drive overcrossing would include sidewalks and bicycle lanes. Existing free-right turns at the Genesee Avenue interchange would be removed to avoid conflicts with pedestrian and bicycle traffic.

Project components and proposed improvements of the Project are summarized below.

Genesee Avenue Overcrossing

- Remove and replace the existing four-span overcrossing with a new two-span, cast-in-place, pre-stressed reinforced concrete structure similar to the existing overcrossing. The Project proposes to widen the Genesee Avenue overcrossing structure to increase the roadway LOS to current City standards. The new overcrossing would provide for three lanes in each direction and provide two left-turn lanes in each direction. The left-turn lanes would be continuous across the overcrossing structure and extend westward and eastward onto Genesee Avenue to maximize queue storage. The existing Genesee Avenue overcrossing structure has a vertical clearance of 4.6 m (15.2 ft). This vertical clearance does not meet current Caltrans' standards. Current standards require a vertical clearance of 5.1 m (16.5 ft). Due to this existing vertical shortage, any widening of the existing structure also would not meet vertical clearance standards. Therefore, the Project proposes to replace the existing bridge with a wider structure that conforms to Caltrans' vertical clearance standards. The new overcrossing would be increased from 23.2 m (76.1 ft) to 47.2 m (154.9 ft) in width. Additionally, the existing overcrossing structure is not long enough to span the ultimate width of the planned I-5 widening improvements. Such freeway widening improvements would not occur as part of the Project, but are planned by Caltrans as a separate future project. Therefore, the proposed structure would be lengthened from 73.3 m (240.5 ft) to 91.8 m (301.2 ft), which would not preclude the ultimate I-5 freeway condition. The increased structure length would increase the depth of the structure. The increased structure depth and the current non-standard vertical clearance, combined with the need to maintain falsework clearance during construction and maintain current vertical clearance requirements in the future when I-5 is widened, require that the profile along Genesee Avenue be raised. The height of the bridge deck would be increased from 6.1 m (20.0 ft) to 10.3 m (33.8 ft) and the proposed vertical clearance would be 6.8 m (22.2 ft). The vertical clearance would be decreased once I-5 is widened in the future, but would continue to meet current vertical clearance requirements.
- Widen Genesee Avenue to six lanes (three lanes in each direction) east and west of the overcrossing to be consistent with the three lanes in each direction along Genesee Avenue. Construct two dedicated right-turn lanes for the westbound to northbound on-ramp and the eastbound to southbound on-ramp, and two left-turn lanes for the eastbound to northbound on-ramp and the westbound to southbound on-ramp.

Auxiliary Lanes and Ramp Improvements

- Reconstruct existing interchange ramp junctions, ramps, and ramp terminals at the I-5/Genesee Avenue interchange. Widen and lengthen all four ramps to accommodate

increased (future year; i.e., 2030) traffic flows and the increased overcrossing length and height. Widen the Genesee Avenue off-ramps to two lanes to improve traffic flow in the ramp junction areas at higher future year exiting volumes. Widen the off-ramps from two to four lanes (two left-turn and two right-turn lanes) at the ramp terminals allowing sufficient length to store expected queuing. Widen the Genesee Avenue on-ramps to three lanes (two general purpose and one HOV). The northbound on-ramp would taper down to two lanes, and the southbound on-ramp would taper down to one lane.

- Widen the Sorrento Valley Road on-ramp to three lanes (two general-purpose and one HOV) at the terminal intersections, add ramp metering, and then taper down to one lane at the ramp junction with I-5.
- Widen the Sorrento Valley Road off-ramp from one to two lanes at the ramp junction and from two to three lanes at the terminal intersection.
- Construct auxiliary lanes in both directions between the Genesee Avenue ramps and the adjacent ramps for La Jolla Village Drive and Sorrento Valley Road. The auxiliary lanes are being proposed to accommodate projected future year increases in traffic volumes entering and exiting the freeway at Genesee Avenue. Future year entering/exiting traffic volumes would exceed the capacity of the existing direct merge/diverge ramp junction configurations, which would cause increased congestion on I-5 and increased queuing on Genesee Avenue.

Voigt Drive Overcrossing and Gilman Drive Realignment

- Replace the Voigt Drive overcrossing due to implementation of the auxiliary lanes between Genesee Avenue and La Jolla Village Drive. The Voigt Drive overcrossing would be designed so as not to preclude future transportation network improvements. The Voigt Drive overcrossing structure must be designed so as not to preclude the ultimate widening of I-5, and direct access ramp connections being proposed by Caltrans in the proposed I-5 North Coast Corridor project and possible Bus Rapid Transit Superloop and LRT routes along Voigt Drive being proposed by SANDAG.
- To avoid precluding these future projects, the replacement Voigt Drive overcrossing must be longer, widened to five lanes (four through lanes with a center left-turn lane), and the profile lowered. The lower profile of Voigt Drive would assist in reducing the grade and length of the direct access ramps and allow for full grade separation from the proposed future LRT facility. The length of the new overcrossing would be increased from 90.0 m (295.3 ft) to 120.3 m (394.7 ft), and the width would be increased from 12.2 m (40.0 ft) to 29.7 m (97.5 ft). The height of the overcrossing would be lowered from 11.0 m (36.1 ft) to 8.6 m (28.2 ft). These changes to the overcrossing configuration and the ultimate widening proposed for I-5 also require some intersection and realignment modifications to Gilman Drive immediately west of the freeway.
- Realign Gilman Drive and modify the intersection with Voigt Drive, so as not to preclude the proposed and ultimate widening of I-5.

Other Design Components

- Sixteen retaining walls are proposed at various locations along the Project corridor. The walls are expected to be of various types including Type 1, Type 5, soil nail, tie-back, and soldier pile with lagging walls. The maximum heights of the walls range from approximately 1.0 m (3.3 ft) to 15.8 m (51.8 ft). The locations of the proposed retaining walls are shown in Figure 1-4.

- New drainage facilities would be constructed adjacent to the freeway and the cross roads, including storm drain inlets, storm drain pipe, bioswales, brow ditches, and headwalls. Some of the existing drainage structures would be abandoned and replaced with new structures.
- Construct an earthen buttress to stabilize the ancient landslide embankment. The buttress would be placed just northwest of the I-5/Genesee Avenue interchange. The size and weight of the buttress would counteract the driving force along the potential slip plane of the ancient landslide.

Transportation System Management Features

Although Transportation System Management (TSM) measures alone could not satisfy the purpose and need of the Project, the following TSM measures have been incorporated into the Project:

- Metering of on-ramps (Sorrento Valley Road and Genesee Avenue), warranted by entering volumes
- Auxiliary lanes in both directions between La Jolla Village Drive and Genesee Avenue and between Genesee Avenue and Sorrento Valley Road
- Traffic signal optimization at the I-5/Genesee Avenue ramp intersections

Utilities

The Project would involve the relocation of existing utilities that are located on the Genesee Avenue and Voigt Drive overcrossings. These utilities would be re-installed on the replacement overcrossings. The following utilities may require relocation or be protected in place during Project construction:

- Water, reclaimed water, electric, gas, and telephone lines contained in the University of California, San Diego (UCSD) utilities tunnel south of Voigt Drive
- Three sewer lines south of Voigt Drive
- Gas and electric lines that connect to Scripps facilities north of Voigt Drive and east of I-5
- Water and electric lines located along Gilman Drive, including the 69-kilovolt (kV) San Diego Gas and Electric (SDG&E) line that requires an action with the Public Utilities Commission (PUC)
- Electric and water lines that pass through or under a proposed wall west of Gilman Drive
- Telecommunication, water, sewer, electric, fiber optic, and cable lines located along Genesee Avenue, east of the interchange

Staging and Access

It is anticipated that construction staging would occur in a disturbed area between the Sorrento Valley Road southbound on-ramp and the I-5 freeway that was previously used for construction staging for the I-5/I-805 merge. Other construction staging areas and access routes would be located within disturbed or developed areas within Caltrans R/W.

Borrow

It is anticipated that construction of the Project would not require borrow (i.e., excess fill soil from off site). A portion of the excess soil would be used as an earthen buttress to stabilize an ancient landslide in the northwest quadrant of the I-5/Genesee Avenue interchange as part of this Project. The remainder of the excess soil would be disposed of off site in accordance with Caltrans' standard specifications.

Landscaping

The Project would be landscaped in accordance with the measures identified in the Visual Impact Assessment and the I-5 North Coast Corridor Project Design Guidelines. This would include the following aesthetic elements:

- Architectural features, textures, integral concrete colors, and the creative use of materials would be incorporated into walls and other surfaces to create shadow lines and relief, and to reduce apparent scale. Enhanced surface materials such as mosaic tile and weathering steel may also be used if it meets the community design goals.
- Streetscape elements, such as sidewalks, pedestrian-oriented lighting, fencing, and railings, would be designed to reflect corridor-wide design guidelines consistent with context-sensitive solutions.
- Landscape treatment consisting of large shrub and tree massing would provide buffer planting adjacent to the walls. Other planting would enhance the community streetscape and pedestrian experience. Trees, shrubs, and vines would be used to provide erosion control and to prevent graffiti.
- Median oleanders would be replaced where they cannot be preserved.

Construction Phasing, Local Access, and Right-of-Way

It is anticipated that the Proposed Project would be constructed in two phases. The first phase would include reconstruction of the I-5/Genesee interchange, the addition of auxiliary lanes north of Genesee Avenue, and improvements to the Sorrento Valley Road on- and off-ramps. The second phase of Project construction would include the addition of auxiliary lanes south of Genesee Avenue, replacement of the Voigt Drive overcrossing, and realignment of Gilman Drive. Construction of the first phase is anticipated to begin in 2014 and to be completed by 2016. Construction of the second phase would begin between 2015 and 2020 to coincide with the schedule for the proposed I-5 North Coast Corridor project and is expected to be completed in two years. Access to and from adjacent properties would be maintained throughout the construction period.

I-5 would be closed in one direction for ten nights during construction of the Genesee Avenue and Voigt Drive overcrossings. In addition, it may be necessary to close each of the northbound and southbound on- and off-ramps at the I-5/Genesee Avenue interchange and the northbound off-ramp and southbound on-ramp at the I-5/Sorrento Valley Road interchange for one day per ramp. Temporary freeway closures would result in diversion of through traffic to alternative routes; however, construction would be scheduled during nighttime or early morning hours, and a Traffic Management Plan (TMP) would be implemented. Ramp closures would require traffic diversion to alternative routes, including La Jolla Village Drive, North Torrey Pines Road, and the Genesee Avenue segments between these roadways. Ramp closures would be staged on

separate days. Preliminary construction staging for Phase I of the Project would occur in four stages. The traffic configuration would vary per stage. Below is a list of work to be done:

Construction Staging for I-5/Genesee Avenue Interchange (Phase I)

Stage 1

Existing traffic configuration would remain open during this stage.

- Construct earthen buttress for landslide mitigation along southbound off-ramp
- Construct temporary segment of I-5 northbound on-ramp
- Construct temporary segment of I-5 northbound off-ramp
- Construct temporary segment of I-5 southbound on-ramp
- Construct temporary segment of I-5 southbound off-ramp
- Remove and pave existing raised median at Genesee Avenue (west)
- Remove and pave existing raised median at Genesee Avenue (east)
- Construct southwest retaining wall 18 along Genesee Avenue
- Construct southeast retaining wall 11 along Genesee Avenue
- Construct temporary paving along southwest Genesee Avenue
- Construct temporary paving along southeast Genesee Avenue
- Construct re-striping and signing revisions
- Construct temporary traffic signals

Stage 2

I-5 traffic entering from and exiting to Genesee Avenue would move through temporary ramp terminals. Westbound Genesee Avenue traffic would be shifted south at the east end of the work zone.

- Construct retaining wall 8
- Construct retaining wall 21
- Construct retaining wall 17
- Construct I-5 northbound auxiliary lane between Genesee Avenue and Sorrento Valley Road, and widen Sorrento Valley Road off-ramp
- Construct I-5 northbound on-ramp
- Construct retaining wall 4
- Construct I-5 northbound off-ramp
- Construct retaining wall 1
- Construct retaining wall 3
- Construct the I-5 southbound on-ramp
- Construct northwestern retaining wall 14 along Genesee Avenue

- Construct northeastern retaining wall 10 along Genesee Avenue
- Widen southbound on-ramp from Sorrento Valley Road
- Construct auxiliary lane and I-5 southbound off-ramp
- Construct north section of Genesee Avenue overcrossing
- Construct northwestern Genesee Avenue roadway
- Construct northeastern Genesee Avenue roadway

Stage 3

There would be no direct access from westbound Genesee Avenue to the southbound on-ramp. A temporary detour would be implemented to access the southbound on-ramp by routing traffic beyond the interchange and using a U-turn onto eastbound Genesee Avenue to access the southbound on-ramp. This stage also would require short-term interruption of traffic from the northbound off-ramp to westbound Genesee Avenue. A temporary detour would be implemented during this stage.

This stage would be constructed using 24-hour-per-day and other accelerated construction techniques to minimize the amount of time that any intersection movements would be closed. This stage is intended to last no more than two days.

- Westbound and eastbound Genesee Avenue traffic to use new northern side of Genesee Avenue roadway section
- For access to southbound on-ramp from eastbound Genesee Avenue, use temporary roadway section
- For access to eastbound Genesee Avenue from northbound off-ramp, use new northbound off-ramp

Work to be done in Stage 3 includes the following:

- Construct southbound on-ramp roadway tie-in section to northern side of Genesee Avenue roadway section
- Construct northbound off-ramp roadway tie-in section to northern side of Genesee Avenue roadway section
- Construct tie-in on southbound on-ramp from Sorrento Valley Road

Stage 4

All ramp traffic would occur on new ramps. During this stage, westbound and eastbound Genesee Avenue traffic would use the northern side Genesee Avenue roadway section.

- Construct southwestern side of Genesee Avenue roadway section
- Construct southeastern side of Genesee Avenue roadway section
- Construct southern section of Genesee Avenue overcrossing
- Final striping and permanent signing
- Traffic signalization

- Landscaping

A detailed stage construction and traffic handling plan would be developed during the Plans, Specifications, and Estimates (PS&E) stage to mitigate impact to traffic.

Construction Staging for Voigt Drive/Gilman Drive (Phase 2)

Construction for Voigt Drive and Gilman Drive would occur in three stages. Existing traffic configuration would remain open during construction as described below:

Stage 1

- Construct temporary pavement at southern end of Project limit on Gilman Drive (± 200 m [660 ft])
- Re-stripe and signing revisions
- Traffic signal modifications

Stage 1A

- Construct northern half of Voigt Drive overcrossing
- Construct northern half of proposed Voigt Drive alignment/roadway section
- Construct retaining wall 9 at northeastern side of Voigt Drive overcrossing
- Construct western half of the proposed Gilman Drive roadway alignment/roadway section
- Construct retaining wall 2 along western side of Gilman Drive
- Construct retaining wall 20 along western side of Gilman Drive
- Construct retaining wall 13
- Construct retaining wall 15
- Construct retaining wall 16

Stage 2

- Construct Voigt Drive/Gilman Drive intersection roadway section
- Construct intersection (access to an existing parking lot) at eastern end of Voigt Drive overcrossing

Stage 3

- Construct southern half of Voigt Drive overcrossing
- Construct southern half of proposed Voigt Drive alignment/roadway section
- Construct eastern half of proposed Gilman Drive roadway alignment/roadway section
- Construct northbound auxiliary lane from La Jolla Village Drive to Genesee Avenue
- Construct southbound auxiliary lane from Genesee Avenue to La Jolla Village Drive
- Construct final striping and permanent signing

- Landscaping

Much of the proposed improvements would be constructed within the existing I-5 R/W. The following improvements are proposed outside the existing R/W and would require a combination of new permanent R/W, temporary construction easements (TCEs), and permanent easements (PEs) as indicated:

- Grading to construct the northbound auxiliary lane north and south of Genesee Avenue (new Caltrans R/W)
- Grading to realign the northbound on-ramp and construct a retaining wall north of Genesee Avenue (new Caltrans R/W)
- Grading to widen Genesee Avenue east of the I-5 interchange and construct a retaining wall north of Genesee Avenue (new City R/W)
- Access for construction and maintenance of a retaining wall along the northbound off-ramp south of Genesee Avenue (TCE and PE)
- Modification of Voigt Drive east and west of I-5 to tie the widened overcrossing into the existing lane configuration of Voigt Drive (new City R/W, TCE)
- Grading to construct the southbound auxiliary lane from just south of Voigt to Genesee Avenue (new Caltrans R/W)
- Construction of the southbound on-ramp and retaining wall (new Caltrans R/W)
- Grading and construction of retaining walls for widening of Genesee Avenue west of the interchange (new City R/W)

1.4.2 Transportation System Management (TSM) Alternative

The TSM Alternative consists of strategies to maximize efficiency of the existing facilities by providing options, such as ridesharing, parking, and traffic signal optimization. TSM options to improve traffic flow typically increase the number of vehicle trips a facility can carry without increasing the number of through lanes. This ability to increase the number of vehicle trips is often included during consideration of existing and forecast operational characteristics of a facility. Such strategies include replacing existing stop signs with traffic signals at intersections to improve existing peak hour traffic flow and to reduce queuing of vehicles. TSM also encourages automobile, public and private transit, ridesharing programs, and bicycle and pedestrian improvements as elements of a unified urban transportation system. As stated previously, TSM measures alone would not satisfy the purpose and need of the Project. The following TSM measures would be incorporated into the Project:

- Metering of on-ramps (Sorrento Valley Road and Genesee Avenue), warranted by entering volumes
- Auxiliary lanes in both directions between La Jolla Village Drive and Genesee Avenue and between Genesee Avenue and Sorrento Valley Road
- Traffic signal optimization at the I-5/Genesee Avenue ramp intersections

1.4.3 Traffic Demand Management (TDM) Alternative

The TDM Alternative focuses on regional strategies for reducing the number of vehicle trips and vehicle miles traveled, as well as increasing vehicle occupancy. It facilitates higher vehicle occupancy or reduces traffic congestion by expanding the traveler's transportation choices in

terms of travel method, travel time, travel route, travel costs, and the quality and convenience of the travel experience. Typical activities that are a part of this alternative reduce the amount of single-occupancy vehicle trips by providing contract funds to regional agencies that are actively promoting ridesharing, maintaining rideshare databases, and providing limited rideshare services to employers and individuals. Promoting mass transit or facilitating non-motorized alternative means of transportation are two such examples, but TDM strategies also may include reducing the need for travel altogether through initiatives, such as telecommuting. In some cases, TDM also may involve changing work schedules, with the resultant greater travel flexibility producing a more even pattern of transportation network use, muting the effect of morning and evening rush hours. TDM as a stand-alone alternative was rejected because it cannot fulfill the purpose and need alone.

1.4.4 No Build Alternative

Under the No Build Alternative, none of the proposed improvements would be implemented, and the I-5/Genesee Avenue interchange would remain in its current configuration. This alternative would not address the fact that existing and projected operations at the Genesee Avenue interchange are not up to Caltrans and City standards. It is expected that current and future development in the area would generate traffic volumes far beyond what the I-5/Genesee Avenue interchange can accommodate in its existing configuration. The Project, which is consistent with regional goals in SANDAG's Regional Comprehensive Plan (RCP) and planned transportation facilities within the University City community and along the I-5 corridor, would not be implemented, and existing congestion would be exacerbated through growth planned in the City and in the region in general.

1.5 IDENTIFICATION OF A PREFERRED ALTERNATIVE

Prior to circulation of the draft document, the Project Development Team analyzed the benefits and impacts of the Build and No Build alternatives and identified the Build Alternative as the preferred alternative. After receiving input from the public, the Project Development Team has remained with its prior identification of the Build Alternative as the preferred alternative.

1.6 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER DISCUSSION

Two additional build alternatives (other than Alternative G2; i.e., the Project) were considered during the Project development process; however, after thorough review and discussions, the Project Development Team deemed them infeasible. A design alternative that would eliminate wetland impacts caused by a stabilizing buttress fill was also considered during the design process. These alternatives and the reasons why they were eliminated from further analysis are discussed below.

1.6.1 Alternative G1

Alternative G1 was one of the alternatives explored and included in the approved 2005 PSR. This alternative includes the reconstruction of the Genesee Avenue interchange. Alternative G1 proposes that the centerline of the overcrossing would be held in its current location. Other improvements also include widening to three lanes in each direction along with dual left turns at the on-ramps. The three lanes would be consistent with the Genesee Avenue improvements both east and west of the interchange. In addition, this alternative includes raising and lengthening the Genesee Avenue overcrossing structure, eliminating all free-right turns (i.e.,

turns not controlled by signals or stop signs) onto the ramps to improve traffic operations, and improving pedestrian and bicyclist access on Genesee Avenue.

Alternative G1 would maintain the horizontal alignment and raise the profile by 2 m (6 ft) compared to the existing Genesee Avenue overcrossing. During construction, three lanes on Genesee Avenue would need to be closed, leaving only two lanes operational for traffic use. The overcrossing replacement project would take approximately 18 months to construct. Having only two lanes for traffic on Genesee Avenue for 18 months is not feasible due to existing high traffic volumes along this roadway. For these reasons, Alternative G1 is not considered a viable alternative.

1.6.2 Alternative G3

Alternative G3 was one of the alternatives explored and included in a PSR prepared in 1991. The alternative was not advanced for further study in the 2004 PSR, but was reinvestigated (and first named Alternative G3) at that stage by request of Caltrans staff during the project development process in March of 2005. This alternative would consist of a diamond interchange except for the southbound off-ramp. The southbound off-ramp heading eastbound would be reconfigured as a loop ramp, eliminating left turns for southbound-to-eastbound traffic at Genesee Avenue.

Benefits from Alternative G3 would include improved signal operation at the termini of the southbound ramps at Genesee Avenue. The northbound off-ramp onto Genesee Avenue, however, would still be constrained by congestion at the ramp intersection east of I-5. Other benefits would include additional storage for southbound vehicles exiting the freeway and reduction of traffic congestion at the intersection of the southbound I-5 ramps with Genesee Avenue west of the freeway.

Despite the benefits, the degree of traffic circulation improvements associated with Alternative G3 would not reduce the congestion as much as the Project. In addition, this alternative would have major R/W impacts on City and UCSD properties. The UCSD Long Range Development Plan (LRDP) shows a planned building on the parcel (31,178 gross m² [335,616 gross ft²]) that would have to be acquired. Additional R/W of approximately 2.2 hectares (ha; 5.5 acres [ac]) would be needed, as would very large retaining walls. The Project design team determined that the acquisition cost for the land and the loss of the building site would have substantial capital cost. For these reasons, Alternative G3 is not considered a viable alternative.

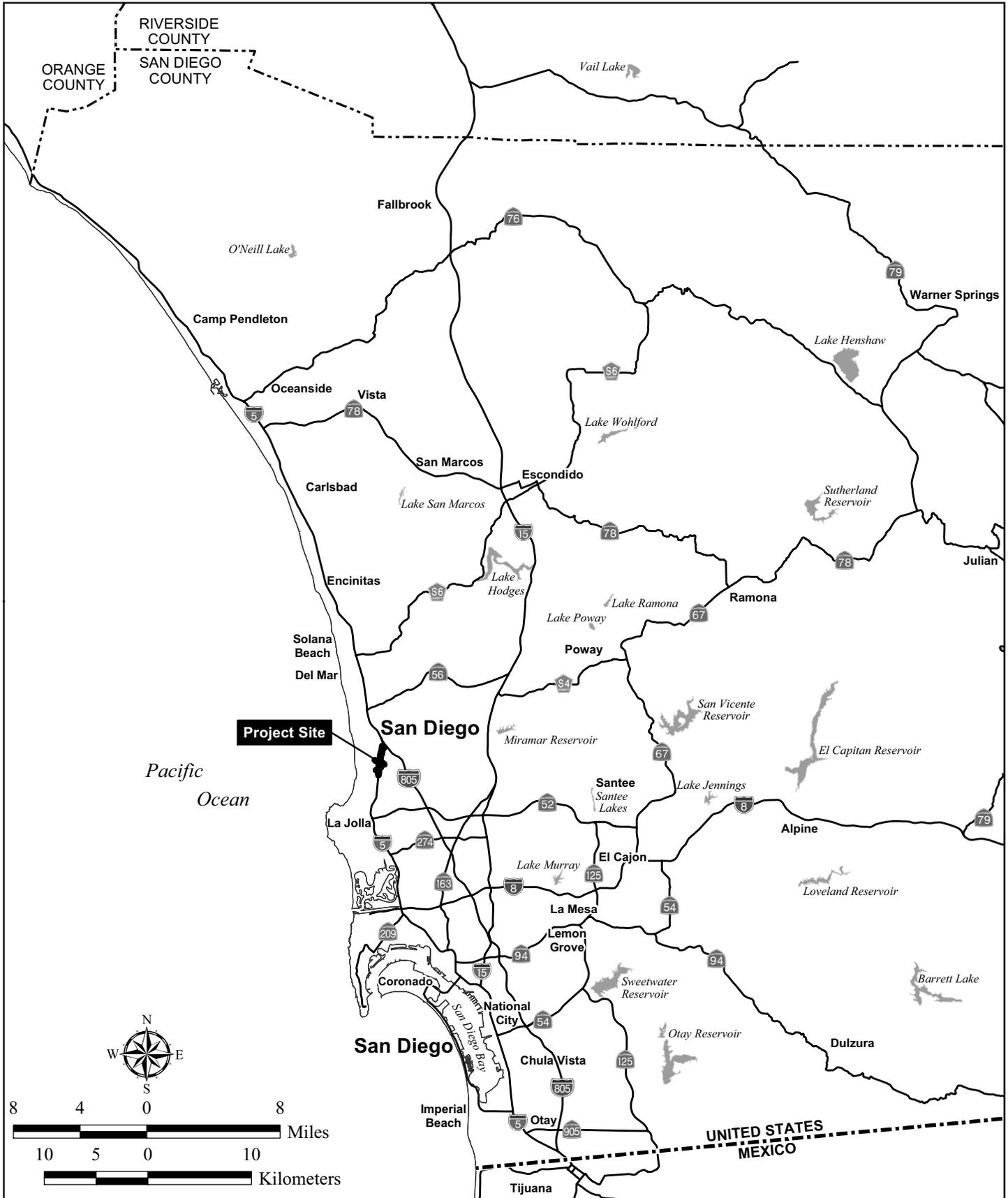
1.6.3 Large Retaining Wall to Stabilize Ancient Landslide

An alternative design that would avoid impacts to wetlands was considered. There is an existing ancient landslide located under the existing southbound I-5 off-ramp to Genesee Avenue that potentially is unstable and should be stabilized. The Project design team examined the potential use of a large retaining wall to stabilize the embankment as proposed for the I-5/Genesee Avenue Reconstruction Project, as an alternative to the proposed earthen buttress design. Based on the available technical information, it was concluded by the Project design team that any typical application of retaining wall (structural concrete, steel, soldier pile with lagging, soil-nail, or tie-back wall) cannot adequately be designed to provide the required factor of safety for supporting the roadway and stabilizing the landslide. The proposed earthen buttress consists of a large amount of soil deposited and compacted at the toe of the existing ancient landslide area. The earthen buttress design is considered a superior engineering design. The large retaining wall alternative was therefore rejected based on design feasibility.

1.7 PERMITS AND APPROVALS NEEDED

As shown on Table 1-1, the following permits, reviews, and approvals would be required for Project construction:

| Agency | Permit/Approval | Status |
|--|--|---------------|
| California Coastal Commission | Consolidated Coastal Development Permit | Pending |
| United States Fish and Wildlife Service (USFWS) | Section 7 Consultation for threatened and endangered species | Completed |
| United States Army Corps of Engineers | Clean Water Act Section 404 Nationwide Permit | Pending |
| California Department of Fish and Game | Section 1602 Streambed Alteration Agreement | Pending |
| San Diego Regional Water Quality Control Board (RWQCB) | Section 401 Water Quality Certification | Pending |
| | Conformance with General Groundwater Extraction Waste Discharge Permit | Pending |
| State Water Resources Control Board (SWRCB) | Conformance with Caltrans Permit for Storm Water Discharges From Caltrans Properties, Facilities, and Activities | Active |
| | General Construction Activity Storm Water Permit | Active |
| California Public Utilities Commission | Utility Construction Permit Request | Pending |



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Regional Location Map

INTERSTATE 5/GENESEEE AVENUE INTERCHANGE RECONSTRUCTION

Figure 1-1

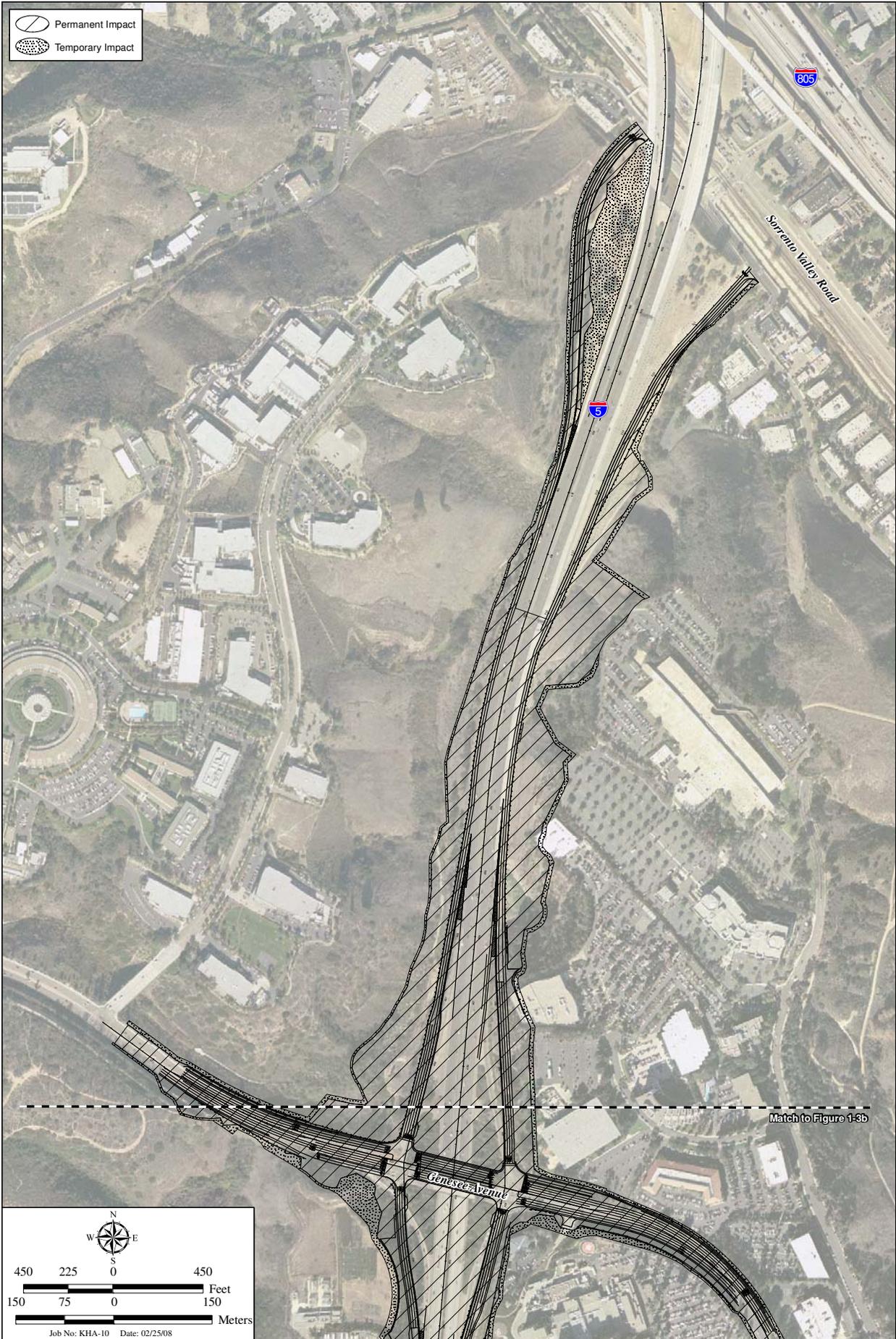


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Project Vicinity Map

INTERSTATE 5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION

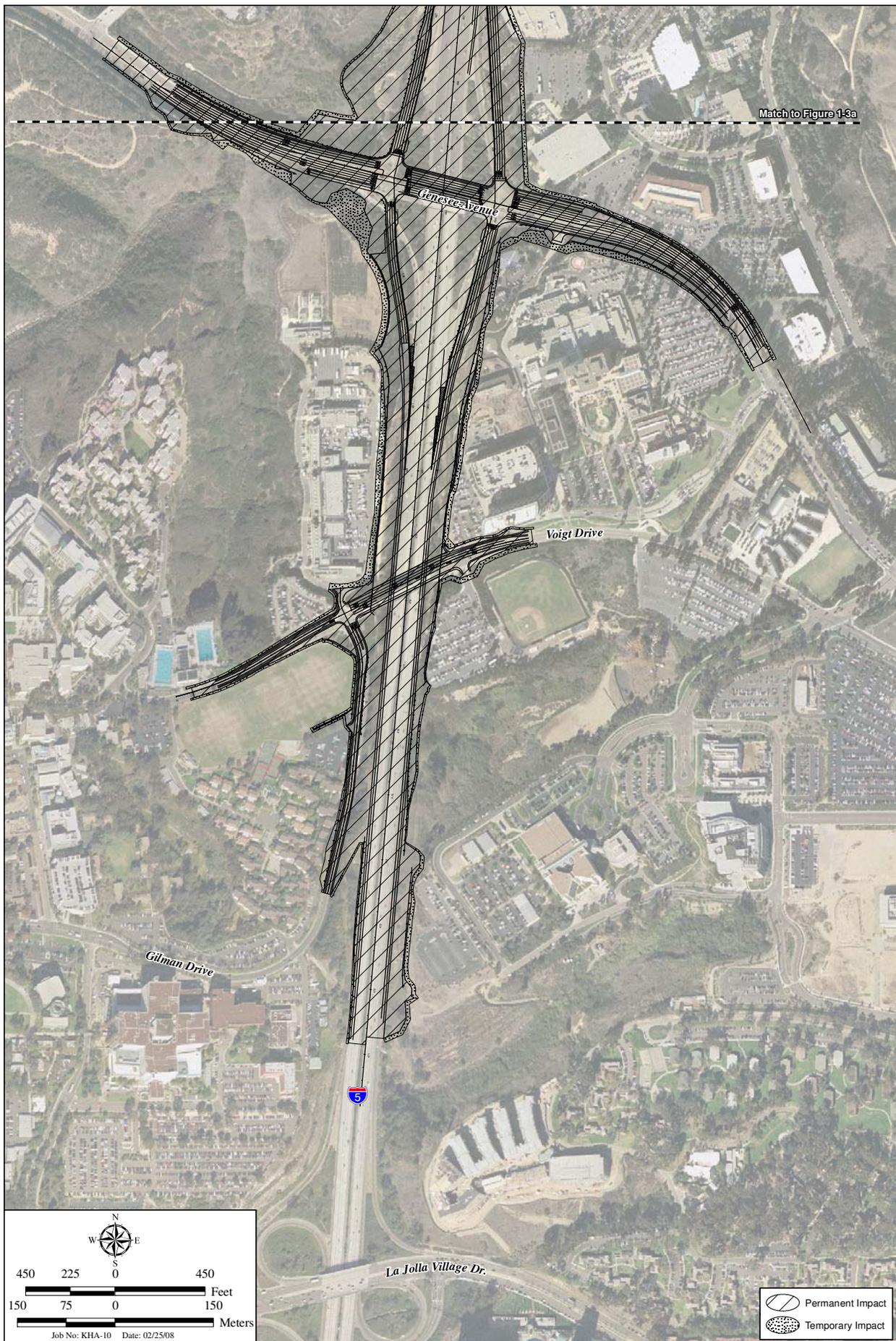
Figure 1-2



Proposed Improvements

INTERSTATE 5/GENESEEE AVENUE INTERCHANGE RECONSTRUCTION

Figure 1-3a



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Proposed Improvements

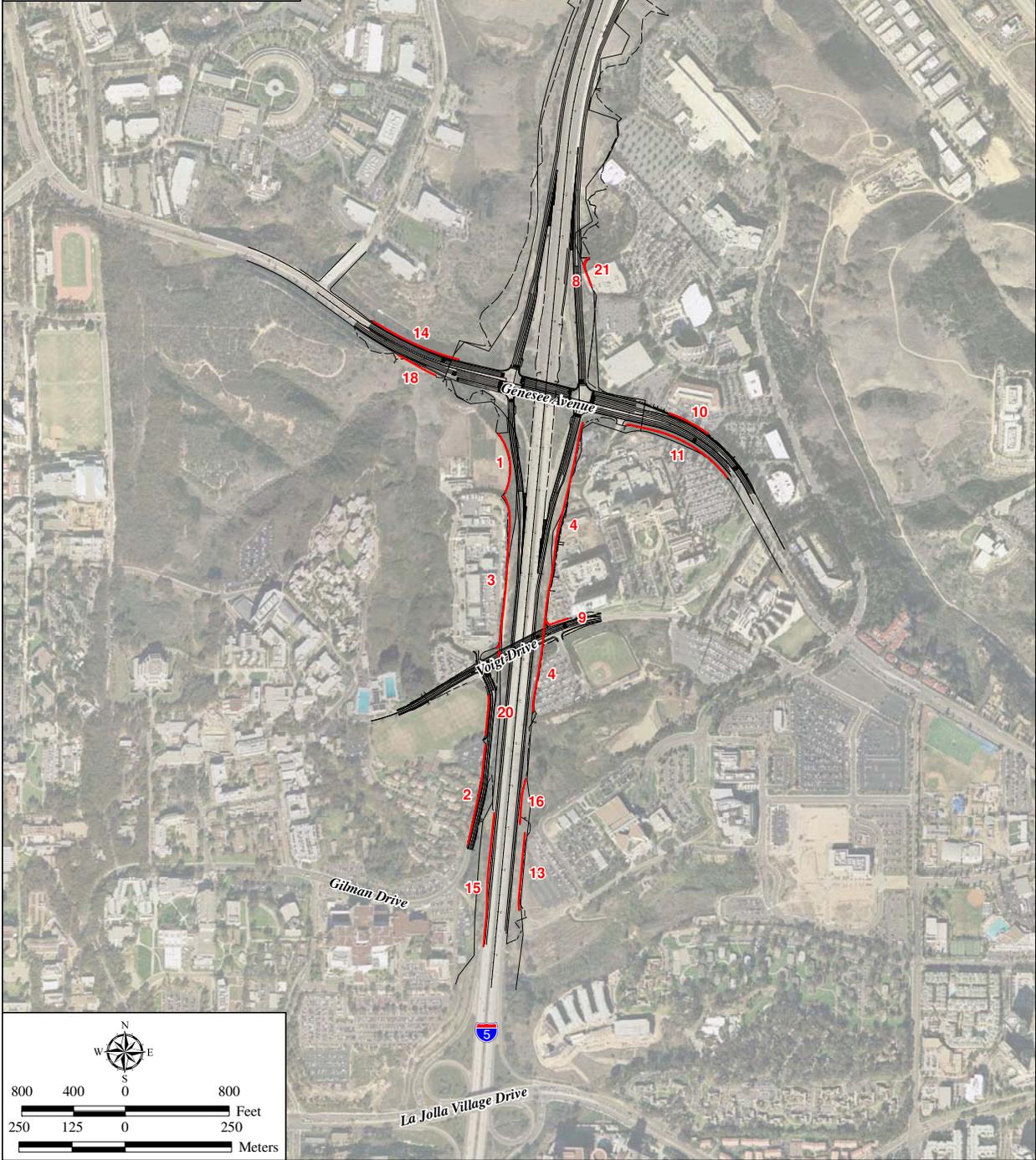
INTERSTATE 5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION

Figure 1-3b

LEGEND

 Retaining Walls

| Number | Length m (ft) | Maximum Height m (ft) |
|--------|------------------|--------------------------|
| 1 | 150 (492) | 10.0 (33) |
| 2 | 242 (794) | 1.5 (5) |
| 3 | 370 (1,214) | 5.8 (19) |
| 4 | 695 (2,280) | 15.8 (52) |
| 8 | 78 (256) | 12.0 (39) |
| 9 | 63 (207) | 5.0 (16) |
| 10 | 106 (348) | 1.5 (5) |
| 11 | 278 (912) | 7.0 (23) |
| 13 | 185 (607) | 9.6 (31) |
| 14 | 224 (735) | 6.6 (22) |
| 15 | 318 (1,043) | 4.2 (14) |
| 16 | 111 (364) | 5.0 (16) |
| 17 | 261 (856) | 8.4 (28) |
| 18 | 102 (335) | 7.0 (23) |
| 20 | 98 (321) | 3.0 (10) |
| 21 | 17 (56) | 1.0 (3) |



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Proposed Retaining Wall Locations

INTERSTATE 5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION

Figure 1-4

AFFECTED ENVIRONMENT;
ENVIRONMENTAL CONSEQUENCES;
AND AVOIDANCE, MINIMIZATION,
AND/OR MITIGATION MEASURES

CHAPTER 2.0 – AFFECTED ENVIRONMENT; ENVIRONMENTAL CONSEQUENCES; AND AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

This chapter addresses potential environmental impacts of the Project and identifies avoidance, minimization, and mitigation measures that would be implemented as part of the Project. Avoidance, minimization, and mitigation measures, as required, are discussed for each environmental issue area addressed in the following subchapters.

As part of the scoping and environmental analysis conducted for the Project, the following environmental issues were considered, but no impacts were identified:

- *Properties Subject to Section 4(f) of the Department of Transportation Act of 1966:* Several properties were investigated to determine if they would be considered to be protected resources under 49 U.S.C. 303 and 23 CFR 774. It was determined that none of the properties qualified as a publicly accessible park, recreation area, wildlife or waterfowl refuge, or historic site per the regulations; therefore, no impacts would occur.
- *Farmlands/Timberlands:* The Project site is not located on land under a Williamson Act contract or within a Timber Production Zone, and no agricultural resources are located in the vicinity. Project implementation would not convert farmland to non-agricultural uses or affect any farmlands or timberlands.
- *Community Impacts (Relocations):* Project implementation would not displace any housing or businesses in the Project area.
- *Wild and Scenic Rivers:* There are no wild and scenic rivers in the Project study area; therefore, there are no impacts to these resources.

Consequently, there is no further discussion regarding these issues in this document.

HUMAN ENVIRONMENT

2.1 LAND USE

This subchapter identifies adopted land use plans, policies, and regulations applicable to the Project; describes existing land uses within the Project study area; evaluates potential land use impacts associated with implementation of the Project and No Build Alternative; and recommends avoidance, minimization, and mitigation measures, as appropriate.

2.1.1 Regulatory Setting

Relevant Land Use Plans, Policies, and Ordinances

Plans, policies, and ordinances that pertain to land use and transportation planning within the Project area are contained in the San Diego Association of Governments (SANDAG) Regional Comprehensive Plan (RCP), 2030 San Diego Regional Transportation Plan: Pathways for the Future (2030 RTP), Financially Constrained 2010 Regional Transportation Improvement Program (2010 RTIP), Multiple Species Conservation Program (MSCP), Historic Resource Regulations, City of San Diego General Plan (General Plan), Community Plan, North University City Public Facilities Financing Plan, and Long Range Development Plan (LRDP). These land use plans and ordinances are described below.

Coastal Zone

The Project is within the coastal zone. The Coastal Zone Management Act of 1972 (CZMA) is the primary federal law enacted to preserve and protect coastal resources. The CZMA sets up a program under which coastal states are encouraged to develop coastal management programs. States with an approved coastal management plan are able to review federal permits and activities to determine if they are consistent with the state's management plan.

California has developed a coastal zone management plan and has enacted its own law, the California Coastal Act of 1976, to protect the coastline. The policies established by the California Coastal Act are similar to those for the CZMA; they include the protection and expansion of public access and recreation, the protection, enhancement and restoration of environmentally sensitive areas, protection of agricultural lands, protection of scenic beauty, and protection of property and life from coastal hazards. The California Coastal Commission is responsible for implementation and oversight under the California Coastal Act.

Just as the federal CZMA delegates power to coastal states to develop their own coastal management plans, the California Coastal Act delegates power to local governments (15 coastal counties and 58 cities) to enact their own local coastal programs (LCPs). LCPs determine the short- and long-term use of coastal resources in their jurisdiction consistent with the California Coastal Act goals.

Regional Comprehensive Plan for the San Diego Region

The RCP (SANDAG 2004) is the strategic planning framework for the San Diego region. It creates a regional vision and provides a broad context in which local and regional decisions can be made that foster a healthy environment, vibrant economy, and high quality of life for all residents. The RCP balances regional population, housing, and employment growth with habitat preservation, agriculture, open space, and infrastructure needs. One of the major focuses of the RCP is improving connections between land use and transportation using smart growth principles. The RCP addresses the major elements of planning for the San Diego region, including urban form, transportation, housing, healthy environment, economic prosperity, public facilities, and border issues. The RCP recognizes that many of the region's major transportation facilities are operating at or beyond their current capacities. The Transportation Element of the RCP is discussed below.

Transportation Element

The Transportation Element of the RCP discusses the vision for the San Diego region in 2030 with regard to transportation and includes a description of existing conditions; key issues; and recommended goals, policy objectives, and actions. The RTP (SANDAG 2003a, updated in 2006) plays a key role in implementing the RCP. In order to implement the RCP, the RTP and related programming documents will need to be updated in a way that maximizes opportunities for local jurisdictions to implement smart growth. Relevant key issues include implementing the 2030 Mobility Network presented in the RTP, funding of necessary improvements, and coordinating among agencies. The 2030 Mobility Network provides the infrastructure necessary to meet the region's overall mobility needs into 2030. Applicable policy objectives include reducing traffic congestion on freeways and arterials, and creating more walkable and bicycle-friendly communities consistent with good urban design concepts. Since the Project is

included in the adopted 2006 Update of the RTP, it would constitute an integral part of the realization of the RCP's goals.

Regional Transportation Plan

On November 30, 2007, the SANDAG Board of Directors approved the 2030 San Diego Regional Transportation Plan: Pathways for the Future (2030 RTP). The RTP is the adopted long-range transportation planning document for the San Diego region. It is used as the basis for funding decisions made through the RTIP (SANDAG 2010), which is discussed under the next heading. The plan covers public policies, strategies, and investments to maintain, manage, and improve the regional transportation system through 2030. The RTP is the transportation component of the RCP. The RTP was developed around four main components: land use, system development, system management, and demand management. The plan includes new and improved connections to more efficiently move people and goods throughout the region, by providing more convenient, fast, and safe travel choices for public transit, ridesharing, walking, biking, private vehicles, and freight.

Applicable policy goals of the RTP include improving the mobility of people and freight, improving accessibility to major employment and other regional activity centers, improving the reliability and safety of the transportation system, maximizing the efficiency of the existing and future transportation system, and minimizing effects on the environment. Improving mobility is considered the RTP's highest goal. RTP policy objectives that apply to the Project include tailoring transportation modal improvements to reflect supporting land uses in major travel corridors, encouraging walkability and better bicycle access within the local communities, and focusing roadway and transit improvements in urban/suburban areas.

The RTP includes a Revenue Constrained Scenario of facilities and programs that would best maintain mobility in the region if the funding levels for transportation do not increase before 2030. The RTP also includes a Reasonably Expected Revenue Scenario (if more funding becomes available), and an Unconstrained Scenario. The Project, as originally designed, is included in all three revenue scenarios of the RTP under "Regionally Significant Arterials and Local Freeway Access Interchanges."

Regional Transportation Improvement Program

The RTIP is consistent with the RTP and incrementally implements the vision presented in the RTP. The RTIP is a five-year capital improvement program for transportation projects that is updated by SANDAG every two years and reflects the region's priorities for short-range transportation system improvements. The currently adopted 2010 RTIP (SANDAG 2010) covers fiscal years 2010/2011 through 2014/2015. Funding for the transportation projects in the RTIP comes from federal, state, and local revenue sources, including *TransNet*, the local transportation sales tax program. The Project is included in the 2010 RTIP as Metropolitan Planning Organization (MPO) ID No. SD103, and allocates funds for construction of improvements to the I-5/Genesee Avenue interchange.

Multiple Species Conservation Program

The MSCP is a comprehensive biological habitat conservation planning program developed by the City (as well as other local resources agencies including the U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Game [CDFG]) for southwestern San Diego County. The program provides the basis for the issuance of permits under the federal and state

Endangered Species acts, and the California Natural Communities Conservation Planning Act of 1991. A goal of the MSCP is to preserve a network of habitat and open space, protecting biodiversity. Local jurisdictions, including the City, implement their portions of the MSCP through subarea plans, which describe specific implementing mechanisms.

The City's MSCP Subarea Plan was approved in March 1997. The Implementing Agreement signed by the City, USFWS, and CDFG in July 1997 allows the City to issue Incidental Take Authorizations under the provisions of the MSCP. Applicable state and federal permits are still required for wetlands and listed species that are not covered by the MSCP. The City has adopted Biology Guidelines that, together with Environmentally Sensitive Lands regulations and the MSCP Subarea Plan, are used to evaluate project-related impacts and required mitigation. The Biology Guidelines provide for variable mitigation ratios for impacts to different habitats and the location of the impacted area, and proposed mitigation lands relative to the Multi-Habitat Planning Area (MHPA).

The MHPA is a 22,998-ha (56,831-ac) area in the City, the preservation of which is intended to protect core biological resource areas and corridors, and subsequently support preservation of the sensitive species that reside in or use these areas. The MHPA is the area within which the permanent MSCP preserve is planned to be assembled and managed for its biological resources. The MHPA is defined in many areas by mapped boundaries and also is defined by quantitative targets for conservation of vegetation communities, as well as goals and criteria for preserve design. Portions of the Project site are located within or adjacent to the MHPA. The City's Subarea Plan details mitigation requirements for direct impacts to sensitive habitats and mitigation measures (land use adjacency guidelines) to address indirect impacts to sensitive habitats located within or adjacent to the MHPA. The Subarea Plan considers public roadways to be a compatible use within the MHPA. The Plan discourages impacts to wetland habitats and requires any project affecting wetlands to provide an analysis of alternatives that would avoid wetland impacts.

Historical Resource Regulations

The City of San Diego Historical Resources Regulations (San Diego Municipal Code, Chapter 14, Article 3, Division 2) are intended to protect, preserve and, where damaged, restore the historical resources within the City, which include historical buildings, historical structures or historical objects, important archaeological sites, historical districts, historical landscapes, and traditional cultural properties. These regulations apply to all proposed development within the City when certain historical resources are present on the development site, including designated historical resources, historical buildings, historical districts, historical landscapes, historical objects, historical structures, important archaeological sites, and traditional cultural properties. Depending on site conditions, a Native American observer may also be required. The applicant must provide documentation ensuring that no recorded archaeological sites would be impacted with this activity. The Historical Resources Regulations also require historical resource monitoring while testing is performed to avoid or minimize effects on resources.

City of San Diego General Plan

The City of San Diego General Plan (hereafter referred to as "General Plan;" City of San Diego 2008) represents the comprehensive long-term plan for the physical development of the City and provides a foundation for land use decisions within the City. In order to achieve this plan, the General Plan includes a series of elements that address specific aspects of the City's development. A total of 10 elements are contained in the General Plan: Land Use and

Community Planning; Mobility; Urban Design; Economic Prosperity; Public Facilities, Services, and Safety; Recreation; Conservation; Noise; Historic Preservation; and Housing. The General Plan also lays the foundation for the more specific community plans, such as the University Community Plan described below, which are based on the General Plan goals, guidelines, standards, and recommendations, and tailored for the specific planning goals and objectives of the community planning areas. The elements of the General Plan that pertain to the Project and No Build Alternative are discussed below.

Mobility Element

The General Plan's Mobility Element identifies the proposed transportation network and strategies which have been designed to meet the future transportation needs generated by the planned land uses. The Mobility Element provides the framework for developing a balanced, multi-modal transportation system that includes streets, highways, and parking to serve vehicular needs; transit, bicycle, and pedestrian facilities; as well as airports, railroads, and maritime facilities. Relevant goals contained in the element include:

- A street and freeway system that balances the needs of multiple users of the public right-of-way.
- Vehicle congestion relief.
- Safe and efficient street design that minimizes environmental and neighborhood impacts.

Applicable policies include the following:

- Provide adequate capacity and reduce congestion for all modes of transportation on the street and freeway system.
- Improve operations and maintenance on City streets and sidewalks.

Guidelines and standards with regard to streets and highways include designing street and highway facilities to accommodate forecasted travel demand at acceptable levels of service; evaluating proposed streets and highways on the basis of demonstrated need and consistency with growth management goals; incorporating transit, rideshare, bicycle, and pedestrian facilities in the design plans for new streets; emphasizing aesthetics and noise reduction in the design, improvement, and operational management of streets and highways; preserving trees and other scenic features in the median and along the roadside; prompt replanting of exposed slopes and graded areas to avoid erosion and unsightliness; and increasing the efficiency of existing streets and highways by adequate maintenance and appropriate design and operational improvements (principle objectives should be to minimize heavy traffic congestion [level of service (LOS) E or below] and to increase overall average vehicle speeds). This element also sets forth guidelines and standards for bicycles and pedestrians, which includes designing and maintaining bicycle and pedestrian facilities for user convenience and safety.

Conservation Element

The majority of the environmental goals, guidelines, and recommendations of the General Plan can be found in the Conservation Element. This element addresses climate change and sustainable development, open space and landform preservation, coastal resources, water resources management, urban runoff management, air quality, biological diversity, wetlands, sustainable energy, urban forestry, mineral production, and agricultural resources. Part of the

City's goals and policies is to reduce its overall carbon dioxide footprint by improving energy efficiency, especially in the transportation sector. The General Plan also calls for the protection and conservation of wetlands and sensitive species.

Noise Element

The most prevalent noise sources in San Diego are from motor vehicle traffic on interstate freeways, state highways, and local major roads, generally because of higher traffic volumes and speeds. The Noise Element provides goals and policies to guide compatible land uses and the incorporation of noise attenuation measures for new uses to protect people living and working in the City from an excessive noise environment. One goal of the Noise Element is produce minimal excessive motor vehicle traffic noise on residential and other noise-sensitive land uses.

The Noise Element provides the City's standards for land use compatibility with various transportation noise levels. Both current and projected noise levels are to be used in determining land use compatibility, and transportation facilities are to be designed and managed to minimize their noise impact on surrounding uses. The compatibility thresholds include: 65 decibels (dB) for schools, parks, open space, and single- and multi-family residential areas; 70 dB for office buildings; and 75 dB for commercial-retail, shopping centers, and industrial uses. It should be noted that Caltrans projects would comply with FHWA noise standards, the FHWA publication Procedures for Abatement of Highway Traffic Noise and Construction Noise (23 Code of Federal Regulations [CFR] 772) and the Caltrans Noise Protocol. Refer to Subchapter 2.14 for additional discussion of noise issues.

University Community Plan

The Community Plan was adopted in 1987 and last amended in 1990. The Community Plan includes 12 elements that address plan policies specific to development within the University community planning area. There are four primary subareas within the plan. The Project site falls within Subarea 1, Torrey Pines, and Subarea 2, Central Subarea. Community Plan elements and each element that applies to the Project are discussed below.

Urban Design Element

The Urban Design Element of the Community Plan contains policies to guide the character and scale of development within the community. The overall urban design goals include:

- Improve accessibility and use relationships within the community by establishing well-defined multi-modal linkage systems
- Establish standards that give physical design direction to private developments and public improvements
- Provide for the needs of pedestrians in all future design and development decisions
- Ensure that San Diego's climate and the community's unique topography and vegetation influence the planning and design of new projects
- Ensure that every new development contributes to the public realm and street livability by providing visual amenities and a sense of place

The automobile linkages section of the Urban Design Element addresses the effects of proposed street widenings on community character; the importance of street landscaping; and

the need to reinforce community-unifying roads, including Genesee Avenue. Genesee Avenue is specifically identified as a major community roadway that is recommended for widening.

Transportation Element

The Transportation Element addresses future roadway improvements, as well as bicycle, pedestrian, and transit circulation throughout the community. Goals are as follows:

- Provide a network of transportation systems that are integrated, complementary, and compatible with other City-wide and regional goals
- Provide a balanced public transportation system to link the entire community to all of its own activity areas and to the San Diego metropolitan area as a whole
- Encourage alternative modes of transportation by requiring developer participation in transit facility improvements, the Intra-Community Shuttle Loop, and the Light Rail Transit line
- Ensure implementation of Council Policy 600-34, Transit Planning and Development

The Transportation Element specifically recommends improvements to the I-5/Genesee Avenue interchange (Streets and Highways Proposal 1f).

Open Space and Recreation Element

The Open Space and Recreation Element identifies “open space areas in the community which should be retained and enhanced and provides guidelines for their functional integration.” The goals and proposals of the Open Space and Recreation Element consider natural resource-based parks and areas as well as recreational parks and commercially developed recreational opportunities. The Project site is located adjacent to University of California, San Diego (UCSD) and MHPA open space areas.

Noise Element

The Noise Element addresses the potential for noise impacts to sensitive receptors as a result of aircraft noise from Marine Corps Air Station (MCAS) Miramar; major transportation routes; and the San Diego Northern Railway (SDNR; an affiliate of the North County Transit District [NCTD]), which purchased the Burlington, Northern, and Santa Fe (BNSF) Railway line. The goals of the element are to:

- Minimize and avoid adverse noise impacts by planning for the appropriate placement and intensity of land uses relative to noise sources
- Provide guidelines for mitigation of noise impacts where incompatible land uses are located in a high noise environment

Safety Element

The Safety Element addresses geologic hazards and public safety associated with MCAS Miramar. The goals of the Safety Element are as follows:

- Protect the public health and safety by guiding future development so that land use is compatible with identified geologic risks, including seismic and landslide hazards

- Ensure that proposed development does not create or increase geologic hazards either on or off site
- Promote public safety by taking into account aircraft accident potential in the placement of structures and activities
- Provide for the safe operation of MCAS Miramar through the preservation of appropriate departure corridors

Resource Management Element

The Resource Management Element addresses the preservation and enhancement of natural resources within the community, including topographic features, biological resources, coastal resources, energy and water supplies, cultural resources, and air quality. It includes the following relevant goals:

- Preserve the community's natural topography, particularly in the coastal zone and in major canyon systems
- Increase accessibility to the beaches and shoreline in a manner compatible with resources preservation
- Protect biological resources through the wise management and use of community's natural open space and parks
- Contribute to the maintenance or improvement of regional water quality by controlling siltation and urban pollutants in runoff
- Encourage conservation of water in the design and construction of buildings and in landscaping
- Reduce energy consumption by requiring energy efficiency in building design and landscaping, and by planning for a self-contained community and energy-efficient transportation
- Provide for the identification and recovery of significant paleontological resources

North University City Public Facilities Financing Plan Fiscal Year 2007

The North University City Public Facilities Financing Plan identifies the public facilities that will be needed as the community develops in accordance with the Community Plan. The Project is identified in this document as Project Number NUC-24.

University of California, San Diego 2004 Long Range Development Plan

The 2004 UCSD LRDP (UCSD 2004a) is a general land use plan to guide the physical development of the campus through the 2020/2021 academic year based on UCSD's academic, administrative, and support programs; projected student enrollment; campus population growth; and anticipated space program and land uses.

A portion of the Project site is located within the UCSD campus, including segments of Voigt Drive and Gilman Drive. The 2004 LRDP identifies these roadways as traversing Park, Sports and Recreation, General Services, and Housing land use designations.

Land Use Element

The Park denotes open space areas that have ecological or aesthetic value and are subject to special constraints on development, such as canyons determined to have biological or habitat value, the eucalyptus grove that winds throughout the campus, and restoration lands that consist of slopes, canyons and bluffs. The 2004 LRDP further states that the UCSD's natural resources (the eucalyptus groves, canyons, hillsides, and bluff areas) have been conceptualized collectively as the UCSD Park. This integrated system of open spaces contributes to the campus' identity and character and is planned as a permanent campus feature to preserve these natural resources. The UCSD Park is separate and distinct from land areas within the University of California Natural Reserve System.

2.1.2 Affected Environment

Existing and Future Land Use

Existing Land Use

The Project site is located within the City's University community, which is characterized by mixed-use, urban development anchored by the UCSD campus, the University Towne Centre (UTC) regional shopping center, research/corporate offices, medical centers, and higher-density urban residential development. Figure 2.1-1 depicts existing land uses within the Project area.

Existing land uses adjacent to the Project site include the Veteran's Affairs Medical Center, UCSD housing within Sixth College, Warren Field, the UCSD Campus Services Complex, and industrial park/research and development uses on the west side of I-5. UCSD Mesa Housing, UCSD Medical Center (including Thornton Hospital), Scripps Memorial Hospital, and industrial park/research and corporate offices occur on the east side of I-5. The I-5/I-805 merge, light industrial uses, and single- and multi-family housing are located to the north. Regional shopping centers (i.e., UTC and La Jolla Village Square), neighborhood shopping centers, commercial office and retail uses, institutional facilities (e.g., schools and churches), and higher density residential development occur to the south. In general, land uses north of La Jolla Village Drive consist of industrial/business park, research and development offices, and institutional, and uses south of La Jolla Village Drive consist of mixed-use, multi-family residential, and commercial retail.

The Project area has one of the highest concentrations of business/employment land uses in the region, as well as other major activity centers and regional transportation facilities, including UCSD, UTC, and La Jolla Village Square shopping centers, I-5, and I-805. As a result, the Project area experiences a high volume of both intra- and inter-regional traffic trips. Commute patterns to the area's employment centers and UCSD use I-5, I-805, and other local major roadways, resulting in congested conditions during peak traffic hours.

Land Use and Zoning Designations

Figure 2.1-2 depicts existing land use designations in the Project site area. As shown in Figure 2.1-2, the land use designations for the Project site, as designated in the Community Plan, include Public Facilities/Institutional, Industrial, and Open Space. Additional surrounding land use designations include Commercial and Residential.

Zoning designations of the Project site and surrounding area are shown in Figure 2.1-3. The Project site falls within the following zones (generally from south to north):

- RS-1-14 (Residential-single Unit [planned or future urbanizing]; 1 dwelling unit per minimum 5,000-ft² lot)
- CO-1-2 (Commercial Office; mix of office and residential that serves as an employment center)
- CV-1-1 (Commercial Visitor; mix of large-scale, visitor serving uses, and residential)
- IP-1-1 (Industrial-park; research and development uses with some limited manufacturing)
- RS-1-7 (Residential-single unit; 1 dwelling unit per minimum 5,000-ft² lot)
- IL-3-1 (Industrial-light; mix of light industrial, office, and commercial uses)

Development Trends

The Project site is located within the University community planning area, which has developed into a major urban node due to the regional shopping centers; science research centers; corporate offices; medical facilities; UCSD; and accessibility to the regional, multi-modal transportation network. The University community planning area encompasses approximately 3,440 ha (8,500 ac) that are approximately 95-percent developed with the uses described previously. Some undeveloped land occurs within the Project site vicinity; however, much of this land consists of slopes and canyons that are not suitable for development.

The UCSD campus and mesa tops on both sides of the freeway continue to develop with additional institutional and industrial/business park and research and development uses, as called for in the Community Plan, while new residential development primarily occurs within the denser portion of the urban node to the south. Recent land development proposals in the community primarily consist of high-density, multi-family residential and science research development. Figure 2.1-4 and Table 2.1-1 present the current proposed land development and public projects in the Project area. These emerging developments are consistent with existing land use patterns.

| Map Key | Project Name | Description | Status |
|----------------|---------------------------------|---|---|
| 1 | Eastgate Technology Park | 32-lot, 236,313-m ² (2,543,655-ft ²) industrial/ business park | Near completion; 2 vacant lots remain |
| 2 | Nexus University Science Center | 17,791 m ² (191,500 ft ²) of research and development office | Under construction |
| 3 | Costa Verde Commercial Center | 6,968 m ² (75,000 ft ²) of additional neighborhood/community commercial within the existing Costa Verde Commercial Center which is currently developed with a 16,537-m ² (178,000-ft ²) shopping center | Community Plan Amendment initiated on February 26, 2004 |
| 4 | Towne Centre Science Park | 17,652 m ² (190,000 ft ²) of research and development office | Completed |

| Map Key | Project Name | Description | Status |
|----------------|---|---|---|
| 5 | La Jolla Commons | 32 story, 156 unit condominium tower, 32 story, 112 unit/256 room hotel tower, 15 story, 31 633-m ² (340,500-ft ²) office tower, 3,716-m ² (40,000-ft ²) research and development | Office tower completed. Construction of condominium tower or condominium/hotel tower has not begun |
| 6 | Scripps Memorial Hospital | Two 29,079-m ² (313,000-ft ²) hospital towers and a 2,701-m ² (141,400-ft ²) medical office building | Approved September 2009 |
| 7 | La Jolla Crossroads | 15,050 m ² (162,000 ft ²) of research and development office park, 1,500 residential units | Residential component completed |
| 8 | Nobel Research Park | 71,238 m ² (766,800 ft ²) of research and development office | Approximately 50 percent complete |
| 9 | Mid-coast Light Rail Transit Project | 18-km (11-mi) extension of the San Diego trolley system from the Old Town Transit Center to University City (ending with Light Rail Transit station near UTC along Genesee Avenue) | Supplemental Environmental Impact Statement/Subsequent EIR in preparation |
| 10 | UCSD 2004 Long Range Development Plan | Various campus facilities | Various projects underway/in planning process |
| 11 | Regents Road Bridge | Bridge crossing over Rose Canyon to connect Regents Road | Contract approved for design in order to analyze in new project specific EIR |
| 12 | Monte Verde | 560 units approved in one 23-story tower, two 22-story towers and one 21-story tower | Approved. Construction has not begun |
| 13 | I-805 Managed Lanes Project | Approximately 18-km (11-mi) managed lanes facility in the median of I-805 between SR 905 and I-5 | Corridor study completed in 2005. Preliminary engineering and environmental studies are underway. Bus Rapid Transit service is scheduled to begin in 2010. All improvements are planned to be functioning by 2030 |
| 14 | UTC Revitalization | Phased development of up to 69,677 m ² (750,000 ft ²) of new retail and entertainment space and 250 residential dwelling units, with the option to build less retail and more residential | Approved by City Council in July 2008 |
| 15 | I-5/La Jolla Village Drive Overcrossing/Interchange | Widen 2,134 m (7,000 ft) of roadway, including the overcrossing, and improve other conditions at the interchange | Completed |

| Table 2.1-1 (cont.) PROPOSED LAND DEVELOPMENT AND PUBLIC PROJECTS IN THE PROJECT AREA | | | |
|--|---|--|--|
| Map Key | Project Name | Description | Status |
| 16 | I-5/Sorrento Valley Road Interchange | Redesign I-5/Sorrento Valley Road interchange and add auxiliary lanes between La Jolla Village Drive and Sorrento Valley Road | Environmental studies/site design to be completed |
| 17 | North Coast I-5 HOV/Managed Lane Project | Managed lanes in each direction on I-5 from Voigt Drive north to Del Mar Heights Road, and two managed lanes in each direction from Del Mar Heights Road to Vandergrift Boulevard/Harbor Drive in Oceanside on I-5. Project may also include one general purpose lane in each direction from Del Mar Heights Road to SR 78 | Environmental studies underway. Draft environmental document circulated to public; comment period closed November 22, 2010 |
| 18 | I-5/I-805 Widening | Separate freeway bypass system constructed from the junction of I-5 and I-805 to the Del Mar Heights Road interchange | Completed |
| 19 | SuperLoop Transit Project | High-frequency commuter bus project that would serve the campus and the rest of the University Community, including stop at UTC (preliminary design and environmental work currently being conducted by SANDAG) | Final EIR adopted by SANDAG in August 2007. Operations began in 2009 |
| 20 | Eastgate Plant Map Waiver | Subdivide an existing parcel for the creation of two lots on a 3.05-ha (7.54-ac) site | Approved by Hearing Office in April 2008 |
| 21 | Chestnut Drive Expansion | 8,882-m ² (95,609-ft ²) commercial building with 2 commercial condominium units | First review completed in February 2008 |
| 22 | Programmatic Environmental Impact Report and Master SDP/CDP Project (Sorrento – Flintkote Canyon) | Maintenance of existing access for sewers in Sorrento - Flintkote Canyon | First review due March 2008 |
| 23 | Congregation Beth Israel | 500-seat temple, school (75 pre-school and 180 kindergarten to eighth grade students) | Completed |
| 24 | Salk Institute | 19,527 m ² (210,182 ft ²) for a laboratory, residential quarters and day care | Approved by City Council on October 2008 |
| 25 | Scripps Green Hospital | Accessory hospital building and a parking structure | Approved by Planning Commission in November 2008 |
| 26 | Costa Verde North | Convert 652 existing residential units to condominiums | Approved by Planning Commission in June 2008 |
| 27 | Costa Verde South | Convert 614 existing residential units to condominiums | Approved by Planning Commission in June 2008 |
| 28 | La Jolla Center III | Community Plan Amendment for a new 15-story commercial office building | First review completed in March 2009 |

Parks and Recreation

Recreational facilities that are located in the Project site area within the UCSD campus include Warren Field and UCSD Park. Warren Field, located southwest of the Voigt Drive/Gilman Drive intersection on the west side of I-5, consists of a turf field with demarcated playing fields. Warren Field is not open to the general public. UCSD Park is approximately 125 ha (309 ac) park and is located on the University campus and comprised of Ecological Reserve, Grove Reserve, and Restoration Lands, as identified in the 2004 LRDP for UCSD.

2.1.3 Environmental Consequences

Project

Consistency with State, Regional, and Local Plans and Programs

Consistency with the Coastal Zone

The Project site lies within the Coastal Zone and traverses both the City's Local Coastal Program and the California Coastal Commission's (CCC's) jurisdiction. Permits would be obtained from the CCC; however, coordination between Caltrans, City, and CCC staff would be ongoing. With approval of a consolidated Coastal Development Permit (CDP) and implementation of proposed mitigation, the Project would be consistent with the CZMA.

Consistency with the Regional Comprehensive Plan for the San Diego Region

Transportation Element. The Project would contribute to the implementation of the goals presented in the RTP, as the Project would facilitate the improvement of the movement of people and goods through the Project area. This would be accomplished by relieving traffic congestion along Genesee Avenue and at its interchange with I-5, and by promoting safety by improving merge/diverge and weaving patterns. The Project also would be consistent with key policy objectives identified previously. The proposed improvements would reduce traffic congestion along portions of I-5 and Genesee Avenue and would include sidewalks and bicycle lanes along the new Genesee Avenue and Voigt Drive overcrossings to create a safer environment for pedestrians and bicyclists. Accordingly, the Project would be consistent with applicable key issues and policy objectives in the Transportation Element of the RCP.

Consistency with the Regional Transportation Plan

As noted in Section 2.1.1, Regulatory Setting, the Project, in its original design, is included in all three revenue scenarios of the RTP under "Regionally Significant Arterials and Local Freeway Access Interchanges." The expanded Project design, which includes widening of the on- and off-ramps from I-5 at Sorrento Valley Road, is included in the 2008 RTIP. In addition, the Project would comply with applicable policy goals and objectives. The Project would achieve acceptable LOS (LOS A through D) on the I-5/Genesee Avenue interchange, Genesee Avenue, and segments of I-5 through the year 2030. Delay times for vehicles to enter and exit I-5 from Genesee Avenue would be reduced (except southbound ramps during the morning peak) with implementation of the Project, which would improve mobility within and accessibility to the Project area. The Project would create a safe transportation corridor for vehicle users, bicyclists, and pedestrians. The proposed improvements would facilitate merge/diverge movements and reduce weaving that occurs between the Roselle Street (Sorrento Valley Road)

ramps and the I-5/Genesee Avenue interchange. The Project also would include bicycle lanes and sidewalks on the new Genesee Avenue and Voigt Drive overcrossings. As discussed in Subchapter 2.15, Natural Communities, the Project has been designed to avoid or minimize impacts to biological resources.

Consistency with the Regional Transportation Improvement Program

As stated in Section 2.1.1, Regulatory Setting, the Project is included in the 2010 RTIP as MPO ID No. SD103. The Project is consistent with the project description provided in the RTIP.

Consistency with the Multiple Species Conservation Program

As described previously, the MSCP identifies lands that would conserve habitat for federal and state endangered, threatened, or sensitive species. The input from the involved jurisdictions and other special district and agency participants resulted in the creation of the MHPA, a permanent preserve planned to be assembled and managed for biological resources. Areas not located within the MHPA are available for development proposals. Because of the highly developed setting, much of the Project study area is not located within the MHPA. Portions of a mesa north of Genesee Avenue and west of I-5 are designated as MHPA, as well as a small area north of Genesee Avenue and east of I-5.

The Project would be developed in compliance with the City's MSCP Subarea Plan. Project implementation would result in minor impacts to a very small portion of the MHPA (refer to Subchapter 2.15, Natural Communities). Proposed development within this portion of the MHPA consists of an existing roadway and associated vegetated road embankments, which is an allowable and compatible use within the MHPA, pursuant to the MSCP Subarea Plan (City 1997a). A portion of the road embankment contains Diegan coastal sage scrub, which would be impacted during Project construction. Following construction, resulting slopes within the MHPA area would be revegetated with Diegan coastal sage scrub.

The Project also would comply with the MHPA Adjacency Guidelines. As described in detail in Subchapter 2.15, Natural Communities, the Project has been designed to minimize indirect impacts to the MHPA due to adjacency concerns by the implementation of Project design measures, and by avoidance and minimization measures identified in Subchapter 2.15, Natural Communities.

The City's Subarea Plan requires avoidance of wetland habitats, if possible, and if not possible, requires analysis of alternatives that would avoid wetland impacts. The Project would impact wetland habitat due to the need to construct a buttress fill along the west side of the I-5/Genesee northbound off-ramp. As discussed in Subchapter 2.16, Wetlands and Other Waters, an alternative design that would avoid impacts to the wetland habitat was considered, but was rejected due to design infeasibility.

Consistency with the Historical Resources Regulations

Potential archaeological and historical resources within the Project study area are discussed in Subchapter 2.7, Cultural Resources. The Project's area of potential effect (APE) was surveyed for cultural resources, and no archaeological resources were identified during the survey. Additionally, no potentially important historic structures were identified within the APE.

Consistency with the San Diego General Plan

Mobility Element. The Project would reduce congestion and improve operational efficiencies at the I-5/Genesee Avenue interchange, as well as improve freeway ramps and the Voigt Drive overcrossing. Implementation of the proposed improvements would accommodate year 2030 traffic volumes and provide for acceptable LOS along the I-5/Genesee Avenue interchange, Genesee Avenue, and segments of I-5. Bicycle lanes and sidewalks also would be provided along the new Genesee Avenue and Voigt Drive overcrossings.

The Project would add new elements that would minimally alter the appearance of the area, including larger overcrossings and additional retaining walls. The Project, however, is located in an area already heavily disturbed, highly developed, and characterized by interchanges, roadways, and overcrossings. The proposed overcrossings and retaining structures therefore would not be unique to the urban context in the Project area. In addition, Project landscaping would include the revegetation of all temporary disturbance areas, installation of plantings in front of retaining walls, where possible, and plant palettes that would blend with existing adjacent native habitats, consistent with the I-5 North Corridor Design Guidelines. Consequently, the proposed features would be consistent with existing conditions. Refer to Subchapter 2.6, Visual/Aesthetics, for additional details. The Project would therefore be consistent with the Mobility Element.

Conservation Element. The Project would implement relevant best management practices (BMPs) to control runoff, sedimentation, and erosion. (See Subchapter 2.8, Hydrology and Floodplain; Subchapter 2.9, Water Quality and Storm Water Runoff; and Subchapter 2.10, Geology/Soils/Seismicity/ Topography, for detailed discussions of potential impacts and mitigation measures related to hydrology, water quality, and erosion.)

Several native habitat communities are located within the Project study area. Direct impacts to native habitats caused by grading and development would require mitigation. Anticipated impacts would be minimized to the maximum extent practicable. Native habitats and associated species impacts and mitigation are described in Subchapters 2.15, Natural Communities, 2.16, Wetlands and Other Waters, 2.17, Plant Species, 2.18, Animal Species, and 2.19, Threatened and Endangered Species. Since the Project would improve traffic flows, emissions associated with idling due to traffic congestion would be reduced, resulting in a beneficial effect on air quality. The Project would therefore be consistent with the Conservation Element.

Noise Element. Potential traffic noise impacts associated with construction and operation of the Project are addressed in Subchapter 2.14, Noise. A sound wall to protect noise sensitive receptors in the Project area was proposed; however, it was found in the Noise Abatement Decision Report (2009) that the wall was unreasonable due to the cost per benefitted residence (refer to Subchapter 2.14, Noise, for details). The Project would therefore be consistent with the Noise Element.

Consistency with the University Community Plan

As noted previously, the Project site is located within the area addressed by the Community Plan, which anticipates improvements to the I-5/Genesee Avenue interchange and Genesee Avenue. Project consistency with the applicable elements of the Community Plan is evaluated below.

Urban Design Element. Consistent with the Urban Design Element, the Project would widen and improve a portion of Genesee Avenue to reduce congestion along this identified major community roadway. With the proposed improvements, Genesee Avenue would better function as a key automobile linkage and community-unifying roadway as envisioned in the Community Plan. Mobility and access to major activity centers within the community would be improved by the reduction of traffic congestion.

Additionally, the Project would be consistent with applicable urban design goals that call for pedestrian and bicycle facilities, compatible landscaping, and accessibility improvements. The Project would therefore be consistent with the Urban Design Element.

Transportation Element. The Project would complete the planned widening of Genesee Avenue to its six-lane arterial classification, as designated in the Community Plan. The Project would replace the existing Genesee Avenue overcrossing to accommodate six travel lanes, which would connect to the existing six-lane segment of Genesee Avenue to the west and the segment of Genesee Avenue that is currently being widened to six lanes east of the overcrossing. The Project also would implement the Community Plan's recommendation to improve the I-5/Genesee Avenue interchange, as listed in Streets and Highways Proposal 1f.

In addition, the Project would provide pedestrian and bicycle facilities to promote the use of alternative transportation modes, consistent with goals in the Transportation Element. The Project would therefore be consistent with the Transportation Element.

Open Space and Recreation Element. The Project site is located adjacent to UCSD and MHPA open space areas. The Open Space and Recreation Element states that although the UCSD campus is not regulated by the Community Plan, the UCSD campus is part of the functional community, including preservation of natural resources, managed production of resources, outdoor recreation, protection of public health and safety, historic and cultural preservation, control of urban form or design, and scenic or aesthetic enjoyment. Proposed improvements to Genesee Avenue would result in minor encroachment into the UCSD park/open space area south of Genesee Avenue. Grading for the proposed road widening would require creation of a manufactured slope on a hillside adjacent to the south side of Genesee Avenue. The area of UCSD park that would be affected, however, is not suitable for park/recreational uses due to topography. Moreover, the proposed manufactured slope would be revegetated and would continue to function as part of UCSD's open space/park area.

Other open space areas within the Project site include portions of the MHPA. As previously discussed, Project implementation would result in minor impacts to a very small portion of the MHPA (refer to Subchapter 2.15, Natural Communities). This portion of the MHPA consists of an existing roadway and associated road embankment, which is an allowable and compatible use within the MHPA. A portion of the road embankment contains Diegan coastal sage scrub, which would be impacted during Project construction. Following construction, resulting slopes within the MHPA area would be revegetated with Diegan coastal sage scrub. The Project also would comply with the MHPA Adjacency Guidelines. As described in detail in Subchapter 2.15, Natural Communities, the Project has been designed to minimize indirect impacts to the MHPA due to adjacency concerns by the implementation of Project design measures, and by avoidance and minimization measures identified in Subchapter 2.15, Natural Communities. The Project would therefore not conflict with goals in the Open Space and Recreation Element.

Noise Element. Potential noise effects are discussed in Subchapter 2.14, Noise. A sound wall to protect noise sensitive receptors in the Project area was proposed; however, it was found in

the Noise Abatement Decision Report (2009) that the wall was unreasonable due to the cost per benefitted residence. The Project, therefore, would not conflict with goals and policies in the Noise Element.

Safety Element. The Project would be constructed immediately adjacent to existing roads and other developed lands. As described in Subchapter 2.10, Geology/Seismicity/Soils/Topography, implementation of the Project would not result in undue risk from geologic and erosional forces. The Project also would not be particularly prone to flood or fire hazards. The northernmost portion of the Project site extends into a mapped 100-year floodplain, but all other portions of the Project site and adjacent areas are located outside of mapped floodplains. While proposed operations/ facilities would be located within the mapped floodplain at the southbound on-ramp and northbound off-ramp intersections with Roselle Street, no associated flood hazards would occur (refer to Subchapter 2.8, Hydrology and Floodplain).

The northern portion of the Project site is located within Accident Potential Zone (APZ) C of MCAS Miramar, which has an associated minimum accident potential. Public right-of-way (R/W) within APZ C is "Clearly Acceptable," which means that "exposure to accident potential is such that the activities associated with the land use may be carried out with essentially no interference or substantial loss of life and property." The Project would therefore be consistent with the Safety Element.

Resource Management Element. The Project would be consistent with applicable goals in the Resource Management Element, as listed previously in Section 2.1.1. The Project would entail improvements to an existing freeway interchange, freeway, and roadways. Proposed improvements would require landform alteration in steep hillsides, but proposed avoidance and minimization measures, including revegetation of slopes, surface treatments of proposed retaining walls, and installation of landscaping along retaining walls, would diminish associated landform alteration effects (refer to Subchapter 2.6, Visual/Aesthetics). The proposed retaining walls would minimize grading and disturbance of open space areas.

The Project would reduce congestion at the I-5/Genesee Avenue interchange that would facilitate improved mobility and access to major activity centers within the community, including coastal destinations.

Several native habitat communities are located within the Project study area. Direct impacts to native habitats caused by grading and development would require mitigation. Anticipated impacts have been minimized to the maximum extent practicable. Native habitats and associated species impacts and mitigation are described in Subchapters 2.15, Natural Communities, 2.16, Wetlands and Other Waters, 2.17, Plant Species, 2.18, Animal Species, and 2.19, Threatened and Endangered Species.

The Project would implement relevant BMPs to control runoff, sedimentation, and erosion. (See Subchapter 2.8, Hydrology and Floodplain; Subchapter 2.9, Water Quality and Storm Water Runoff; and Subchapter 2.10, Geology/Seismicity/Soils/Topography, for detailed discussions of potential impacts and mitigation measures related to hydrology, water quality, and erosion.) Additional measures would be implemented to mitigate impacts to paleontological resources (refer to Subchapter 2.11, Paleontology).

Proposed landscaping would include irrigation systems designed to reduce energy and water consumption through use of irrigation controllers and reclaimed water, which is anticipated to be available in the Project vicinity in the future.

The Project would therefore be consistent with the Resource Management Element.

Consistency with the North University City Public Facilities Financing Plan Fiscal Year 2007

As discussed in Section 2.1.1, the Project is identified in the North University City Public Facilities Financing Plan as Project Number NUC-24 (CIP No. 52.372.0), which calls for the widening of the Genesee Avenue/I-5 overcrossing. The Project would therefore be consistent with the North University City Public Facilities Financing Plan Fiscal Year 2007.

Consistency with the UCSD 2004 LRDP

The Project consists of roadway improvements, some of which would be located on the UCSD campus, including the freeway slope, Voigt Drive, and Gilman Drive. The proposed improvements would not conflict with the 2004 LRDP designations of the roadways or surrounding campus lands.

Small portions of Warren Field and UCSD Park areas would be impacted with the proposed realignment of Genesee Avenue and Gilman Drive, and replacement of the Voigt Drive overcrossing. Although the UCSD 2004 LRDP recognizes the value placed on developing and maintaining athletic fields and recreational facilities, there is no guidance with regard to athletic field impacts and all the current facilities and functions would remain. In addition, the areas in question designated as park lands in the LRDP consist of steep slopes adjacent to the I-5 freeway. The area of UCSD Park that would be affected, however, is not suitable for park/recreational uses due to topography. Moreover, the proposed manufactured slope would be revegetated and would continue to function as part of UCSD's open space/park area.

Existing and Planned Land Use

Proposed improvements would largely be constructed within existing R/W. Some improvements, however, would occur outside the existing R/W and would require acquisition of R/W, temporary construction easement (TCE), and/or permanent easement (PE). Acquisition of R/W would convert areas of developed land (either hardscaped or landscaped) to roadways or related facilities (e.g., retaining walls). Conversion of these areas adjacent to existing roadways would be consistent with existing and planned land uses in the Project area. The proposed roadway improvements would provide infrastructure, consistent with applicable land use plans (as discussed previously), to serve existing and planned development in the Project area. These acquisition and easement areas would not preclude development of planned land uses, nor would they conflict with applicable land use and/or zoning designations.

No Build Alternative

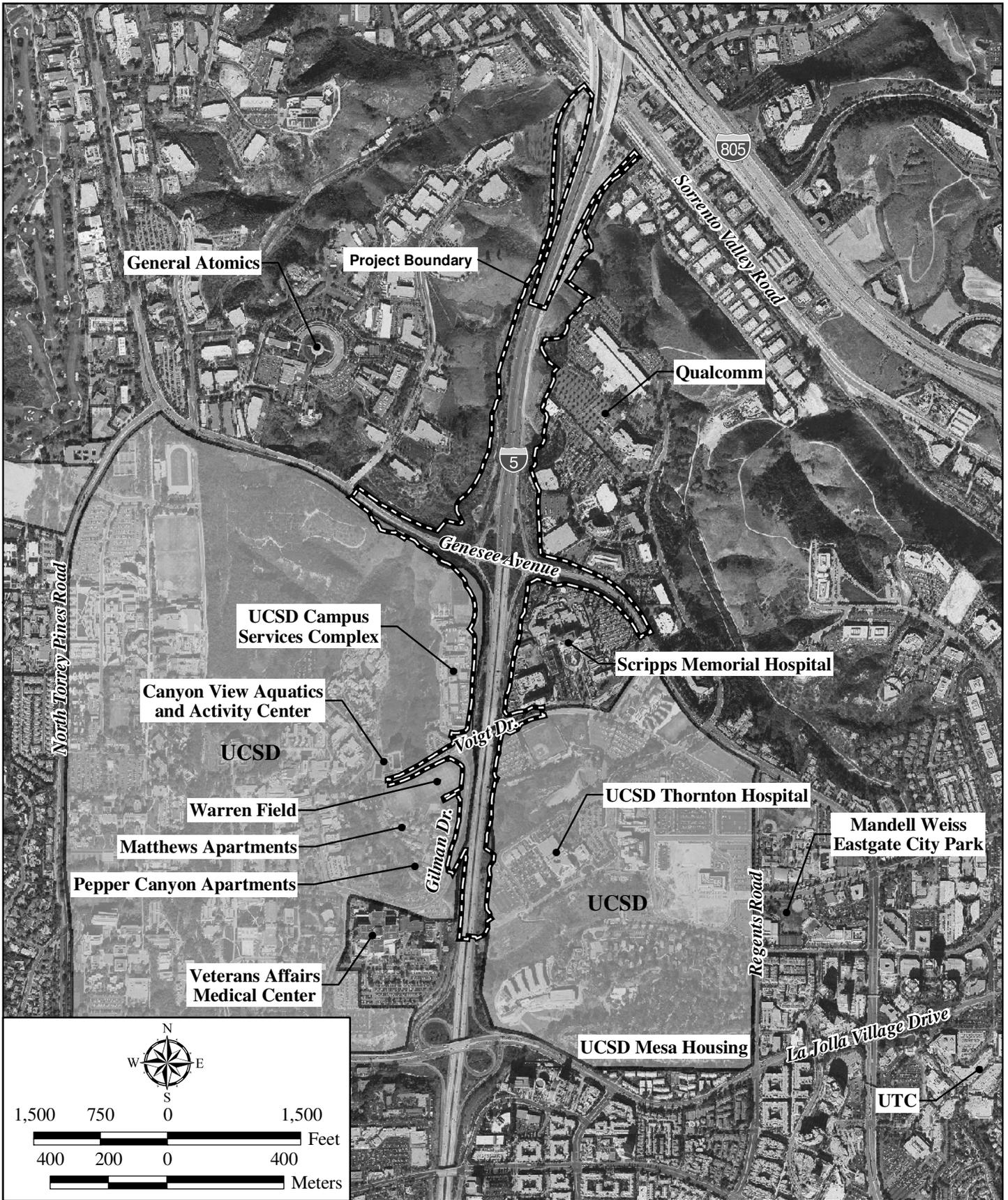
The No Build Alternative assumes that the I-5/Genesee Avenue interchange would not be improved. The improvements specified in the RTIP and Transportation Element of the Community Plan would not be implemented, and existing, adverse conditions would be exacerbated through growth planned in the City and in the region in general. As the proposed improvements are already necessary to maintain acceptable traffic flows, continued growth under the No Build Alternative would intensify existing impacts to roadway capacity. Roadway capacity and operational deficiencies would not be corrected, and Project objectives would not be met with the implementation of the No Build Alternative. Accordingly, the No Build Alternative would not comply with the RTP, RTIP, RCP, General Plan, and University

Community Plan. Because no impacts to biological resources would occur, the No Build Alternative would be consistent with the MSCP.

2.1.4 Avoidance, Minimization, and/or Mitigation Measures

Implementation of avoidance and minimization measures identified in Subchapters 2.6, Visual/Aesthetics, 2.14, Noise, and 2.15, Natural Communities, would reduce/eliminate potential land use effects. As a result, no mitigation measures are necessary.

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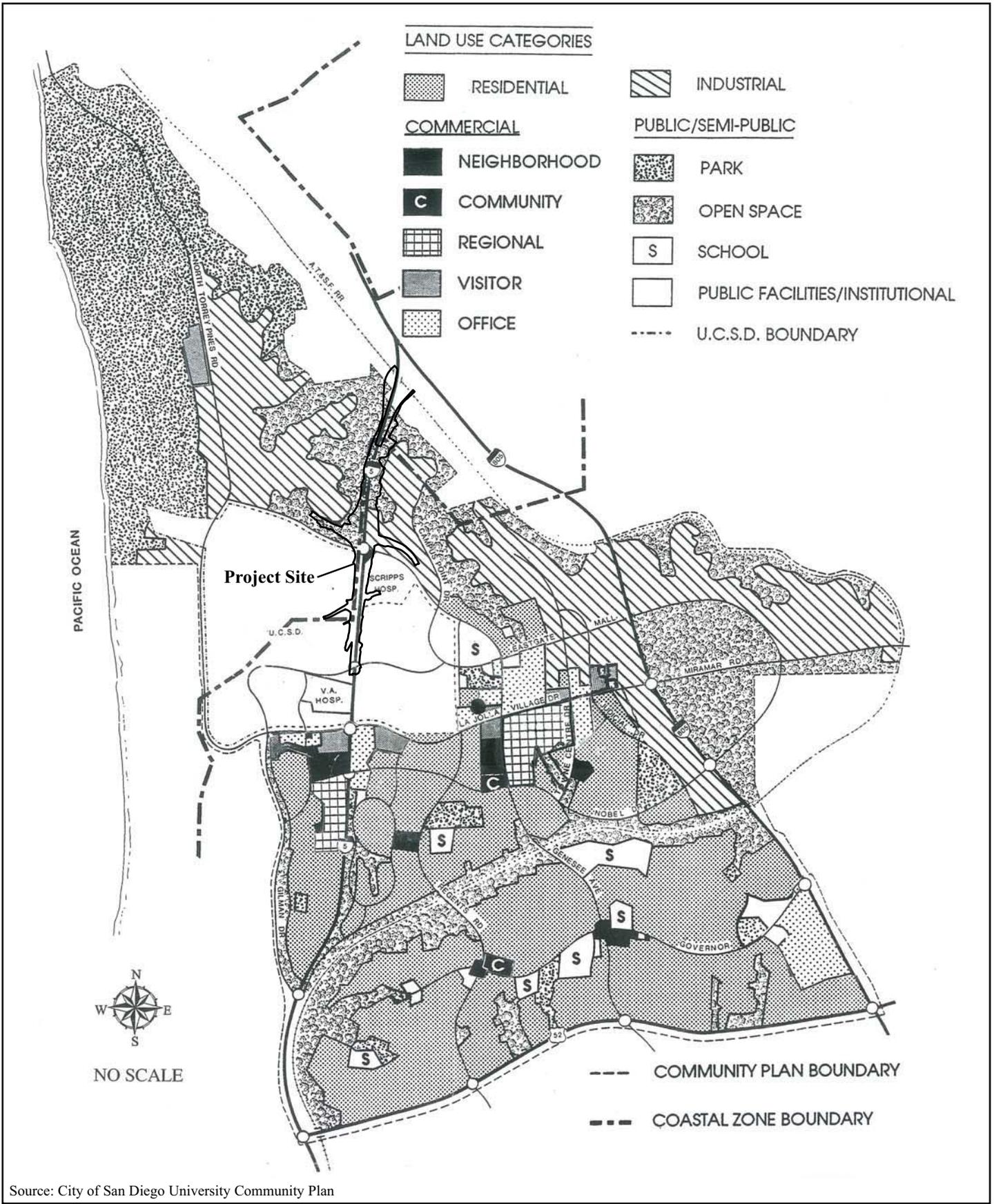


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Existing Land Uses

INTERSTATE 5/GENESEEE AVENUE INTERCHANGE RECONSTRUCTION

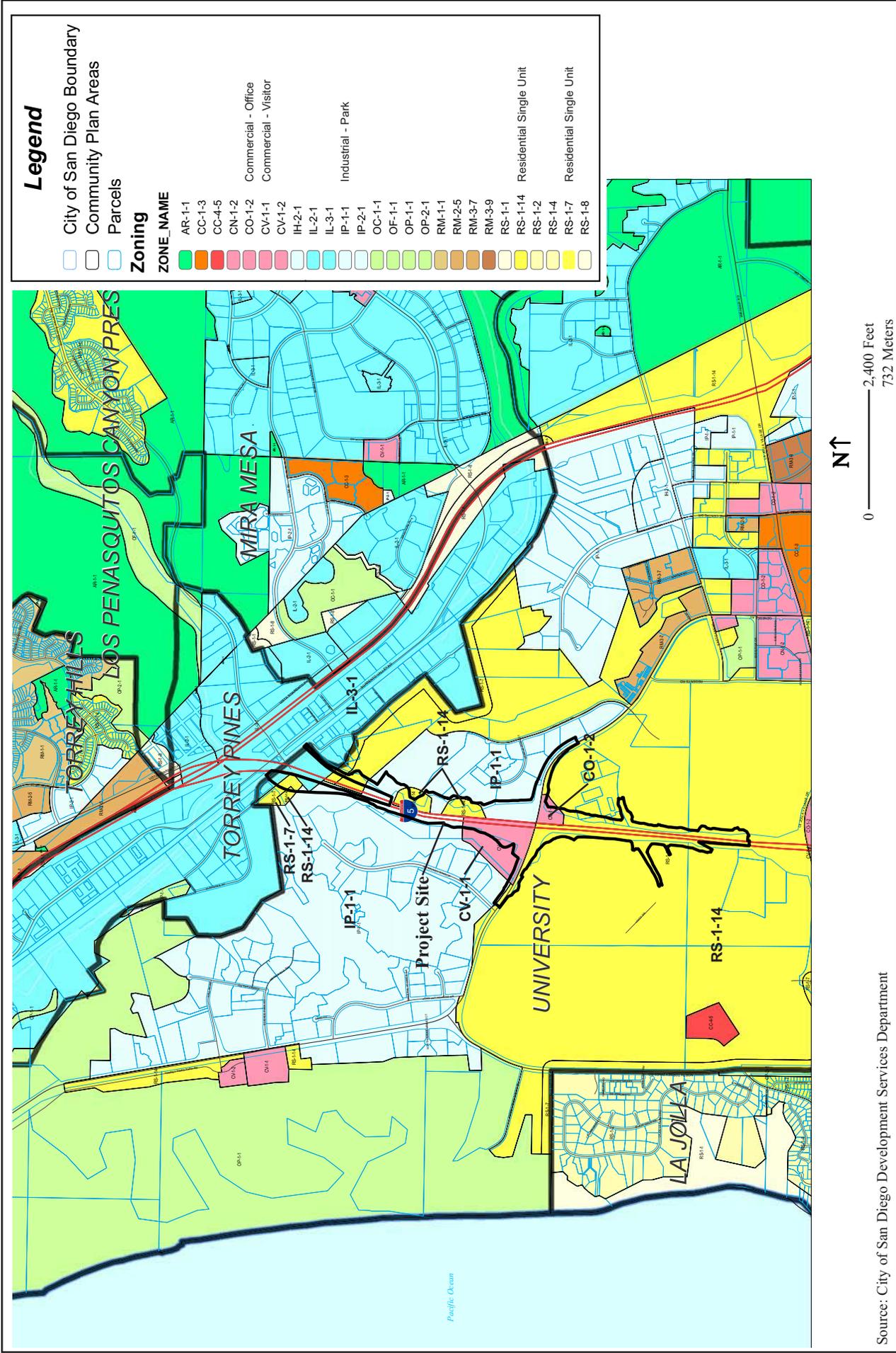
Figure 2.1-1



Land Use Designations

INTERSTATE 5/GENESEEE AVENUE INTERCHANGE RECONSTRUCTION

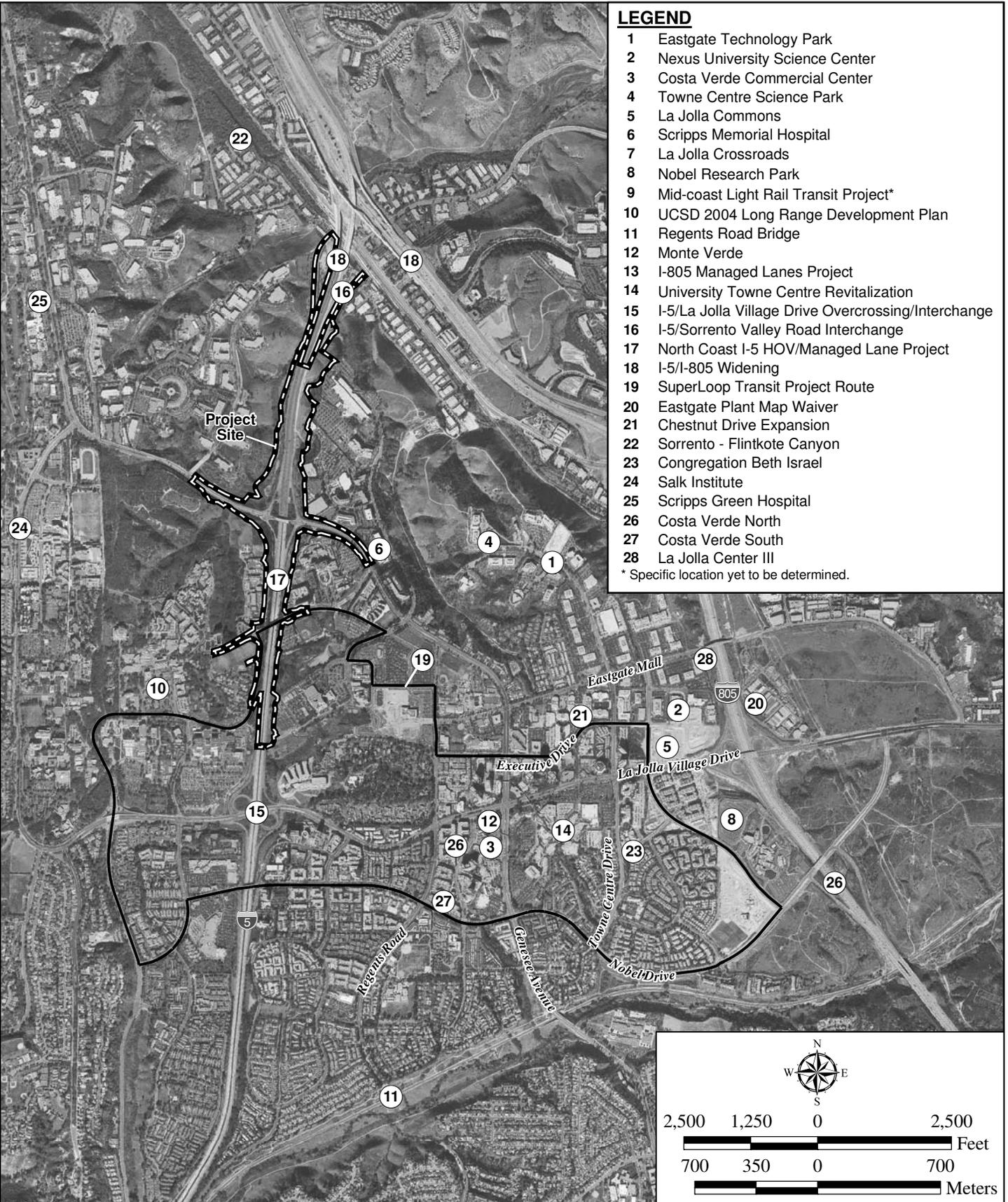
Figure 2.1-2



Zoning Designations

INTERSTATE 5/GENEESSEE AVENUE INTERCHANGE RECONSTRUCTION

Figure 2.1-3

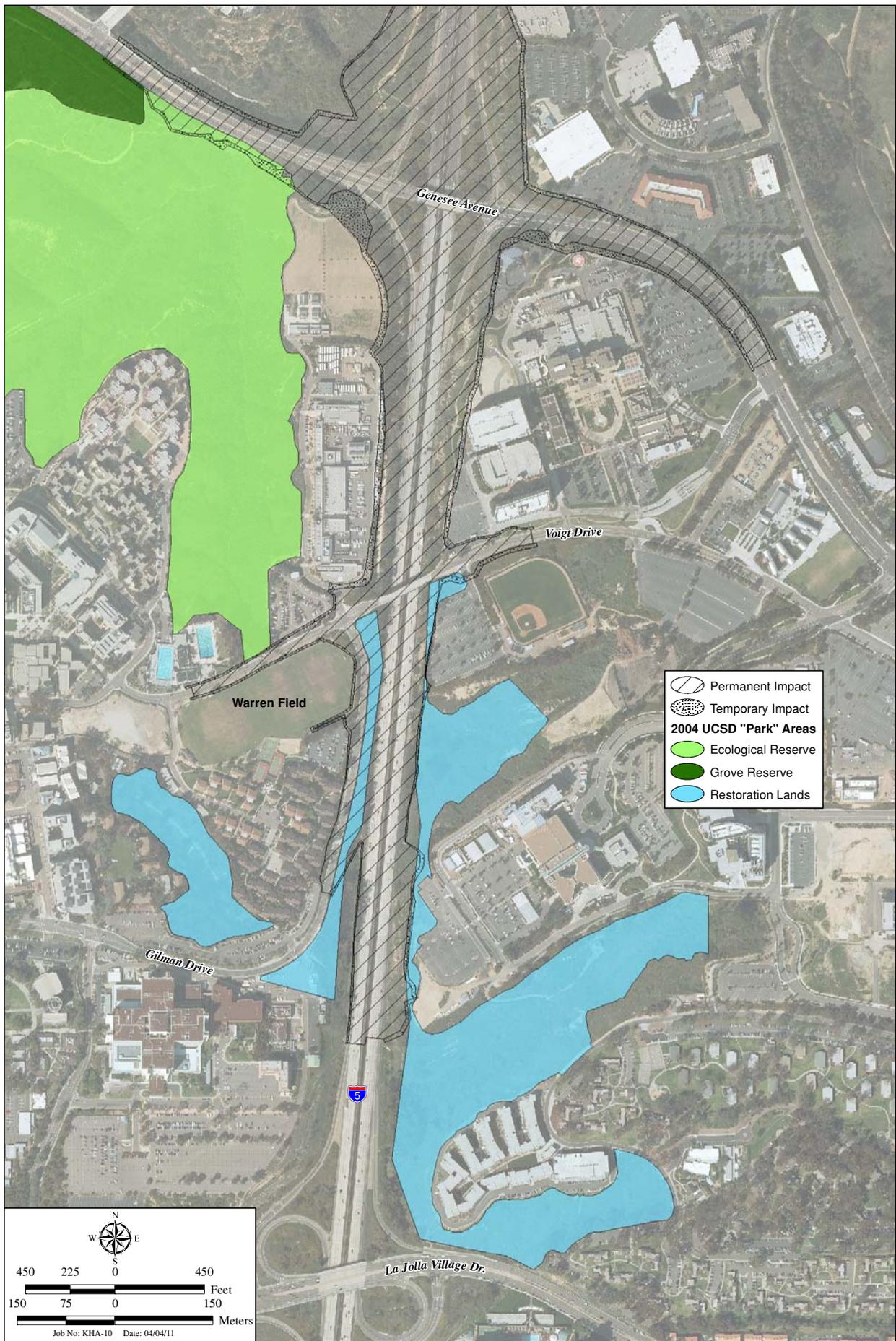


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Land Development and Public Projects

INTERSTATE 5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION

Figure 2.1-4



Proposed Impacts to UCSD

INTERSTATE 5/GENEESSEE AVENUE INTERCHANGE RECONSTRUCTION

Figure 2.1-5

2.2 GROWTH

2.2.1 Regulatory Setting

The Council on Environmental Quality (CEQ) regulations, which established the steps necessary to comply with the National Environmental Policy Act (NEPA), require evaluation of the potential environmental consequences of all proposed federal activities and programs. This provision includes a requirement to examine indirect consequences, which may occur in areas beyond the immediate influence of a proposed action and at some time in the future. The CEQ regulations, 40 CFR 1508.8, refer to these consequences as secondary impacts. Secondary impacts may include changes in land use, economic vitality, and population density, which are all elements of growth.

The California Environmental Quality Act (CEQA) also requires the analysis of a project's potential to induce growth. CEQA guidelines, Section 15126.2(d), require that environmental documents "...discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment..."

2.2.2 Affected Environment

The Project site is located within the University community planning area, which has developed into a major urban node due to the regional shopping centers; science research centers; corporate offices; medical facilities; University of California, San Diego (UCSD); and accessibility to the regional, multi-modal transportation network. The Project area has one of the highest concentrations of business/employment land uses in the region, as well as other major activity centers and regional transportation facilities, including UCSD, University Towne Centre (UTC), and La Jolla Village Square shopping centers, I-5, and I-805.

The University community planning area is approximately 95-percent developed. Some undeveloped land occurs within the Project site vicinity; however, much of this land consists of slopes and canyons that are not suitable for development. The UCSD campus and mesa tops on both sides of the freeway continue to develop with additional institutional and industrial/business park, and research and development uses, as called for in the Community Plan, while new residential development primarily occurs within the denser portion of the urban node to the south.

The Project area has experienced rapid population growth as evidenced by land use densities, traffic volumes, and development patterns. The Project area is projected to continue to grow in population. Between 2004 and 2030, the San Diego region's population is projected to increase by 32 percent, with an increase of approximately one million people. Within that same period, the population within the University community is projected to increase by 11 percent. Residential and employment densities in the University community are expected to increase by 4 percent and 6 percent, respectively (San Diego Association of Governments [SANDAG] 2006b).

2.2.3 Environmental Consequences

This section assesses the likelihood that the Project and No Build Alternative would result in indirect impacts related to growth in the Project area. This first-cut screening assessment¹ examines the type of transportation project, type of project location (e.g., urban, suburban or rural), changes in accessibility, and growth pressure, as factors influencing the likelihood of growth-related impacts.

Project

Project Type

The type of transportation project is an important screening factor in determining whether a transportation project could cause growth-related impacts. The Project consists of roadway improvements to existing roadway and freeway facilities within the I-5/Genesee Avenue interchange and along I-5 from La Jolla Village Drive to Sorrento Valley Road. Typically growth is not induced through improvements to existing facilities because access to the area is already provided. Because the improvements proposed as a part of the Project are to existing facilities and are proposed in response to growth (i.e., growth accommodating), it is not reasonably foreseeable that the Project would induce growth.

Project Location

Project location, whether urban, suburban, urban/suburban fringe, or rural, is another screening factor that can be used in combination with other factors when considering whether a transportation project could cause growth-related impacts. The Project site is located within a developed urban area. Transportation projects in these types of areas have a relatively low potential to cause growth-related impacts because of the area's built-out land use pattern and/or because resources of concern may not be present.

Accessibility

Accessibility reflects both the attractiveness of potential destinations and ease of reaching them, which, in turn, are related to land use and circulation issues.

Construction of the Project would not reduce or remove any physical barrier to growth. Proposed roadway improvements would not provide access to previously inaccessible areas. The Project also would not include the extension or improvement of any utility infrastructure (e.g., water, sewer and electrical lines) to areas that are not currently served. The Project would not alter local access to currently accessible areas, except through relief of traffic congestion.

The I-5/Genesee Avenue interchange currently experiences considerable congestion during peak travel hours, resulting in unacceptable LOS and congested conditions at ramp intersections and segments of Genesee Avenue. The Project is intended to relieve congestion, accommodate projected traffic volumes through the year 2030 at acceptable levels of service, and eliminate unsafe weaving and merge/diverge patterns along the I-5 near the subject interchange. The Project would not be growth inducing, but rather would accommodate existing and projected traffic loading in a more efficient manner.

¹ Refers to the use of readily available information to determine the extent of further analysis.

Although the amount of traffic in the area may increase as a result of population increase throughout the County, with resultant use of this major transportation facility and commercial/business center, it is not expected that the Project would attract population or development not planned within the City's General Plan or the applicable community plans.

Growth Pressure

The University community is approximately 95 percent developed. Major commercial, office, institutional (e.g., UCSD and medical facilities), and residential developments have been built in the vicinity since the original construction of the I-5/Genesee Avenue interchange. There are some undeveloped lands in the vicinity, some of which are being developed with additional industrial/business park, research and development, institutional, and residential uses, in accordance with applicable land use plans. The UCSD campus and mesa tops on both sides of the freeway continue to develop with additional institutional and industrial/business park and research and development uses, as called for in the Community Plan, while new residential development primarily occurs within the denser portion of the urban node to the south. Recent land development proposals in the community primarily entail high-density, multi-family residential and science research development. The area is projected to increase in population over the next 20 years. This growth is already planned and would not be a result of the Project; the Project would not result in unplanned growth.

The Project area experiences considerable congestion and sustains one of the region's highest concentrations of business/employment development. Due to existing and recent development trends in the Project area, construction of the Project in and of itself is not likely to result in additional capital investment in the area. High levels of investment have occurred without the proposed improvements and would be expected to continue, pursuant to development controls within the General Plan and Community Plan. The Project, therefore, would not induce growth pressure in the Project area.

Overall Potential for Growth-related Impacts

Overall, consideration of first-cut screening factors, such as type of transportation project, project location, changes in accessibility, and growth pressure, lead to the conclusion that there is little or no potential for growth inducement and consequent growth-related impacts resulting from the Project. Consequently, the Project would not be expected to substantially influence the overall amount, type, location, or timing of reasonably foreseeable growth in the Project area.

No Build Alternative

Congestion would worsen as additional drivers attempt to use I-5, Genesee Avenue, and the interchange if the No Build Alternative is selected. The current LOS at intersections and roadway segments in the Project area would remain at unacceptable levels, and other LOS could become unacceptable with increased use. There is no change to access; therefore, growth-related impacts are not reasonably foreseeable.

2.2.4 Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, or mitigation measures would be necessary with regard to growth.

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2.3 COMMUNITY IMPACTS

2.3.1 Community Character and Cohesion

Because the Project entails the reconstruction/replacement of existing transportation facilities in a developed area and existing land uses would not change, Project implementation would not be expected to adversely affect the community character of the Project area. Accordingly, the only Project-related issue that potentially could affect community character is parking impacts at properties adjacent to the Project. The analysis in this subchapter is therefore limited to temporary and permanent displacement of vehicular parking at adjacent uses and the resultant effect to community character.

Regulatory Setting

The National Environmental Policy Act (NEPA) established that the federal government use all practicable means to ensure that all Americans have safe, healthful, productive, and aesthetically and culturally pleasing surroundings (42 USC 4331(b)(2)). The FHWA in its implementation of NEPA (23 USC 109(h)) directs that final decisions regarding projects are to be made in the best overall public interest. This requires taking into account adverse environmental impacts, such as destruction or disruption of human-made resources, community cohesion, and the availability of public facilities and services.

Under the California Environmental Quality Act (CEQA), an economic or social change by itself is not to be considered a significant effect on the environment. However, if a social or economic change is related to a physical change, then social or economic change may be considered in determining whether the physical change is significant. Because the Project would result in physical change to the environment, it is appropriate to consider changes to community character and cohesion in assessing the significance of the Project's effects.

Affected Environment

Parking areas within the Project impact area are associated with University of California, San Diego (UCSD), institutional uses, and business parks. These parking areas are located along Gilman Drive/Voigt Drive west of I-5, the north side of Voigt Drive east of I-5, and the north side of Genesee Avenue east of I-5, respectively.

Environmental Consequences

Project

The Project entails reconstruction of the I-5/Genesee Avenue interchange and related improvements to the freeway, on- and off-ramps, Voigt Drive overcrossing, and Gilman Drive within the City. Most of the proposed improvements would be constructed within existing road rights-of-way; however, some improvements would occur outside the existing rights-of-way and would require a combination of new permanent right-of-way (R/W), temporary construction easement (TCE), and permanent easement (PE). In some cases, existing vehicular parking at adjacent properties would be affected, either temporarily or permanently. Table 2.3-1 and Figure 2.3-1 present the locations where existing parking would be affected by Project development. The Project would impact existing vehicular parking in four locations on adjacent properties due to road widening and associated improvements. The following discussion addresses these locations and associated community character impacts.

| Location | Estimated Number of Parking Spaces Affected | Temporary or Permanent |
|--|---|---------------------------|
| UCSD Parking Lot 401 on the west side of Gilman Drive | 3 | Temporary |
| UCSD Parking Lot 510 on the north side of Voigt Drive and west of I-5 | 34 | Permanent |
| Scripps Hospital Medical Center parking lot, north of Voigt Drive and east of I-5 | 23 | Permanent |
| Parking lot within a business park on the north side of Genesee Avenue and east of I-5 | 14 | Permanent |

UCSD Parking Lot 401

Due to the realignment of a portion of Gilman Drive, a portion of UCSD Parking Lot 401 would be temporarily impacted during Project construction. It is estimated that 3 out of the existing 100 parking spaces would be temporarily removed. Parking Lot 401 provides vehicular parking for students residing in the Pepper Canyon Apartments to the south. No public parking is provided. Associated impacts to community character and cohesion would be minimal because (1) the parking loss would be temporary and restored upon construction of the Project, (2) only three spaces would be affected, and (3) the temporary loss of three parking spaces would not be a noticeable change in this portion of the Project area. Parking within UCSD is available at other parking lots on campus, including Lot 406 to the south, and Lots 701 and 702 across I-5 along Voigt Drive.

UCSD Parking Lot 510

Due to the construction of the new Voigt Drive overcrossing, the portion of UCSD Parking Lot 510 fronting Voigt Drive would be impacted by the Project, resulting in a permanent loss of approximately 34 parking spaces. Parking Lot 510 is adjacent to the Campus Service Complex and provides parking for students (undergraduate and graduate) and staff. No public parking is provided. Loss of this front row of parking would minimally alter the community character of the immediate area. The remaining portion of Parking Lot 510 would not be affected, which would retain existing land use and visual patterns. Parking within UCSD is available at other locations on campus. Currently, the UCSD campus provides 15,400 on-campus parking spaces and, according to the 2004 LRDP, a total of 27,200 spaces would be provided by the 2020-2021 academic year. Other nearby parking lots include Lot 403 to the southwest, and Lots 701 and 702 across I-5 along Voigt Drive.

Scripps Hospital Medical Center Parking Lot

Replacement of the Voigt Drive overcrossing and its transition to the existing segment of Voigt Drive on the east side of I-5 would require acquisition of additional R/W. A portion of an area within the southwestern corner of the Scripps Hospital Medical Center currently used for parking approximately 23 vehicles would be affected by proposed roadway improvements. The remaining portion of this area would not be affected, nor would adjacent parking lots and medical facilities that comprise the larger Scripps Medical Center. Parking would be provided in

the surrounding lots and garages within the Scripps Hospital Medical Center. In addition, Scripps Medical Center currently has plans to replace the affected area with a new parking lot that would be located outside the grading limits of the Project. The new parking lot is expected to be constructed prior to construction of the proposed improvements to Voigt Drive, and thus Project impacts would be avoided.

Business Park Lot

Proposed reconstruction of the Genesee Avenue overcrossing and transition to the existing roadway would require acquisition of R/W along the north side of Genesee Avenue, east of I-5. Proposed improvements would impact a portion of an existing parking lot used by office buildings. The front row of this parking area would be removed as part of the Project, resulting in a permanent loss of approximately 14 spaces. The parking lot is part of a larger business park along Campus Point Drive and Campus Point Court. Parking would be provided at surrounding surface lots within the business park.

No Build Alternative

Under the No Build Alternative, no roadway improvements would occur. Parking at adjacent properties would not be affected.

Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, or mitigation measures are necessary with regard to community character and cohesion.

2.3.2 Environmental Justice

Regulatory Setting

All projects involving a federal action (funding, permit, or land) must comply with Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, signed by President Clinton on February 11, 1994. This Executive Order directs federal agencies to take the appropriate and necessary steps to identify and address disproportionately high and adverse effects of federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law. Low income is defined based on the Department of Health and Human Services poverty guidelines. For 2009, this was an annual income of \$22,050 for a family of four.

All considerations under Title VI of the Civil Rights Act of 1964 and related statutes also have been included in this Project. Caltrans' commitment to upholding the mandates of Title VI is evidenced by its Title VI Policy Statement, signed by the Director, which can be found in Appendix B of this document.

Affected Environment

For the purposes of this analysis, the "affected area" is defined as the geographic boundary of the University community planning area within the City of San Diego, and the comparable units of geographic analysis are the City and County of San Diego. The census tracts within the affected area are generally equally diverse, as compared to the City and regional ethnic

percentages. Within the census tracts the majority group is White, non-Hispanic (over 50 percent). Asian/Pacific Islander and Hispanic populations make up the second highest ethnic groups in the census tracts, at approximately 23 and 9 percent, respectively. All other races make up less than 7 percent by group within the affected area. The percentage breakdown of ethnicity at the City and County level are similar; for example the majority ethnic group is White, non-Hispanic (over 50 percent), followed by Hispanic (approximately 28 and 30 percent for the City and County, respectively), then Asian/Pacific Islander (approximately 16 and 11 percent for the City and County, respectively). All other ethnicities make up less than 7 percent each of the total population in the City and County.

The median income (in current dollars) within the affected area (\$76,271) is higher than that of the City (\$70,149) and County (\$72,963) (SANDAG 2009). The poverty level (17 percent of the population) is roughly equivalent and not meaningfully greater compared to the 15 and 13 percent poverty levels in the City and County, respectively (2000 Census). The slightly higher poverty level within the affected area can be attributed to the large UCSD student population base residing in various housing types within the community, which comprises approximately 31 percent of the total population (2000 Census).

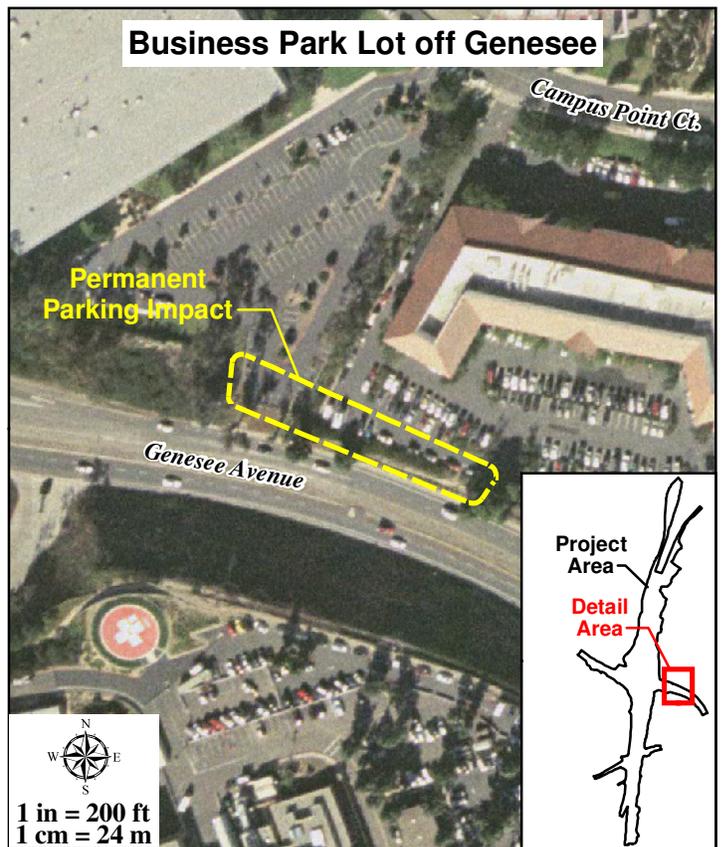
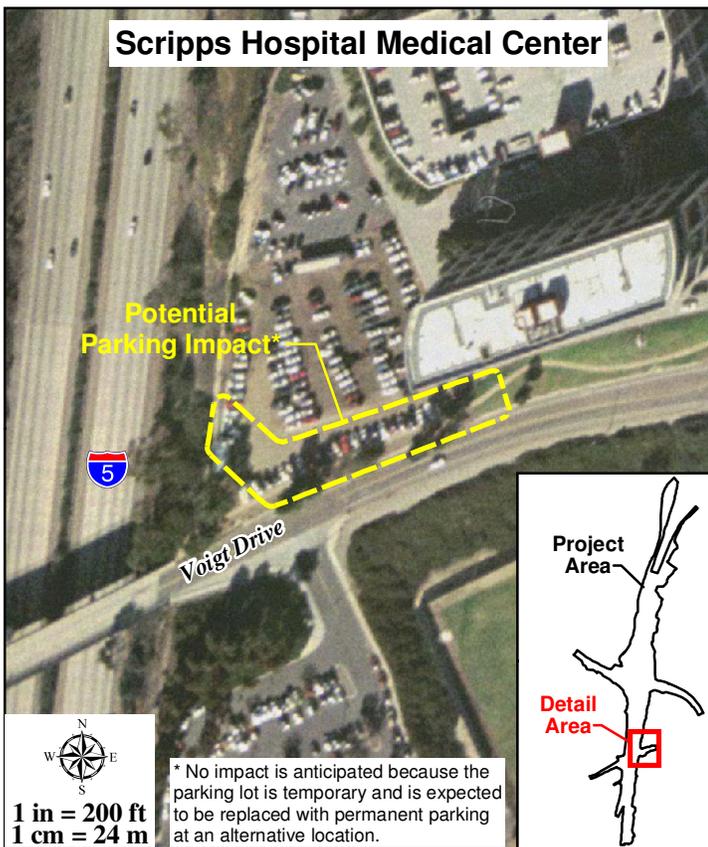
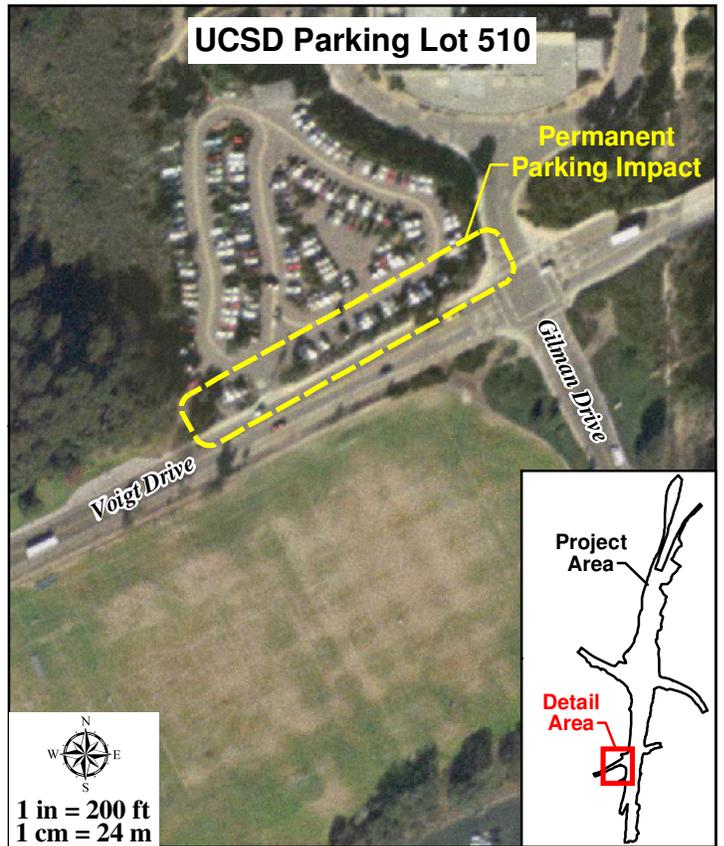
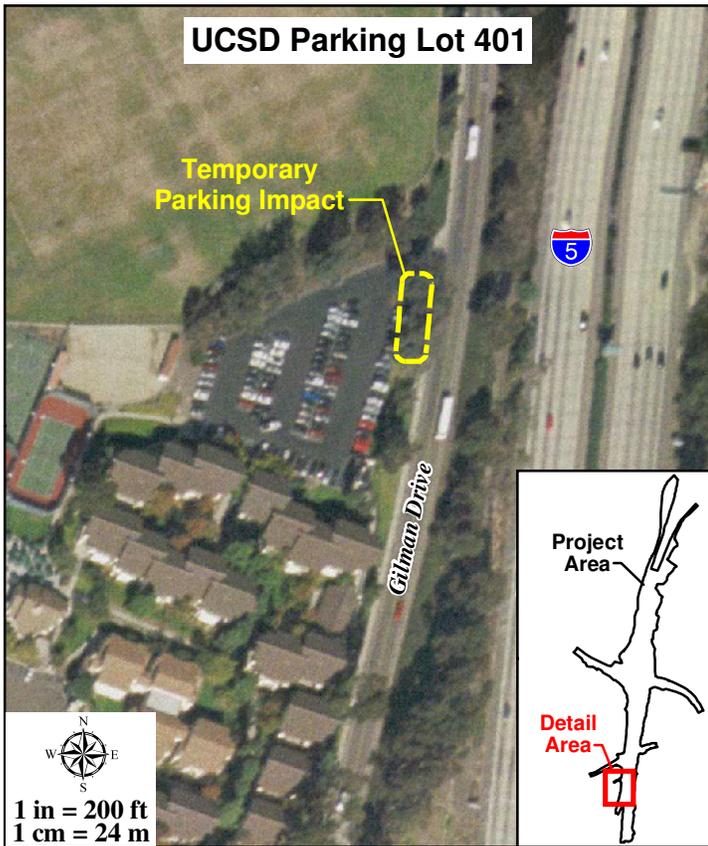
Low-income populations are defined by the Bureau of Census' statistical poverty thresholds. If the affected area includes minority populations and/or low-income populations, then a determination must be made whether Project environmental effects would disproportionately affect those populations. Based upon the demographic data provided above, no minority or low-income populations have been identified that would be adversely affected by the Proposed Project.

Environmental Consequences

No minority or low income populations have been identified in the Project study area; therefore, this project is not subject to the provisions of EO 12898.

Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, or mitigation measures would be required.



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Affected Parking Areas

INTERSTATE 5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION

Figure 2.3-1

2.4 UTILITIES/EMERGENCY SERVICES

The Project would consist of improvements to the I-5/Genesee Avenue interchange in order to help reduce traffic congestion in the area. Emergency services (fire protection and police protection) are addressed below. Utilities systems potentially could be affected by the Project, including water and wastewater services, gas and electric power infrastructure, and telephone and telecommunications systems, and also are addressed below.

2.4.1 Affected Environment

Emergency Services

Fire protection services are provided to the Project area from Fire Station 35, located at 4285 Eastgate Mall, to the east of the Project site near Genesee Avenue (City of San Diego, San Diego Fire-Rescue Department 2007). Fire service apparatus at Station 35 include a fire engine, aerial (ladder) truck, chemical unit, light and air vehicle, and battalion chief vehicle. Four personnel man the station, 24 hours each day, seven days each week.

Police protection services are provided by the San Diego Police Department (City of San Diego, San Diego Police Department Northern Division 2007). The Northern Division police station is located at 4275 Eastgate Mall, adjacent to Fire Station 35.

Utilities

Numerous utility facilities are located within the Project construction area, including electrical lines, gas lines, sewer mains, telephone lines, telecommunications lines, and water mains. The exact location of all facilities, however, would be determined during a field survey to evaluate actual relocation requirements (see Appendix I for a table showing utilities).

In the vicinity of the Genesee Avenue overcrossing, San Diego Gas & Electric Company (SDG&E) maintains two 5-inch electrical conduits and a 69-kilovolt (kV) overhead power transmission line. The City maintains a 24-inch potable water line and Verizon Wireless maintains a 4-inch conduit carrying MFS Quad-Duct. In addition, a communications line is located in this area.

In the vicinity of the Voigt Drive overcrossing, SDG&E maintains a 2-inch high-pressure gas line and an electric line inside a 4-inch conduit. UCSD maintains two 12-inch chilled water lines and three 8-inch heated water lines. The City maintains a 16-inch steel water line, and AT&T maintains four 4-inch telecommunications conduits.

2.4.2 Environmental Consequences

Project

Emergency Services

The new Genesee overcrossing structure would be shifted slightly to the north (the centerline would shift approximately 16.1 m [53 ft]) so that the existing overcrossing could continue to carry traffic during construction of the new overcrossing. Construction of the Project may require complete closures of the freeway mainline in one direction for approximately 10 nights and closure of ramps for 1 day. Safe alternate travel routes would be provided to compensate

for any temporary roadway closures, should they be necessary, and are not expected to substantially inconvenience emergency services. The only likely effect would be a long-term positive one, as service response times may be marginally improved as a result of Project improvements.

Utilities

The Project would not place increased permanent or temporary demands on water, wastewater, or other utilities or public services in the area. During the demolition phases of project construction of the Project, there could be an increase in the demand for solid waste disposal services; however, this impact would be temporary due to implementation of a Waste Management Plan, which would minimize the Project's solid waste impact and ensure compliance with applicable policies and regulations. The plan would address demolition and construction phases of the Project, as applicable. In addition, the planting plan for the Project would include primarily drought-resistant landscaping that would not put excessive demands on water usage.

Some existing utilities would be transferred to the new overcrossings. The overcrossings would be built in two phases to accommodate traffic. Staggering construction would allow for the parallel construction of new utility features and minimize discontinuation of service of the various utilities.

Notices to relocate utilities would be required for each company that owns or operates existing utilities facilities that are in conflict with areas of proposed work. Encroachment permits would be obtained to enter utility right-of-way (R/W) to perform relocation work. A Determination of Liability for publicly and privately owned utilities has been requested from Caltrans' utility department to determine prior rights and financial responsibility for relocation activities. In addition, a Determination of Liability for non-utility-owned facilities has been requested from Caltrans' District Project Development Unit.

Environmental effects with regard to land use, hydrology/water quality, air quality, biological or cultural resources, aesthetics, noise, traffic, or other environmental issues anticipated as a result of the removal or relocation of these utility facilities, including SDG&E power lines, have been assessed under the respective environmental issues sections. No substantive environmental impacts due to relocation of other alteration of any utility, including SDG&E's 69-kV overhead power line, have been anticipated. This power line would be relocated to the overcrossing structure (SDG&E would file an action with the Public Utilities Commission [PUC]). In addition, coordination between Caltrans and the PUC would occur for the 69-kV line per PUC General Order 131-D, which addresses all lines exceeding 50 kV. The relocation of underground water or wastewater lines would be conducted by City water or wastewater authorities and would be undertaken in such a manner as to avoid contamination of drinking water.

Utility conflicts are not expected to affect Project delivery. R/W purchase would not be necessary to relocate utilities. Notices to relocate any utilities would be required for each company along with encroachment permits to enter state and/or City operating R/W.

Overcrossing Construction Utility Impacts

The new overcrossing profile at Voigt Drive would be lower than the existing overcrossing profile; therefore, all utilities would be affected beyond the overcrossing to where the proposed grade at Voigt Drive matches the existing profile. The new overcrossing profile at Genesee

Avenue would be higher than the existing overcrossing profile. As such, all utilities would be affected beyond the overcrossing to where the proposed grade at Genesee Avenue matches the existing profile.

Retaining Walls

In addition to potentially affected utilities at the two overcrossings, the retaining walls proposed for the Project would affect utilities. The walls would be designed to accommodate utilities that cannot be relocated, such as the 10- and 15-inch sewer lines passing through Caltrans' R/W. Other utilities, such as water lines, electrical conduit, and a private storm drain, would be relocated should they be unable to remain in their existing location or pass under the walls.

UCSD owns a utility tunnel that crosses under I-5 south of Voigt Drive that would remain in place after construction of the Project. The tunnel currently houses 20-inch potable water lines and 12-inch reclaimed water, telephone, and electrical lines. Project construction would interfere with other UCSD utilities, including a 12-inch polyvinyl chloride (PVC) water line, 12-kV electrical conduit, and storm drain. Wall tiebacks could also affect utilities associated with Scripps Hospital, including electric lines and 2-inch gas lines at Voigt Drive east of I-5. Walls located east of the intersection of I-5 and Genesee Avenue would affect the fiber optic feed, 12-kV electric service, cable lines, City water laterals, and a sewer line to Scripps Hospital.

Utility relocations would be designed to minimize potential interruptions in service and avoid peak-use hours in coordination with utility providers. See Appendix I for a table showing utilities impacts.

No Build Alternative

Under the No Build Alternative, no construction of new roadway facilities or improvements to existing transportation infrastructure would occur. Emergency services would likely experience minor deteriorating response times due to increased traffic congestion.

2.4.3 Avoidance, Minimization and/or Mitigation Measures

Implementation of the following avoidance and minimization measures would avoid or minimize impacts to utilities and emergency services:

- Caltrans and the construction contractor would coordinate with utility providers during construction to finalize utility relocation and/or removal efforts.
- A Traffic Management Plan (TMP) would be implemented to provide passage for emergency vehicles on roadways that would be temporarily affected during Project construction. In addition, construction plans generally require the contractor to coordinate with local emergency services so that public safety is not threatened.

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2.5 TRAFFIC AND TRANSPORTATION/PEDESTRIAN AND BICYCLE FACILITIES

2.5.1 Regulatory Setting

Caltrans, as assigned by FHWA, directs that full consideration should be given to the safe accommodation of pedestrians and bicyclists during the development of federal-aid highway projects (see 23 CFR 652). It further directs that the special needs of the elderly and the disabled must be considered in all federal-aid projects that include pedestrian facilities. When current or anticipated pedestrian and/or bicycle traffic presents a potential conflict with motor vehicle traffic, every effort must be made to minimize the detrimental effects on all highway users who share the facility.

Caltrans is committed to carrying out the 1990 Americans with Disabilities Act (ADA) by building transportation facilities that provide equal access for all persons. The same degree of convenience, accessibility, and safety available to the general public will be provided to persons with disabilities.

2.5.2 Affected Environment

The analysis and findings presented in this section are based on the Traffic Operational Analysis (2008). The traffic technical report included the following analyses:

- Peak hour intersection capacity at the I-5 northbound and southbound ramp intersections with Genesee Avenue (measurement of effectiveness: level of service [LOS] based on average control delay for the entire intersection, measured in seconds per vehicle, and ILV per hour, which is based on the volume of conflicting movements)
- Daily roadway segment capacity analysis of Genesee Avenue (measurement of effectiveness: LOS-based thresholds by street classification published by the City)
- Peak hour freeway segment analysis of I-5 northbound and southbound between Sorrento Valley Road and La Jolla Village Drive (measurement of effectiveness: LOS based on vehicle density, expressed in passenger cars per mile per lane [pc/mi/ln])
- Peak hour freeway merge/diverge analysis on I-5 northbound and southbound at Genesee Avenue and La Jolla Village Drive (measurement of effectiveness: LOS based on pc/mi/ln)
- Peak hour freeway weaving analysis (measurements of effectiveness: LOS based on volume [i.e., the Leisch Method]; density in pc/mi/ln [Highway Capacity Manual (HCM) Method]; and volume-to-capacity ratios [v/c; LOS D Method])
- Peak hour intersection queuing analysis (measurement of effectiveness: 50th and 95th percentile maximum queues, measured in distance)
- Peak hour ramp metering analysis (measurement of effectiveness: average delay per vehicle due to ramp meter demand exceeding the meter rate, measured in minutes)
- Accident rates (rates of fatality, fatality plus injury, and all reported accidents) per million vehicle miles on the freeway mainline, and per million vehicles for ramps

This section includes tables that summarize the analysis results for intersections, roadway segments, freeway segments, and weaving sections (HCM method only). Methods and level of service (LOS) criteria for these analyses are contained in the traffic technical report. Queuing,

ramp metering, freeway merge/diverge, and accident analysis results are described below. More detailed information is included in the Traffic Operational Analysis.

Level of service is a measurement of actual traffic conditions and the perception of such conditions by motorists. There are six levels of service, ranging from LOS A (where traffic flows freely with low volumes and high speeds, resulting in low densities) to LOS F (where traffic volumes exceed capacity and result in forced flow operations at low speeds, resulting in high densities). Figure 2.5-1 depicts the relative levels of congestion and speed associated with each LOS grade. Discussions with Caltrans during the preparation of the Traffic Operational Analysis identified a minimum performance standard of LOS D for intersections and LOS E for freeway segment and freeway merge/diverge analysis.

| LEVELS OF SERVICE for Multi-Lane Highways | | | |
|---|---|-----------------------|---|
| Level of Service | Flow Conditions | Operating Speed (mph) | Technical Descriptions |
| A |  | 60 | Highest level of service. Traffic flows freely with little or no restrictions on maneuverability. No delays |
| B |  | 60 | Traffic flows freely, but drivers have slightly less freedom to maneuver. No delays |
| C |  | 60 | Density becomes noticeable with ability to maneuver limited by other vehicles. Minimal delays |
| D |  | 57 | Speed and ability to maneuver is severely restricted by increasing density of vehicles. Minimal delays |
| E |  | 55 | Unstable traffic flow. Speeds vary greatly and are unpredictable. Minimal delays |
| F |  | <55 | Traffic flow is unstable, with brief periods of movement followed by forced stops. Significant delays |

Source: 2000 HCM, Exhibit 21-3, Speed-Flow Curves with LOS Criteria for Multi-Lane Highways

LEVELS OF SERVICE
Figure 2.5-1

Study Area

The Project study area includes the roadway segments and interchanges from Sorrento Valley Road (Sorrento Valley Road exit) south to La Jolla Village Drive. As shown in Figure 2.5-2, Existing Intersection/Freeway Facility Geometrics, I-5 is an eight-lane divided freeway with auxiliary lanes in both directions between Genesee Avenue and Roselle Street (Sorrento Valley Road exit). Genesee Avenue from North Torrey Pines Road to Campus Point Drive is a six-lane roadway. The Genesee Avenue overcrossing of I-5 is four lanes. Traffic signals exist on Genesee Avenue at the northbound and southbound ramps. Both the exit and entrance ramps have one lane. The exit ramps widen to three lanes as they approach the signals on Genesee Avenue. The specific study areas for the roadway intersections, roadway segments, freeway segments, and merge/diverge areas analyses are described below.

The roadway intersection analysis included two intersections:

- Genesee Avenue and southbound I-5 ramps
- Genesee Avenue and northbound I-5 ramps

Three roadway segments were analyzed along Genesee Avenue:

- North Torrey Pines Road to the southbound I-5 ramps
- Southbound I-5 ramps to the northbound I-5 ramps
- Northbound I-5 ramps to Campus Point Drive

Six freeway segments on I-5 are located within the study area:

- Northbound I-5 - La Jolla Village Drive on-ramp to Genesee Avenue off-ramp
- Northbound I-5 - Genesee Avenue off-ramp to Genesee Avenue on-ramp
- Northbound I-5 - Genesee Avenue on-ramp to Sorrento Valley Road off-ramp
- Southbound I-5 - Sorrento Valley Road on-ramp to Genesee Avenue off-ramp
- Southbound I-5 - Genesee Avenue off-ramp to Genesee Avenue on-ramp
- Southbound I-5 - Genesee Avenue on-ramp to the La Jolla Village Drive off-ramp

Four freeway merge/diverge areas were analyzed:

- Northbound I-5 - La Jolla Village Drive on-ramp (merge)
- Northbound I-5 - Genesee Avenue off-ramp (diverge)
- Southbound I-5 - Genesee Avenue on-ramp (merge)
- Southbound I-5 - La Jolla Village Drive on-ramp (diverge)

Existing Conditions for Intersections

Under existing conditions, the Genesee Avenue and northbound I-5 ramps intersection operates below acceptable levels in the AM and PM peak hours (Table 2.5-1). The Genesee Avenue and southbound I-5 ramps intersection currently operates at an acceptable LOS during all peak hours, with the exception of the PM peak hour (LOS E). Figure 2.5-3, Existing Intersection Peak

Hour and Traffic Volumes, illustrates the existing peak hour turning movements at the signalized intersections in the study area.

| Intersection | Peak Hour | Delay (seconds) | LOS |
|---------------------------------------|------------------|------------------------|------------|
| Genesee Avenue & southbound I-5 ramps | AM | 52.1 | D |
| | MD | 16.9 | B |
| | PM | 72.4 | E |
| Genesee Avenue & northbound I-5 ramps | AM | 88.0 | F |
| | MD | 33.5 | C |
| | PM | 98.2 | F |

Bold indicates where an intersection operates below acceptable levels.
MD = midday

Existing Conditions for Roadway Segments

Table 2.5-2 illustrates the roadway segments under the existing conditions. All Genesee Avenue segments analyzed currently operate at an acceptable LOS. Figure 2.5-3 shows the existing Average Daily Traffic (ADT) along Genesee Avenue in the study area.

| Genesee Avenue Segment | Existing Conditions | | | | |
|--|----------------------------|---|-----------------------|------------------------|------------|
| | ADT | Roadway Classification¹ | LOS E Capacity | V/C² | LOS |
| North Torrey Pines Rd. to southbound I-5 ramps | 41,400 | 6-Lane Prime Arterial | 60,000 | 0.690 | C |
| Southbound I-5 ramps to northbound I-5 ramps | 39,850 | 4-Lane Major Arterial | 40,000 | 0.996 | E |
| Northbound I-5 ramps to Campus Point Dr. | 38,300 | 4-Lane Major Arterial | 60,000 | 0.638 | C |

¹ Existing road classification is based on the General Plan for the University Planning Area

² The v/c ratio is calculated by dividing the ADT volume by roadway capacity

Existing Conditions for Freeway Segments

As shown in Table 2.5-3, Existing Freeway Facility Peak Hour Traffic Volumes, all freeway segments currently operate at an acceptable LOS during all peak hours. Figure 2.5-4 illustrates the existing peak-hour volumes at the freeway facilities in the study area.

| Table 2.5-3 EXISTING CONDITIONS – PEAK HOUR FREEWAY SEGMENTS LOS SUMMARY | | | |
|---|------------------|---------------------------|------------|
| Intersection | Peak Hour | Density (pc/mi/ln) | LOS |
| Northbound I-5 | | | |
| La Jolla Village Dr. on-ramp to Genesee Ave. off-ramp | AM | 28.3 | D |
| | PM | 19.1 | C |
| Genesee Ave. off-ramp to Genesee Ave. on-ramp | AM | 20.9 | C |
| | PM | 17.5 | B |
| Genesee Ave. on-ramp to Sorrento Valley Rd. off-ramp* | AM | 24.4 | C |
| | PM | 25.3 | C |
| Southbound I-5 | | | |
| Sorrento Valley Rd. on-ramp to Genesee Ave. off-ramp* | AM | 29.4 | D |
| | PM | 31.3 | D |
| Genesee Ave. off-ramp to Genesee Ave. on-ramp | AM | 19.6 | C |
| | PM | 27.2 | D |
| Genesee Ave. on-ramp to La Jolla Village Dr. off-ramp (no build) | AM | 19.6 | C |
| | PM | 33.6 | D |

* Because the freeway segment is less than 2,500 feet, a freeway weave analysis is most applicable; the freeway segment is provided only as a reference.

Existing Conditions for Merge/Diverge Areas

Merge/diverge demand meets or is below capacity at LOS A to LOS E. Demand exceeds capacity at LOS F, which is considered an unacceptable condition. All merge/diverge areas currently operate at an acceptable LOS, as shown on Table 2.5-4.

| Table 2.5-4 EXISTING CONDITIONS – PEAK HOUR FREEWAY MERGE/DIVERGE RAMP LOS SUMMARY | | | |
|---|------------------|---------------------------|------------|
| Ramp | Peak Hour | Density (pc/mi/ln) | LOS |
| Northbound I-5 | | | |
| La Jolla Village Dr. on-ramp (merge) | AM | 25.9 | C |
| | PM | 18.5 | B |
| Genesee Ave. off-ramp (diverge) | AM | 39.1 | E |
| | PM | 23.8 | C |
| Southbound I-5 | | | |
| Genesee Ave. on-ramp (merge) | AM | 18.9 | B |
| | PM | 21.5 | C |
| La Jolla Village Dr. off-ramp (diverge) | AM | 29.3 | D |
| | PM | 39.9 | E |

Existing Conditions for Freeway Weaving Operations

Results of the Leisch calculations show that the northbound portion of I-5 during the AM peak period and the southbound portion of I-5 during the PM peak period operate at LOS C (Table 2.5-5). The northbound portion of I-5 during the PM peak period and the southbound portion of I-5 during the AM peak period have volumes exceeding 2,500 vehicles. Where the Leisch methodology results exceeded 2,500 vehicles, the LOS D calculation methodology was applied.

The LOS D calculations under Existing Conditions show the northbound portion of I-5 during the AM peak period and the southbound portion of I-5 during the PM peak period to be under capacity. The northbound portion of I-5 during the PM peak period and the southbound portion of I-5 during the AM peak period exceeded the threshold of 1,800 vehicles per hour per lane for the weaving volumes.

For the weaves identified as over capacity, the HCM was used to provide some additional detail on the degree to which the weave is over capacity. As shown in the table, HCM methodology shows the northbound I-5 weave operating at LOS C or D and the southbound I-5 weave operating at LOS E or F. It should be noted that northbound I-5 adds an additional auxiliary lane between Genesee Avenue and Sorrento Valley Road for a total of six lanes. However, to analyze the segment using HCM methodology, the entire length of the segment is assumed to be four lanes. HCM methodology only allows for a freeway weave analysis on segments with a constant number of lanes.

| Segment | Peak Hour | LEISCH | | LOS D | HCM | |
|--|-----------|-----------------|-----|-------------|--------------------|----------|
| | | Volume (veh/hr) | LOS | Capacity | Density (pc/mi/ln) | LOS |
| Northbound I-5 | | | | | | |
| Genesee Ave on-ramp to Sorrento Valley Rd off-ramp | AM | 1,590 | C | UNDER | 27.8 | C |
| | PM | 2,744 | N/A | OVER | 34.1 | D |
| Southbound I-5 | | | | | | |
| Sorrento Valley Rd off-ramp to Genesee Ave on-ramp | AM | 2,980 | N/A | OVER | 46.1 | F |
| | PM | 2,111 | C | UNDER | 41.5 | E |

Bold indicates where an intersection operates below acceptable levels.
veh/hr = vehicle per hour

Existing Conditions for Intersection Queuing Analysis

For the intersection queuing analysis, 50th percentile and 95th percentile queues were calculated. The 50th percentile queues are those that would occur on a typical signal cycle. Thus, half of the queues would be longer than this number and half would be shorter. The 95th percentile queues are those that would be exceeded by only five percent of the time. In other words, 95 percent of the time these queues would not be exceeded. When the volumes for the 95th percentile cycle exceed the capacity of the lane, the calculated 95th percentile queue could in theory be longer than the reported value. However, in practice, the 95th percentile queue reported would rarely be exceeded and the queues shown would be acceptable for the design of storage bays.

Under existing conditions, the 95th percentile queues exceed the existing storage lengths for several lane movements for the AM, midday, and PM peak periods (Table 2.5-6).

On the Genesee Avenue overcrossing, queued vehicles occur in the eastbound direction during the AM, midday, and PM peak periods. The eastbound left turn lane fills during each of these peaks, while the eastbound through lane fills during the morning peak. In the westbound direction, the westbound left turn lane fills in the PM peak period and the westbound through fills during the AM peak period. These queues have been observed to spill back past the overcrossing causing backups to overcrossing approaches on Genesee Avenue and onto the exit ramps.

The exit ramp left turn lanes both northbound and southbound back up beyond the available storage. The heaviest queuing occurs in the AM peak hour, where traffic has been observed to back up on the freeway mainlines. Additionally, the westbound right turn queue at the northbound ramp exceeds the available storage during the PM peak and occasionally during the midday peak.

**Table 2.5-6
EXISTING CONDITIONS
PEAK HOUR INTERSECTION QUEUING SUMMARY**

| INTERSECTION | DIR | AVAILABLE STORAGE m (ft) | AM PEAK QUEUE | | MD PEAK QUEUE | | PM PEAK QUEUE | |
|-------------------------------|------|-----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| | | | 50 th m (ft) | 95 th m (ft) | 50 th m (ft) | 95 th m (ft) | 50 th m (ft) | 95 th m (ft) |
| Genesee Ave & SB I-5 ramps | EB T | 488 (1,600) | 34 (111) | 49 (161) | 60 (196) | 80 (264) | 116 (379) | 138 (452) |
| | EB R | 503 (1,650) | 0 (0) | 5 (17) | 38 (125) | 74 (242) | 411 (1,348) | 493 (1,618) |
| | WB L | 58 (190) | 19 (61) | 17 (55) | 19 (62) | 23 (76) | 153 (501) | 187 (613) |
| | WB T | 134 (440) | 244 (966) | 94 (308) | 1 (3) | 1 (3) | 17 (56) | 34 (113) |
| | SB L | 52 (170) | 130 (426) | 195 (640) | 46 (146) | 82 (268) | 77 (254) | 132 (433) |
| | SB R | 171 (560) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) |
| Genesee Ave & NB I-5 ramps | EB L | 55 (180) | 65 (214) | 72 (237) | 96 (248) | 126 (413) | 184(603) | 223 (731) |
| | EB T | 134 (440) | 197 (646) | 185 (608) | 0 (0) | 0 (0) | 0.3 (1) | 0.3 (1) |
| | WB T | 518 (1,700) | 58 (190) | 87 (287) | 62 (202) | 90 (295) | 98 (322) | 118 (387) |
| | WB R | 122 (400) | 0 (0) | 0 (0) | 92 (301) | 177 (580) | 459 (1,500) | 539 (1,770) |
| | NB L | 119 (390) | 258 (847) | 336 (1,101) | 50 (164) | 98 (323) | 96 (315) | 155 (507) |
| | NB R | 46 (150) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) |

EB=Eastbound Right; WB=Westbound; SB=Southbound; NB=Northbound; T=Through; R=Right; L=Left

Bold values indicate queues that could be longer.

Bold and shaded values indicate where queues would exceed the available capacity.

Existing Conditions for Ramp Metering

None of the ramps studied are currently metered. As such, no ramp metering analysis of existing conditions is provided.

Existing Pedestrian and Bicycle Access

Currently, there are bike lanes on both sides of Genesee Avenue within the study area and a sidewalk on the north side of the roadway. Free right turns at the interchanges may create conditions that are considered more vulnerable for both pedestrians and bicyclists, as vehicles

can move through the intersection without stopping. Bicyclists are allowed on the I-5 shoulders, both northbound and southbound, between Genesee Avenue and Sorrento Valley Road. There are no barriers that separate motor vehicles from the bike lanes.

2.5.3 Environmental Consequences

Project

Construction Impacts

While the Project would generally result in beneficial impacts to traffic and transportation, temporary impacts would result during construction due to planned freeway and ramp closures. I-5 would be closed in one direction for 10 nights during construction of the Genesee Avenue and Voigt Drive overcrossings. In addition, it may be necessary to close each of the northbound and southbound entrance and exit ramps at the I-5/Genesee Avenue interchange and the northbound exit ramp and southbound entrance ramp at the I-5/Sorrento Valley Road interchange for one day per ramp.

Temporary freeway and ramp closures would result in diversion of through traffic to alternate routes; however, impacts would be minimized by scheduling construction during nighttime or early morning hours and through the implementation of a Traffic Management Plan (TMP; 2008). The goals of the TMP consist of the following:

- Reduce traffic delay or time spent in the queue to less than 15 minutes above normal recurring traffic delay
- Maintain traffic flow throughout the corridor and the surrounding areas
- Maintain bicycle and pedestrian access along Genesee Avenue, Voigt Drive, and Gilman Drive
- Maintain bicycle access between Genesee Avenue and Sorrento Valley Road
- Maintain existing transit operations
- Provide a safe environment for the work force and motoring public

To meet these goals, the TMP includes recommendations related to public information, motorist information strategies, incident management, construction strategies, alternate route strategies, and a contingency plan. Specific TMP elements include Public Awareness Campaign, portable changeable message signs, ground-mounted signs, Caltrans Highway Information Network, Construction Zone Enhanced Enforcement Program, towing availability, Traffic Management Team, construction phasing, main lane and ramp closures, total facility closure, delay clause, conflicts with other projects and special events, temporary detours (motorist detours only; bike route detours would be developed and implemented when bicycle traffic cannot be accommodated through the construction zone), Traffic Contingency Plan, and Contractor Contingency Plan. The proposed phasing would balance the completion of the Project in a timely manner and the necessity to minimize impacts to access and traffic. It is noted that TMP elements would be adjusted, as needed, to adequately address congestion conditions.

Given the temporary nature of the closures, the availability of alternate routes, and the implementation of a TMP, these impacts to traffic and transportation are expected to be relatively minor.

Year 2012 Analysis

Road Network

Under 2012 conditions, the roadway network is assumed to remain the same as existing conditions. It should be noted that no improvements were made to the Genesee Avenue and northbound I-5 ramps intersection during the Genesee Avenue widening project, completed in 2008. No roadway improvements are assumed for 2012 without Project conditions (referred to in the tables as “No Build”). The Project condition (referred to in the tables as “Build”) assumes the completion of the Project, including the installation of ramp meters. Both the with and without Project scenarios assume no freeway facility improvements, and therefore the analysis of freeway facilities would be identical between the two scenarios, with the exception of the installation of ramp meters in the Project scenario only.

Figure 2.5-2 shows the geometrics of the intersections and freeway facilities in the study area for the 2012 without Project (No Build) condition. Figure 2.5-5, Year 2012 Build Intersection/Freeway Facility Geometrics, shows the geometrics of the intersections and freeway facilities for the 2012 with Project (Build) condition. It should be noted that the geometrics of the study intersections and freeway facilities are the same between existing conditions and in 2012 without Project conditions.

Intersections

With implementation of the Project, the Genesee Avenue and southbound I-5 ramps intersection, and the Genesee Avenue and the northbound I-5 ramps intersection would operate at acceptable levels under 2012 conditions (Table 2.5-7). Under 2012 without Project conditions (Table 2.5-7), the Genesee Avenue intersections with the southbound I-5 ramps (in the PM) and northbound I-5 ramps (in the AM) would operate at LOS F under 2012 without Project conditions and would be improved to LOS C with Project implementation. In addition, the intersection of Genesee Avenue and northbound I-5 ramps would operate at LOS F in the PM and improve to LOS B.

| Intersection | Peak Hour | No Build | | Build | |
|---|-----------|----------|----------|-------|-----|
| | | Delay | LOS | Delay | LOS |
| Genesee Avenue and southbound I-5 ramps | AM | 74.4 | E | 26.5 | C |
| | MD | 30.0 | C | 21.3 | C |
| | PM | 87.5 | F | 21.2 | C |
| Genesee Avenue and northbound I-5 ramps | AM | 115.0 | F | 25.1 | C |
| | MD | 44.2 | D | 19.0 | B |
| | PM | 124.1 | F | 19.0 | B |

Bold indicates where an intersection operates below acceptable levels.

Roadway Segments

Table 2.5-8 illustrates the roadway segments under 2012 conditions with and without the Project. As shown in the table, all segments along Genesee Avenue would operate at LOS C with Project implementation. Under 2012 without Project conditions, the segment between the

southbound I-5 ramps and the northbound I-5 ramps would operate at LOS F, which is unacceptable. Implementation of the Project would result in an acceptable LOS along this segment.

| Genesee Roadway Segment | ADT | No Build | | | | Build | | | |
|---------------------------------------|--------|-----------------------|----------------|-----------|----------|-----------------------|----------------|-----------|-----|
| | | Roadway Class. | LOS E Capacity | V/C Ratio | LOS | Roadway Class. | LOS E Capacity | V/C Ratio | LOS |
| North Torrey Pines Rd to SB I-5 ramps | 45,000 | 6-lane Prime Arterial | 60,000 | 0.750 | C | 6-lane Prime Arterial | 60,000 | 0.750 | C |
| SB I-5 ramps to NB I-5 ramps | 42,750 | 4-lane Major Arterial | 40,000 | 1.069 | F | 6-lane Prime Arterial | 60,000 | 0.713 | C |
| NB I-5 ramps to SB I-5 ramps | 40,500 | 6-lane Prime Arterial | 60,000 | 0.675 | C | 6-lane Prime Arterial | 60,000 | 0.675 | C |

Bold indicates where a roadway segment operates below acceptable levels.

Freeway Segments

As shown in Table 2.5-9, all freeway segments would operate at acceptable LOS in all peak hours with and without the Project under 2012 conditions.

| Freeway Segment | Peak Hour | No Build | | Build | |
|---|-----------|--------------------|-----|--------------------|-----|
| | | Density (pc/mi/ln) | LOS | Density (pc/mi/ln) | LOS |
| Northbound I-5 | | | | | |
| La Jolla Village Dr on-ramp to Genesee Ave off-ramp | AM | 31.5 | D | 31.5 | D |
| | PM | 22.3 | C | 22.3 | C |
| Genesee Ave off-ramp to Genesee Ave. on-ramp | AM | 22.8 | C | 22.8 | C |
| | PM | 20.4 | C | 20.4 | C |
| Genesee Ave on-ramp to Sorrento Valley Rd off-ramp* | AM | 26.7 | D | 20.8 | C |
| | PM | 29.3 | D | 22.8 | C |
| Southbound I-5 | | | | | |
| Sorrento Valley Rd on-ramp to Genesee Ave off-ramp* | AM | 34.6 | D | 34.6 | D |
| | PM | 34.5 | D | 34.5 | D |
| Genesee Ave off-ramp to Genesee Ave on-ramp | AM | 22.5 | C | 22.5 | C |
| | PM | 29.0 | D | 29.0 | D |
| Genesee Ave on-ramp to La Jolla Village Dr off-ramp | AM | 22.5 | C | 22.5 | C |
| | PM | 37.6 | E | 37.6 | E |

* Because the freeway segment is less than 2,500 feet, a freeway weave analysis is most applicable; the freeway segment is provided only as a reference.

Merge/Diverge Areas

Under 2012 conditions with the Project, all merge/diverge areas would operate at acceptable LOS (Table 2.5-10). The Project would improve the operations at the Genesee Avenue off-ramp during the AM peak hour from LOS F without the Project to LOS C with the Project. All other peak hours at all of the ramps would operate the same or similarly with or without implementation of the Project.

| Table 2.5-10 YEAR 2012 CONDITIONS – FREEWAY RAMP MERGE/DIVERGE LOS SUMMARY | | | | | | |
|---|-----------|-----------|----------|----------|--|-----|
| Ramp Location | Ramp Type | Peak Hour | No Build | | Build | |
| | | | Density | LOS | Density | LOS |
| Northbound I-5 | | | | | | |
| La Jolla Village Dr on-ramp | Merge | AM | 28.1 | D | On-ramp is an add lane; merge analysis does not apply | |
| | | PM | 21.3 | C | | |
| Genesee Ave off-ramp | Diverge | AM | 42.2 | F | 21.0 | C |
| | | PM | 27.2 | C | 15.3 | B |
| Southbound I-5 | | | | | | |
| Genesee Ave on-ramp | Merge | AM | 21.5 | C | On-ramp is an add lane; merge analysis does not apply | |
| | | PM | 25.8 | C | | |
| La Jolla Village Dr off-ramp | Diverge | AM | 32.6 | D | Off-ramp is a drop lane; diverge analysis does not apply | |
| | | PM | 42.0 | E | | |

Bold indicates where a roadway segment operates below acceptable levels.

Freeway Weave

As shown on Table 2.5-11, the results of the Leisch calculations show that the build alternative would remain the same or improve the conditions for the weave along I-5 north of Genesee Avenue. The northbound portion of I-5 during the PM peak period and the southbound portion of I-5 during the AM peak period have volumes exceeding 2,500 vehicles, which precludes use of the Leisch Method.

The LOS D calculations under the Year 2012 conditions show the northbound portion of I-5 during the AM peak period to be under capacity, while the other areas would be over capacity by exceeding the threshold of 1,800 vehicles per hour per lane for weaving lane volumes. As part of the Year 2012 build condition, results would be similar to the No Build condition, except that the southbound portion of I-5 during the PM peak period would improve to being under capacity.

For the weaves identified as over capacity, the HCM was used to provide some additional detail on the degree to which the weave is over capacity. As shown in the table, HCM methodology shows that the northbound I-5 weave would operate at LOS D or E and the southbound I-5 weave would operate at LOS F under the No Build scenario. For the build scenario, the northbound I-5 weave would operate at LOS C or D and the southbound I-5 weave would operate at LOS E or F. In general, based on the HCM weaving analysis, the Project indicates an improvement for the short freeway segments between Genesee Avenue and Sorrento Valley Road.

| Table 2.5-11 YEAR 2012 CONDITIONS – PEAK HOUR FREEWAY WEAVE ANALYSIS | | | | | | |
|---|-----------|-----------------|-----|-------------|--------------------|-----|
| Segment | Peak Hour | LEISCH | | LOS D | HCM | |
| | | Volume (veh/hr) | LOS | Capacity | Density (pc/mi/ln) | LOS |
| NO BUILD | | | | | | |
| Northbound I-5 | | | | | | |
| NB I-5 Genesee Ave on-ramp to Sorrento Valley Road off-ramp | AM | 1,730 | C | UNDER | 30.8 | D |
| | PM | 2,860 | N/A | OVER | 39.2 | E |
| Southbound I-5 | | | | | | |
| SB I-5 Sorrento Valley Road on-ramp to Genesee Ave off-ramp | AM | 3,130 | N/A | OVER | 52.5 | F |
| | PM | 2,160 | D | OVER | 44.8 | F |
| BUILD | | | | | | |
| Northbound I-5 | | | | | | |
| NB I-5 Genesee Ave on-ramp to Sorrento Valley Road off-ramp | AM | 1,730 | B | UNDER | 24.8 | C |
| | PM | 2,860 | N/A | OVER | 31.1 | D |
| Southbound I-5 | | | | | | |
| SB I-5 Sorrento Valley Road on-ramp to Genesee Ave off-ramp | AM | 3,130 | N/A | OVER | 46.2 | F |
| | PM | 2,160 | D | UNDER | 39.3 | E |

Bold indicates where a roadway segment operates below acceptable levels.
veh/hr = vehicles per hour

Intersection Queuing

As shown on Table 2.5-12, the majority of the storage lanes would have queue length issues associated with Year 2012 conditions. The Project would solve all storage capacity issues associated with Year 2012 volumes.

It should be noted that the design of several of the storage lengths associated with the Project would be constrained by the location of the merge/diverge areas. These include the westbound through and left-turn movements at the northbound I-5 ramps and the eastbound through and left-turn movements at the southbound I-5 ramps.

| Table 2.5-12 YEAR 2012 CONDITIONS PEAK HOUR INTERSECTION QUEUING SUMMARY | | | | | | | | |
|---|-----------|--------------------------|----------------------|------------------|----------------------|------------------|----------------------|--------------------|
| Intersection | Direction | Available Storage m (ft) | AM Peak Queue m (ft) | | MD Peak Queue m (ft) | | PM Peak Queue m (ft) | |
| | | | 50 th | 95 th | 50 th | 95 th | 50 th | 95 th |
| NO BUILD | | | | | | | | |
| Genesee Ave & SB I-5 Ramps | EB T | 488 (1,600) | 41 (133) | 57 (187) | 66 (215) | 88 (288) | 151 (496) | 175 (575) |
| | EB R | 503 (1,650) | 0 (0) | 5 (18) | 52 (170) | 102 (336) | 522 (1,711) | 604 (1,981) |
| | WB L | 58 (190) | 24 (78) | 0 (0) | 20 (66) | 21 (69) | 195 (640) | 220 (721) |
| | WB T | 134 (440) | 374 (1,228) | 297 (973) | 0.7 (2) | 0.7 (2) | 22 (73) | 39 (128) |
| | SB L | 52 (170) | 163 (534) | 232 (761) | 62 (202) | 111 (365) | 102 (335) | 162 (531) |
| | SB R | 171 (560) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) |

**Table 2.5-12 (cont.)
YEAR 2012 CONDITIONS
PEAK HOUR INTERSECTION QUEUING SUMMARY**

| Intersection | Direction | Available Storage m (ft) | AM Peak Queue m (ft) | | MD Peak Queue m (ft) | | PM Peak Queue m (ft) | |
|----------------------------|-----------|--------------------------|----------------------|--------------------|----------------------|------------------|----------------------|--------------------|
| | | | 50 th | 95 th | 50 th | 95 th | 50 th | 95 th |
| NO BUILD (cont.) | | | | | | | | |
| Genesee Ave & NB I-5 Ramps | EB L | 55 (180) | 90 (294) | 91 (300) | 86 (282) | 110 (362) | 251 (822) | 278 (912) |
| | EB T | 134 (440) | 245 (803) | 212 (694) | 0 0 | 0 0 | 38 (126) | 42 (139) |
| | WB T | 518 (1,700) | 77 (253) | 111 (365) | 67 (221) | 102 (336) | 117 (385) | 138 (454) |
| | WB R | 122 (400) | 31 (103) | 49 (160) | 114 (374) | 203 (655) | 595 (1,953) | 677 (2,220) |
| | NB L | 119 (390) | 309 (1,015) | 390 (1,280) | 57 (186) | 109 (358) | 128 (421) | 192 (629) |
| | NB R | 46 (150) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) |
| BUILD | | | | | | | | |
| Genesee Ave & SB I-5 Ramps | EB T | 375 (1,230) | 19 (62) | 25 (81) | 22 (71) | 41 (136) | 32 (105) | 45 (147) |
| | EB R | 107 (350) | 0 (0) | 9 (30) | 0 (0) | 14 (46) | 16 (51) | 46 (151) |
| | WB L | 226 (740) | 11 (37) | 18 (60) | 13 (42) | 6 (20) | 48 (156) | 67 (221) |
| | WB T | 579 (1,900) | 125 (410) | 124 (407) | 1 (3) | 5 (17) | 7 (24) | 18 (59) |
| | SB L | 472 (1,550) | 91 (298) | 136 (447) | 62 (205) | 85 (278) | 47 (153) | 69 (228) |
| | SB R | 472 (1,550) | 114 (373) | 164 (538) | 35 (114) | 47 (155) | 0.3 (1) | 12 (40) |
| Genesee Ave & NB I-5 Ramps | EB L | 229 (750) | 30 (97) | 40 (130) | 56 (183) | 74 (243) | 20 (67) | 33 (107) |
| | EB T | 497 (1,630) | 51 (167) | 73 (241) | 6 (19) | 28 (91) | 0.3 (1) | 10 (32) |
| | WB T | 457 (1,500) | 27 (90) | 35 (116) | 22 (72) | 35 (114) | 25 (83) | 32 (105) |
| | WB R | 107 (350) | 0 (0) | 14 (46) | 0 (0) | 13 (42) | 50 (164) | 87 (284) |
| | NB L | 384 (1,260) | 117 (385) | 148 (487) | 41 (136) | 52 (172) | 39 (128) | 55 (181) |
| | NB R | 384 (1,260) | 26 (84) | 42 (137) | 1 (3) | 16 (52) | 0 (0) | 13 (42) |

EB=Eastbound; WB=Westbound; SB=Southbound; NB=Northbound; T=Through; R=Right; L=Left

Bold values indicate queues that could be longer.

Bold and shaded values indicate where queues would exceed the available capacity.

Ramp Metering

As part of the Project, ramp meters would be installed at both of the I-5 on-ramps from Genesee Avenue and the southbound on-ramp from Sorrento Valley Road. Table 2.5-13 shows the ramp metering summary at the three ramp meters under Year 2012 conditions. As shown in the table, an extensive delay would occur at the northbound Genesee Avenue on-ramp meter during both peak periods. The reason for the extensive delays would be associated with the low metering rate assumed at this ramp metering location. At the southbound ramp meter, less than five minutes of delay would be expected during both peak periods. At the southbound Sorrento Valley Road ramp meter, queues would be relatively short and disperse quickly.

**Table 2.5-13
YEAR 2012 CONDITIONS
INTERSECTION RAMP METER OPERATION SUMMARY**

| On Ramp | Meter Rate (vehicles/hr) | Peak Hour | Demand* (vehicles/hr) | Excess Demand (vehicles/hr) | Delay (min) |
|---------------------------------------|--------------------------|-----------|-----------------------|-----------------------------|---------------|
| I-5/Genesee Ave (northbound) | 230 | AM | 880 | 650 | >25 |
| | 1,450 | PM | 1,980 | 530 | 15-25 |
| I-5/Genesee Ave (southbound) | 490 | AM | 450 | 0 | <5 |
| | 2,000 | PM | 1,800 | 0 | <5 |
| I-5/Sorrento Valley Road (southbound) | 1,280 | AM | 1,560 | 280 | 5-15 |
| | 1,700 | PM | 1,870 | 170 | 5-15 |

Bold indicates where a roadway segment operates below acceptable levels.

* Volumes of peak hour traffic moving onto ramp expressed in vehicles per hour

Year 2030 Analysis

Road Network

Under the 2030 baseline scenario, the following improvements or modifications have been assumed for the facilities in the study area, based on the PSR, dated October 2004.

- The addition of a high-occupancy vehicle (HOV) lane in each direction along I-5.
- The installation of ramp meters at all entrance ramps to I-5. With the installation of the ramp meters at both the northbound and southbound entrance ramps to I-5, the widening of the ramps to accommodate three metered ramp lanes also was assumed.

The 2030 without Project (No Build) conditions assume that no other roadway improvements would be constructed, and the Project (Build) condition assumes the completion of the proposed I-5/Genesee Avenue Interchange Project. The Project would not include any freeway facility improvements, and therefore, the analysis of freeway facilities would be identical between the two conditions.

Figures 2.5-6 and 2.5-7 show the geometrics of the study intersections and freeway facilities in the study area for 2030 without Project (No Build) conditions and the Project (Build) condition, respectively.

Intersections

Table 2.5-14 displays the LOS analysis results for the study intersections under 2030 conditions for the AM, midday, and PM peak hours. As shown in the table, both analyzed intersections (Genesee Avenue and southbound I-5 ramps, and Genesee Avenue and northbound I-5 ramps) would operate at unacceptable levels of service (LOS F) under 2030 without Project conditions during all the peak hours, with the exception of the Genesee Avenue/I-5 southbound ramps intersection during the midday peak hour, which would operate at LOS D. With implementation of the Project, both intersections would operate at LOS E or better during all three peak hours.

| Intersection | Peak Hour | No Build | | Build | |
|---|-----------|----------|----------|-------|----------|
| | | Delay | LOS | Delay | LOS |
| Genesee Avenue and southbound I-5 ramps | AM | 175.2 | F | 79.7 | E |
| | MD | 38.6 | D | 24.3 | C |
| | PM | 136.9 | F | 32.0 | C |
| Genesee Avenue and northbound I-5 ramps | AM | ECL | F | 35.8 | D |
| | MD | 105.8 | F | 21.9 | C |
| | PM | ECL | F | 37.2 | D |

Bold indicates where a roadway segment operates below acceptable levels.
ECL = exceeds calculable limit

Roadway Segments

Table 2.5-15 illustrates the roadway segments under 2030 conditions with and without the Project. As shown in the table, all roadway segments would function at LOS E or better except

for Genesee Avenue from the southbound I-5 ramps to the northbound I-5 ramps (LOS F under 2030 without Project conditions). This roadway segment would be widened with implementation of the Project and would operate at LOS C under this scenario.

| Genesee Roadway Segment | ADT | No Build | | | | Build | | | |
|---------------------------------------|--------|-----------------------|----------------|-----------|----------|-----------------------|----------------|-----------|-----|
| | | Roadway Class. | LOS E Capacity | V/C Ratio | LOS | Roadway Class. | LOS E Capacity | V/C Ratio | LOS |
| North Torrey Pines Rd to SB I-5 ramps | 58,000 | 6-lane Prime Arterial | 60,000 | 0.967 | E | 6-lane Prime Arterial | 60,000 | 0.967 | E |
| SB I-5 ramps to NB I-5 ramps | 53,000 | 4-lane Major Arterial | 40,000 | 1.325 | F | 6-lane Prime Arterial | 60,000 | 0.883 | D |
| NB I-5 ramps to SB I-5 ramps | 48,500 | 6-lane Prime Arterial | 60,000 | 0.808 | C | 6-lane Prime Arterial | 60,000 | 0.808 | C |

Bold indicates where a roadway segment operates below acceptable levels.

Freeway Segments

As shown in Table 2.5-16, northbound I-5 between Genesee Avenue on-ramp to Sorrento Valley Road off-ramp would improve to LOS E under the Project from LOS F under the no Project scenario during the PM peak period. With implementation of the Project, northbound I-5 between La Jolla Village Drive on-ramp and Genesee Avenue off-ramp in the AM, southbound I-5 between Sorrento Valley Road on-ramp and Genesee Avenue off-ramp in the AM and PM, and southbound I-5 between Genesee Avenue on-ramp and La Jolla Village Drive off-ramp in the PM would continue to operate at LOS F, when compared to the no Project scenario. The Project would not cause an increase in density on the analyzed I-5 segments.

Merge/Diverge Areas

As shown on Table 2.5-17, under 2030 conditions without the Project, all analyzed freeway ramp merge/diverge locations would operate at LOS F during one or both peak periods. Construction of the Project would improve the operations at the Genesee Avenue off-ramp during both the AM peak hour (LOS D) and PM peak hour (LOS C).

| Freeway Segment | Peak Hour | No Build | | Build | |
|---|-----------|--------------------|----------|--------------------|----------|
| | | Density (pc/mi/ln) | LOS | Density (pc/mi/ln) | LOS |
| Northbound I-5 | | | | | |
| La Jolla Village Dr on-ramp to Genesee Ave off-ramp | AM | ECL | F | ECL | F |
| | PM | 43.5 | E | 43.5 | E |
| Genesee Ave off-ramp to Genesee Ave on-ramp | AM | 31.4 | D | 31.4 | D |
| | PM | 35.4 | E | 35.4 | E |
| Genesee Ave on-ramp to Sorrento Valley Rd off-ramp | AM | 40.5 | E | 28.5 | D |
| | PM | ECL | F | 41.2 | E |

| Table 2.5-16 (cont.) YEAR 2030 CONDITIONS – FREEWAY SEGMENTS LOS SUMMARY | | | | | |
|---|-----------|--------------------|----------|--------------------|----------|
| Freeway Segment | Peak Hour | No Build | | Build | |
| | | Density (pc/mi/ln) | LOS | Density (pc/mi/ln) | LOS |
| Southbound I-5 | | | | | |
| Sorrento Valley Rd on-ramp to Genesee Ave off-ramp | AM | ECL | F | ECL | F |
| | PM | ECL | F | ECL | F |
| Genesee Ave off-ramp to Genesee Ave on-ramp | AM | 38.3 | E | 38.3 | E |
| | PM | 40.9 | E | 40.9 | E |
| Genesee Ave on-ramp to La Jolla Village Dr off-ramp | AM | 39.9 | E | 39.9 | E |
| | PM | ECL | F | ECL | F |

Bold indicates where a roadway segment operates below acceptable levels.

ECL = exceeds calculable limits

| Table 2.5-17 YEAR 2030 CONDITIONS – FREEWAY RAMP MERGE/DIVERGE LOS SUMMARY | | | | | | |
|---|-----------|-----------|--------------------|----------|--|-----|
| Ramp Location | Ramp Type | Peak Hour | No Build | | Build | |
| | | | Density (pc/mi/ln) | LOS | Density (pc/mi/ln) | LOS |
| Northbound I-5 | | | | | | |
| La Jolla Village Dr on-ramp | Merge | AM | 40.3 | F | On-ramp is an add lane; merge analysis does not apply | |
| | | PM | 31.0 | D | | |
| Genesee Ave off-ramp | Diverge | AM | 55.8 | F | 28.3 | D |
| | | PM | 42.3 | E | 25.0 | C |
| Southbound I-5 | | | | | | |
| Genesee Ave on-ramp | Merge | AM | 28.3 | D | On-ramp is an add lane; merge analysis does not apply | |
| | | PM | 43.9 | F | | |
| La Jolla Village Dr off-ramp | Diverge | AM | 46.9 | F | Off-ramp is a drop lane; diverge analysis does not apply | |
| | | PM | 50.8 | F | | |

Bold indicates where a roadway segment operates below acceptable levels.

Freeway Weave

As shown in Table 2.5-18, the results of the Leisch calculations show that the build alternative would remain the same or improve the conditions for the weave along I-5 north of Genesee Avenue. The northbound portion of I-5 during the PM peak period and the southbound portion of I-5 during the AM peak period have volumes exceeding 2,500 vehicles, which precludes use of the Leisch Method.

The LOS D calculations under the Year 2030 Conditions show all weave segments during both peak periods to be over capacity. Under the No Build condition, the northbound portion of I-5 during the PM peak period and the southbound portion of I-5 during both peak periods would exceed the threshold of 1,800 vehicles per hour per lane for the weaving volumes and 2,000 vehicles per hour per lane for the mainline volumes. As part of the Year 2030 build condition, results would be similar to the No Build condition, except that all weave segments would only exceed the threshold of 1,800 vehicles per hour per lane for the weaving volumes.

For the weaves identified as over capacity, the HCM was used to provide some additional detail on the degree to which the weave is over capacity. As shown in the table, HCM methodology shows that the northbound and southbound I-5 weaves would operate at LOS F under the No

Build scenario. For the build scenario, the northbound I-5 weave would improve to LOS E during the AM peak period and a better LOS F during the PM peak period. The southbound I-5 weave would improve to a better LOS F during both peak periods. In general, based on the HCM weaving analysis, the Project indicates an improvement for the short freeway segments between Genesee Avenue and Sorrento Valley Road.

| Table 2.5-18 YEAR 2030 CONDITIONS – PEAK HOUR FREEWAY WEAVE ANALYSIS | | | | | | |
|---|------------------|------------------------|------------|-----------------|---------------------------|------------|
| Segment | Peak Hour | LEISCH | | LOS D | HCM | |
| | | Volume (veh/hr) | LOS | Capacity | Density (pc/mi/ln) | LOS |
| NO BUILD | | | | | | |
| Northbound I-5 | | | | | | |
| NB I-5 Genesee Ave on-ramp to Sorrento Valley Road off-ramp | AM | 2,280 | E | OVER | 44.4 | F |
| | PM | 3,320 | N/A | OVER | 62.7 | F |
| Southbound I-5 | | | | | | |
| SB I-5 Sorrento Valley Road off-ramp to Genesee Ave on-ramp | AM | 3,760 | N/A | OVER | 82.2 | F |
| | PM | 2,280 | F | OVER | 58.1 | F |
| BUILD | | | | | | |
| Northbound I-5 | | | | | | |
| NB I-5 Genesee Ave on-ramp to Sorrento Valley Road off-ramp | AM | 2,280 | C | OVER | 35.4 | E |
| | PM | 3,320 | N/A | OVER | 49.2 | F |
| Southbound I-5 | | | | | | |
| SB I-5 Sorrento Valley Road off-ramp to Genesee Ave on-ramp | AM | 3,760 | N/A | OVER | 71.5 | F |
| | PM | 2,280 | F | OVER | 50.7 | F |

Bold indicates where a roadway segment operates below acceptable levels.
veh/hr = vehicles per hour

Intersection Queuing

Under the Year 2030 condition with Project implementation (Table 2.5-19), the eastbound right-turn lane at Genesee Avenue/southbound I-5 ramps in the PM would be 5 m (16 ft) over queue capacity (95th percentile). In addition, the westbound right-turn lane at the Genesee Avenue/northbound I-5 ramps in the PM would be 14 and 87 m (48 and 291 ft) over queue capacity (50th and 95th percentiles, respectively).

It should be noted that the design for several of the storage lengths under the Project condition would be constrained by the location of the freeway ramps. These include the westbound through and left movements at the northbound I-5 ramps and the eastbound through and left movements at the southbound I-5 ramps.

**Table 2.5-19
YEAR 2030 CONDITIONS
PEAK HOUR INTERSECTION QUEUING SUMMARY**

| Intersection | Dir | Available Storage m (ft) | AM Peak Queue m (ft) | | MD Peak Queue m (ft) | | PM Peak Queue m (ft) | |
|----------------------------|------|--------------------------|----------------------|--------------------|----------------------|--------------------|----------------------|--------------------|
| | | | 50 th | 95 th | 50 th | 95 th | 50 th | 95 th |
| YEAR 2012 NO BUILD | | | | | | | | |
| Genesee Ave & SB I-5 Ramps | EB T | 488 (1,600) | 46 (151) | 62 (205) | 124 (408) | 170 (558) | 210 (689) | 246 (807) |
| | EB R | 503 (1,650) | (0) | 7 (24) | 168 (551) | 276 (905) | 618 (2,028) | 700 (2,296) |
| | WB L | 58 (190) | 18 (59) | 11 (36) | 87 (284) | 71 (234) | 237 (778) | 237 (776) |
| | WB T | 134 (440) | 404 (1,324) | 81 (266) | 6 (21) | 6 (19) | 1 (4) | 1 (4) |
| | SB L | 52 (170) | 175 (573) | 241 (791) | 105 (346) | 169 (553) | 130 (427) | 193 (632) |
| | SB R | 171 (560) | (0) | 57 (188) | (0) | (0) | (0) | (0) |
| Genesee Ave & NB I-5 Ramps | EB L | 55 (180) | 102 (334) | 84 (274) | 194 (635) | 192 (631) | 327 (1,073) | 321 (1,053) |
| | EB T | 134 (440) | 237 (777) | 91 (299) | 12 (38) | 13 (42) | 9 (29) | 7 (23) |
| | WB T | 518 (1,700) | 109 (359) | 147 (481) | 119 (390) | 163 (535) | 117 (384) | 140 (459) |
| | WB R | 122 (400) | 36 (118) | 60 (169) | 272 (893) | 350 (1,148) | 743 (2,439) | 824 (2,703) |
| | NB L | 119 (390) | 312 (1,024) | 388 (1,274) | 131 (431) | 196 (642) | 166 (545) | 232 (762) |
| | NB R | 46 (150) | (0) | (0) | (0) | (0) | (0) | (0) |
| YEAR 2012 BUILD | | | | | | | | |
| Genesee Ave & SB I-5 Ramps | EB T | 375 (1,230) | 23 (77) | 30 (98) | 41 (133) | 52 (170) | 51 (166) | 59 (194) |
| | EB R | 107 (350) | (0) | 10 (32) | (0) | 15 (50) | 62 (205) | 112 (366) |
| | WB L | 226 (740) | 16 (52) | 23 (74) | 8 (27) | 9 (29) | 55 (181) | 72 (235) |
| | WB T | 579 (1,900) | 215 (705) | 228 (749) | 7 (24) | 19 (62) | 41 (136) | 45 (146) |
| | SB L | 472 (1,550) | 155 (508) | 226 (740) | 82 (268) | 104 (340) | 62 (203) | 110 (361) |
| | SB R | 472 (1,550) | 208 (681) | 253 (830) | 60 (197) | 70 (230) | 28 (93) | 47 (155) |
| Genesee Ave & NB I-5 Ramps | EB L | 229 (750) | 371 (122) | 49 (160) | 74 (242) | 91 (299) | 83 (273) | 120 (394) |
| | EB T | 497 (1,630) | 85 (278) | 83 (273) | 28 (93) | 33 (107) | 13 (44) | 15 (49) |
| | WB T | 457 (1,500) | 48 (156) | 57 (188) | 33 (107) | 44 (143) | 29 (96) | 35 (116) |
| | WB R | 107 (350) | (0) | 15 (48) | 10 (32) | 31 (101) | 121 (398) | 195 (641) |
| | NB L | 384 (1,260) | 161 (529) | 219 (719) | 51 (167) | 69 (226) | 54 (178) | 87 (287) |
| | NB R | 384 (1,260) | 32 (104) | 51 (166) | 17 (55) | 38 (125) | 5 (17) | 21 (68) |

EB=Eastbound; WB=Westbound; SB=Southbound; NBL=Northbound; T=Through; R=Right; L=Left

Bold values indicate queues that could be longer.

Bold and shaded values indicate where queues would exceed the available capacity.

Ramp Metering

With construction of the Project, ramp meters would be installed at both of the I-5 on-ramps from Genesee Avenue, as well as the southbound on-ramp at Sorrento Valley Road. Due to the increased traffic volumes and the need to maintain acceptable mainline operations during peak periods, on-ramp meters would operate during the AM and PM peak periods under the Project scenario.

Under 2030 conditions, the on-ramps would produce substantial queues of 15 to greater than 25 minutes, except for at the southbound I-5/Genesee Avenue on-ramp in the PM (Table 2.5-20). With the operation of ramp metering, the volumes on the upstream freeway facilities would be reduced. Due to the reduced traffic volumes, traffic operations on the northbound I-5 freeway facilities north of and including the Genesee Avenue and Sorrento Valley Road on-ramps would be improved. Ramp metering also would impact operations of both Genesee Avenue and I-5 ramp intersections and the Genesee Avenue corridor. Increases in delay and reductions in LOS would result from queues extending well past the northbound I-5 on-ramp and onto Genesee Avenue.

| On Ramp | Meter Rate | Peak Hour | Demand* | Excess Demand | Delay (min) |
|--|-------------------|------------------|----------------|----------------------|--------------------|
| I-5/Genesee Ave (northbound) | 230 | AM | 1,210 | 980 | >25 |
| | 1,450 | PM | 2,800 | 1,350 | >25 |
| I-5/Genesee Ave (southbound) | 490 | AM | 690 | 200 | 15-25 |
| | 2,000 | PM | 2,400 | 400 | 5-15 |
| I-5/Sorrento Valley Rd (southbound) | 1,280 | AM | 2,130 | 850 | >25 |
| | 1,700 | PM | 2,650 | 950 | >25 |

Bold indicates where a roadway segment operates below acceptable levels.

* Volumes of peak hour traffic moving onto ramp expressed in vehicles per hour

Under 2030 conditions, the on-ramps would experience long delays. Delays and queues as shown for this scenario would not likely occur, however, because some drivers would change their travel behavior rather than wait more than 25 minutes at the ramp meters. A probable occurrence would be an increase in the use of the HOV lanes provided at each ramp. With a shift from single-occupancy vehicles to HOV, the queue would be spread to another lane at the ramp.

Bike Path

With construction of the Project, the existing Class III bike route along I-5 would be replaced with a two-way Class I bike path along the southbound I-5 shoulder, with barrier separation. This would improve the facility for both vehicle drivers and bicycle riders.

No Build Alternative

Year 2012 Analysis

Under 2012 conditions, the No Build Alternative assumes no roadway improvements would be made to the I-5/Genesee Avenue interchange. Also, no freeway facilities improvements would be made. Traffic volumes, however, would continue to increase on local streets and I-5 ramps and mainlines. Previously referenced Tables 2.5-7 through 2.5-12 show projected impacts for the No Build Alternative, as described below.

Intersections

By 2012, Genesee Avenue/southbound I-5 ramps during the PM peak hour and Genesee Avenue/northbound I-5 ramps during the AM and PM peak hours would operate at LOS F (Table 2.5-7).

Roadway Segments

Table 2.5-8 illustrates the roadway segments under the No Build Alternative. As shown in the table, the Genesee Avenue segment between the southbound I-5 ramps and northbound I-5 ramps would operate below acceptable levels (LOS F) in 2012.

Freeway Segments

As shown in Table 2.5-9, all freeway segments would operate at acceptable LOS in all peak hours and conditions analyzed under the No Build Alternative.

Merge/Diverge Areas

The LOS analysis under the No Build Alternative shows that all freeway ramps merge/diverge areas would operate at acceptable levels of service, with the exception of the northbound I-5 Genesee Avenue off-ramp, which would operate at LOS F (Table 2.5-10).

Freeway Weave

Weave analysis concluded that the weaving segment along northbound I-5 would operate at acceptable levels under the No Build Alternative (Table 2.5-11). However, the weaving segment along southbound I-5 would operate at LOS F.

Intersection Queuing

The queuing analysis thresholds for signalized intersections are based on the lane storage capacity and the actual amount of lane storage needed. If the queuing capacity meets or is above the storage needed, then the intersection storage is considered to be adequate. If the storage needed exceeds the available capacity, then the intersection storage is considered inadequate.

As shown in Table 2.5-12, several intersections would experience queuing under 2012 conditions. Specifically, the following ramp intersections would operate at unacceptable levels in 2012 under the No Build Alternative:

- Genesee Avenue and southbound I-5 ramps intersection:
 - Eastbound right-turn lane in the PM peak hour (50th and 95th percentiles)
 - Westbound left-turn lane in the PM peak hour (50th and 95th percentiles)
 - Westbound through lane in the AM peak hour (50th and 95th percentiles)
 - Southbound left-turn lane in all peak hours (50th and 95th percentiles)
- Genesee Avenue and northbound I-5 ramps intersection:
 - Eastbound left-turn lane in all peak hours (50th and 95th percentiles)
 - Eastbound through lane in the AM peak hour (50th and 95th percentiles)
 - Westbound right-turn lane in the midday peak hour (95th percentile) and PM peak hour (50th and 95th percentiles)
 - Northbound left-turn lane in the AM and PM peak hours (50th and 95th percentiles)

Ramp Metering

Ramps would not be metered in 2012 under the No Build Alternative.

Year 2030 Analysis

Intersections

By 2030, both intersections in the study area would operate below acceptable levels during all peak hours, except Genesee Avenue/southbound I-5 ramps during the midday peak hour (Table 2.5-14).

Roadway Segments

Table 2.5-15 illustrates the roadway segments under the No Build Alternative. As shown in the table, the Genesee Avenue segment between the southbound I-5 ramps to northbound I-5 ramps would operate below acceptable levels (LOS F) in 2030.

Freeway Segments

As shown in Table 2.5-16, the following freeway segments would operate at LOS F under the No Build Alternative:

- Northbound I-5 from La Jolla Village Drive on-ramp to Genesee Avenue off-ramp (AM peak hour)
- Northbound I-5 from Genesee Avenue on-ramp to Sorrento Valley Road off-ramp (PM peak hour)
- Southbound I-5 from Sorrento Valley Road on-ramp to Genesee Avenue off-ramp (AM and PM peak hours)
- Southbound I-5 from Genesee Avenue on-ramp to La Jolla Village Drive off-ramp (PM peak hour)

Merge/Diverge Areas

The LOS analysis under the No Build scenario shows that all merge/diverge areas would operate at LOS F during either the AM or PM peak hour (Table 2.5-17).

Freeway Weave

The weave analysis shows that the freeway segments analyzed would operate at unacceptable levels (LOS F) (Table 2.5-18).

Intersection Queuing

As shown in Table 2.5-19, several intersections would experience queuing under 2030 conditions. Specifically, the following ramps intersections would operate at unacceptable levels in 2030 under the No Build Alternative:

- Genesee Ave and southbound I-5 ramps intersection:
 - Eastbound right-turn lane in the PM peak hour (50th and 95th percentiles)
 - Westbound left-turn lane in the PM peak hours (50th and 95th percentiles)
 - Westbound through lane in the AM peak hour (50th percentile)
 - Southbound left-turn lane in all conditions (50th and 95th percentiles)

- Genesee Ave and northbound I-5 ramps intersection:
 - Eastbound left-turn lane in all conditions (50th and 95th percentiles)
 - Eastbound through lane in the AM peak hour (50th and 95th percentiles)
 - Westbound right-turn lane in the midday (95th percentile) and PM peak hours (50th and 95th percentiles)
 - Northbound left-turn lane in the AM and PM peak hours (50th and 95th percentiles)

Ramp Metering

Ramps would not be metered in 2030 under the No Build Alternative.

2.5.4 Avoidance, Minimization and/or Mitigation Measures

The Project TMP (2008) would be implemented to minimize construction-related effects to traffic and transportation/pedestrian and bicycle facilities. The TMP includes specific recommendations related to public information, motorist information strategies, incident management, construction strategies, alternate route strategies, and contingency plans, including the measures described below.

Public Awareness Campaign

- Identify all target audiences who would be impacted by construction activities.
- Serve as the focal point for Project-related questions regarding construction activities, road closures, noise, dust, and other construction-related activities.
- Inform the public about the Project and how the Project could affect their travel on I-5, Genesee Avenue, Sorrento Valley Road ramps, Voigt Drive, Gilman Drive, and other streets within the vicinity of the Project.
- Promote alternate modes of transportation and alternate routes. Specific elements that may be used to accomplish these objectives include press releases and special alerts to news outlets and traffic reports, which would be sent to inform motorists about construction activities. Paid advertising would also be used to inform motorists about construction activities, especially full freeway closures.

Motorist Information Strategies

Motorist Information Strategies include portable changeable message signs (PCMSs), ground-mounted signs, and Caltrans Highway Information Network (CHIN). The use of these strategies within the Project is described below:

- The Project estimate calls for a total of 12 PCMSs. These should be available to inform motorists on northbound and southbound Interstate 5 of construction activities ahead, as well as on Genesee Avenue, Sorrento Valley Road, Voigt Drive, and Gilman Drive.
- Suitable locations and messages for the PCMS would be developed jointly by the District Traffic Manager (DTM) Branch and Construction.
- Ground-mounted signs should be placed at significant locations in the streets around Genesee Avenue, Sorrento Valley Road, Sorrento Valley Boulevard, Campus Point

Drive, Roselle Street, Voigt Drive, and Gilman Drive, as well as potential detour locations. These should be placed at decision-making points on routes approaching the construction site and detour to inform motorists about the options that exist for avoiding construction areas and for other alternate routes that may allow them to avoid the detour as well.

- Ground-mounted signs should be maintained and updated to keep information current and accurate.

Incident Management

Construction Zone Enhanced Enforcement Program (COZEEP)

- Assist during the replacement of cantilevered or overcrossing-mounted overhead sign panels in various locations.
- Assist during construction of auxiliary lanes, overcrossings, interchange, and gore areas at ramps.
- Assist in full freeway closures.
- Aid disabled motorists and provide a presence to maintain the integrity of the work area. By being highly visible, the California Highway Patrol (CHP) would discourage motorists from committing unlawful and dangerous maneuvers inside or outside the closures. They may also assist in removing disabled vehicles from the construction zone and in procuring towing services. COZEEP may be utilized during placement and removal of temporary railing along I-5, Genesee Avenue, and Voigt Drive, as well as during restriping, if necessary. CHP presence should be utilized in these situations to allow a quick response to situations that might otherwise cause unacceptable levels of congestion when terminating construction activities quickly is not possible.

Towing Availability

- Additional Freeway Service Patrol would need to be implemented during construction during non-peak hours whenever shoulders are closed.
- During the Plans, Specifications, and Estimates (PS&E) process, the name and contact information of the towing service would be provided in the TMP. Their number should be available to CHP, Caltrans engineers on site, and San Diego Police working in the area.

Traffic Management Team (TMT)

- A TMT would be established and should include the DTM, TMP Manager, District Encroachment Permit Engineer, Caltrans Project Manager, and Project Engineer. The TMT should be scheduled to meet whenever construction activities are expected to cause a traffic queue on the freeway.
- The TMT units would be requested by the Resident Engineer whenever a major lane closure or full freeway closure is planned.
- The TMT would help prevent accidents (queue protection) by providing advanced warning to motorists of abnormal downstream traffic congestion on the freeway.

- The TMT would help evaluate signs for detours in the field and provide advance warning to motorists in case of an accident or non-recurring congestion.
- The TMT would be used to direct traffic to alternate routes as traffic conditions dictate.
- The TMT and TMP staff would communicate on-site traffic conditions to the Traffic Management Center (TMC) and help develop effective messages for PCMSs and fixed changeable message signs.
- The TMT would work closely with the TMP Coordinator with regard to recommending changes in TMP elements that would be used to manage traffic.
- The Construction Traffic Manager (CTM) and TMP Manager would be responsible for overseeing the traffic management operation in this corridor.
- The TMT would work closely with the TMP Coordinator to assist in the monitoring of traffic conditions (e.g., monitoring traffic delays that approach Caltrans' 15-minute delay threshold), including planned lane closures for any delays that go beyond the 15-minute threshold and inform the Caltrans Construction Resident Engineer/Inspector.
- The TMT, CTM, and TMP Manager would assess problem areas that may develop and assist in implementing solutions.
- The TMT would deploy truck-mounted changeable message signs to provide end-of-queue signing to prevent rear-end type accidents from occurring when non-recurring congestion develops.
- The TMC in District 11 would act as the primary communications center and would be responsible for facilitating communication between construction personnel, the TMT, CHP personnel, San Diego Transit Corporation, tow truck services, and the TMP Coordinator.

Construction Strategies

To minimize traffic disturbance and maintain all traffic movements during construction (except for a one- to two-day period where several Genesee Avenue intersection movements would be closed), detailed stage construction plans would be prepared during the PS&E process for the Project, including Voigt Drive, Gilman Drive, and Sorrento Valley Road entrance and exit ramps. A Preliminary Stage Construction Concept Plan consisting of eight stages has been developed, as described in Chapter 1.0, Proposed Project, of this IS/EA.

Main Lane, Ramps

Closure requirements would be provided as "lane closure charts" during the PS&E process. These charts would delineate the hours when lanes, ramps, and connectors may be closed and when full freeway closures may take place without creating substantial delays to motorists in the Project area. These charts, although accurate and complete when issued, would be subject to change and revision by the DTM.

Charts provided in the TMP Report may differ from the most current charts on file with the DTM. Where discrepancies exist, charts in the TMP would be superseded by charts provided by the DTM. Temporary railing would be used alongside I-5, Genesee Avenue overcrossing, and Voigt Drive overcrossing to shield the work area. Additional ramp closure detail would be provided during the PS&E.

Total Facility Closure

Full freeway closures would be anticipated for work planned on these facilities. However, full freeway closures on I-5, in either northbound or southbound direction, would occur only at night. Full closures should occur in only one direction on a given night to help minimize the impact to motorists. Reasonable access to Genesee Avenue, Sorrento Valley Road, Voigt Drive, and Gilman Drive should be provided to law enforcement as required. The DTM and TMP Coordinator should be notified as far in advance of the needed closures as possible. Special provisions for closure would be provided during the PS&E process.

Delay Clause

The late pickup of a planned lane closure would be detrimental to the LOS in this facility and have economic consequences for the motorists involved in the resulting congestion. As a result, a "Delay Clause" would be incorporated into the contract's Special Provisions to help ensure that the contractor complies with the hours and lanes allowed for closure as shown on the lane closure charts. Should the contractor fail to reopen the lanes as specified in the charts, a monetary penalty would be imposed on the contractor for each 10-minute interval, or a fraction thereof, past the time specified to reopen the closure. Caltrans would deduct the fine from moneys due or that may become due the contractor under the contract. It shall be the responsibility of the Resident Engineer to impose this penalty on the contractor when circumstances warrant. During the PS&E, the designer would coordinate with the TMC to establish the cost for the delay clause for each 10-minute interval.

Conflicts with Other Projects and Special Events

Concurrent construction with overlapping project limits should be anticipated in advance and may require a review of TMP elements during construction to avoid unanticipated impacts to traffic flow. A joint effort between the DTM/TMP Manager, Resident Engineer, and contractor must be made to check whether there would be any projects scheduled concurrently with this Project on I-5. At the time of the writing of the TMP, no projects appear to pose a direct conflict.

Coordination with University of California, San Diego (UCSD), Scripps Clinic Hospital, Scripps Memorial Hospital, Qualcomm, and other businesses surrounding the Project area should be conducted to address any special events that may conflict with the construction activities. TMP elements should be adjusted to avoid unanticipated impacts to traffic flow.

Alternate Route Strategies

Temporary Detours

Temporary detours would be implemented during construction of this project, as described in the Preliminary Stage Construction Concept Plan. The suggested alternative route to avoid Genesee Avenue during construction would direct vehicle traffic along North Torrey Pines Road to the La Jolla Village Drive interchange. Another alternative route may direct traffic along Genesee Avenue, east to La Jolla Village Drive and west to the I-5/La Jolla Village Drive interchange. Night closure of the Sorrento Valley Road southbound on-ramp would also require a temporary detour to I-805. Detours may include signal modifications and adjusted ramp meter rates to accommodate the diverted traffic.

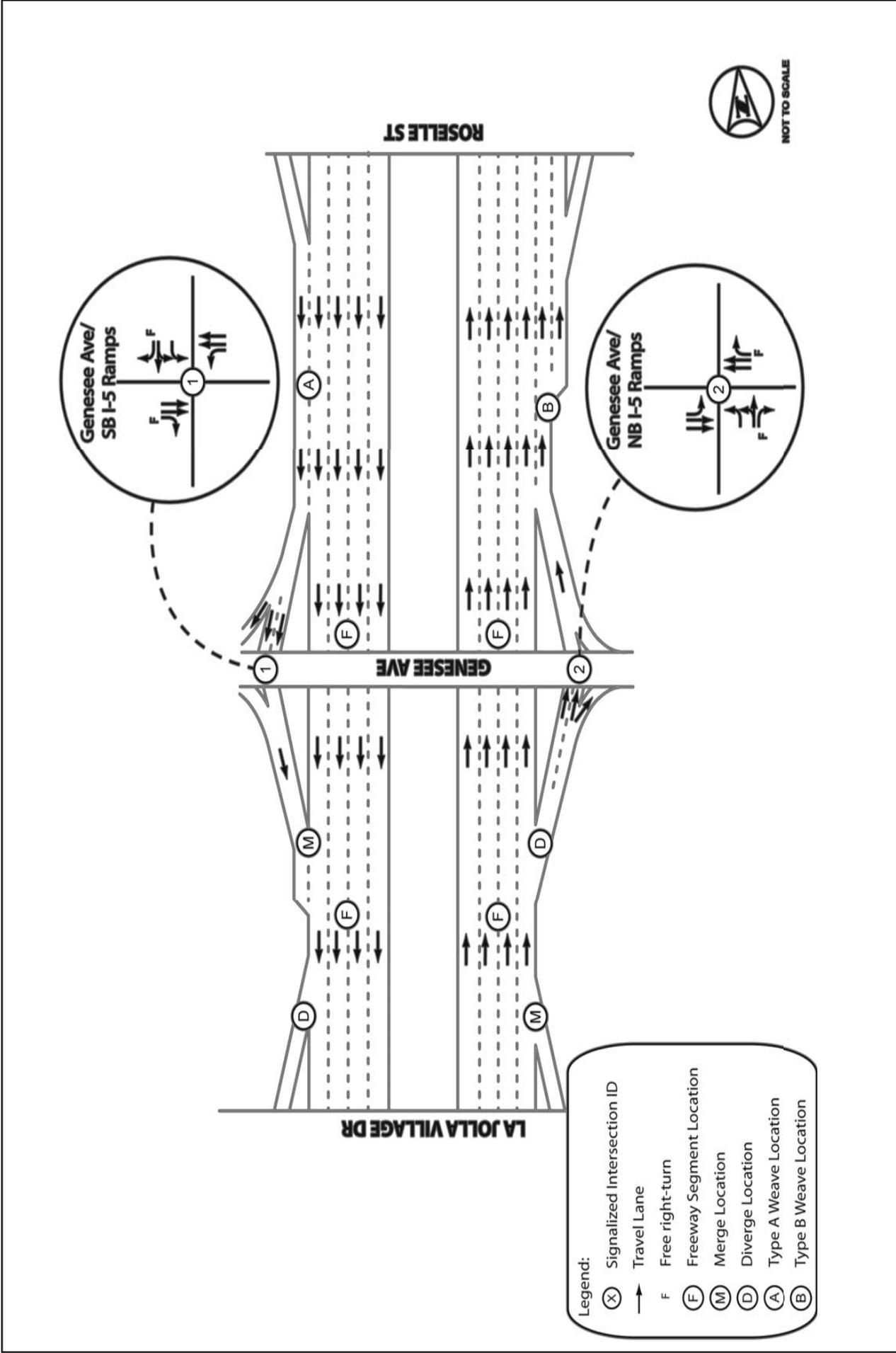
Bike route detours would be developed and implemented when bicycle traffic cannot be accommodated through the construction zone.

Diversion of additional traffic onto the University Towne Centre (UTC) area roads would likely require consideration of some temporary signal or geometric modifications to accommodate the diverted traffic. These improvements may also include increased transit service and increased shuttle service between the Sorrento Valley Road Trolley Station and the UTC employment centers. These temporary detour enhancement strategies would be analyzed in more detail as the TMP is updated for the detailed stage construction plans developed in PS&E. Temporary detours for traffic between Sorrento Valley Road and University City are impractical. Therefore, construction staging must maintain this connection at all times. Similarly, Voigt Drive is the main vehicle, pedestrian, and bicycle connection between the east and west campus areas of UCSD and must also remain in service at all times.

The implementation of the TMP as described above has been incorporated as a part of the Project.

Implementation of the Project would reduce future traffic congestion problems, and improve pedestrian and bicycle conditions in the Project study area. As there are no anticipated impacts, no mitigation would be necessary. The Genesee Avenue corridor is being designed to accommodate pedestrian and bicycle traffic in addition to vehicular traffic. The following measures would avoid/minimize impacts to pedestrian and bicycle facilities:

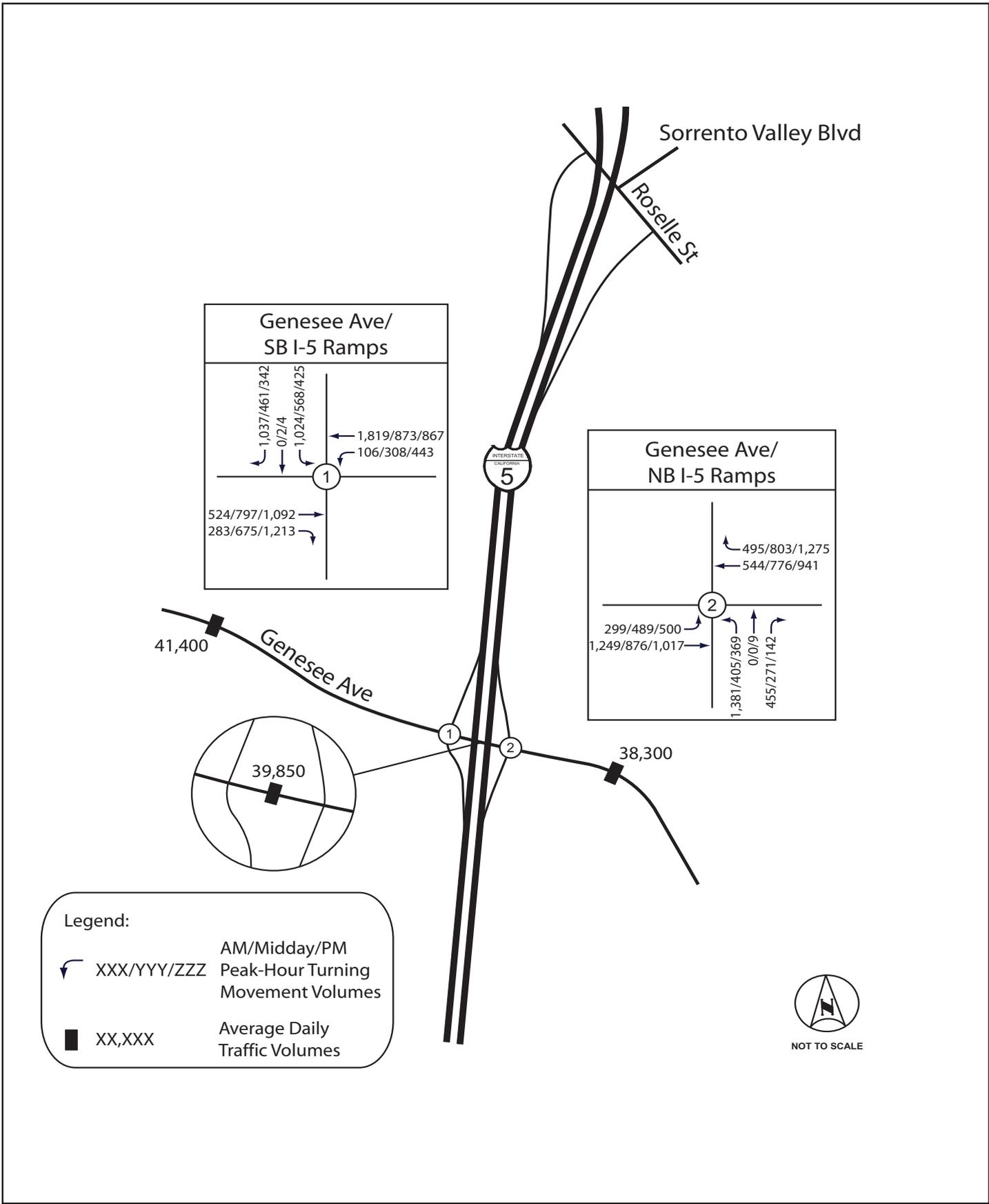
- Improve bicycle facilities. The University City Community Plan identifies Genesee Avenue as a Class II bike lane facility from North Torrey Pines Road to State Route 52. This facility has been fully implemented except for the portion across I-5 because the existing overcrossing structure is not wide enough to accommodate bike lanes. The proposed overcrossing structure would include sufficient space for a bike lane in each direction. The University City Community Plan also identifies a Class III bike route along the shoulders of I-5 connecting Genesee Avenue and Sorrento Valley Road. The proposed interchange improvements would accommodate a two-way Class I bike path along the southbound I-5 shoulder with a barrier separating the bike path from the vehicular traffic.
- Improve pedestrian accessibility. Both the Genesee Avenue and Voigt Drive overcrossings would include improved pedestrian access. The Genesee Avenue overcrossing would include a standard width sidewalk and striped/signalized pedestrian crossings and ADA-compliant pedestrian ramps at each intersection. The Voigt Drive overcrossing would include oversized (3-m-wide [10-ft-wide]) sidewalks, striped crosswalks, and ADA-compliant pedestrian ramps.



E:\ArcGIS\KHA-10 I-5 Genesee Interchange\Map\SEA\Fig-2.5-1_FreewayFacility.pmd -NM

Existing Intersection/Freeway Facility Geometrics
 INTERSTATE 5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION

Figure 2.5-2

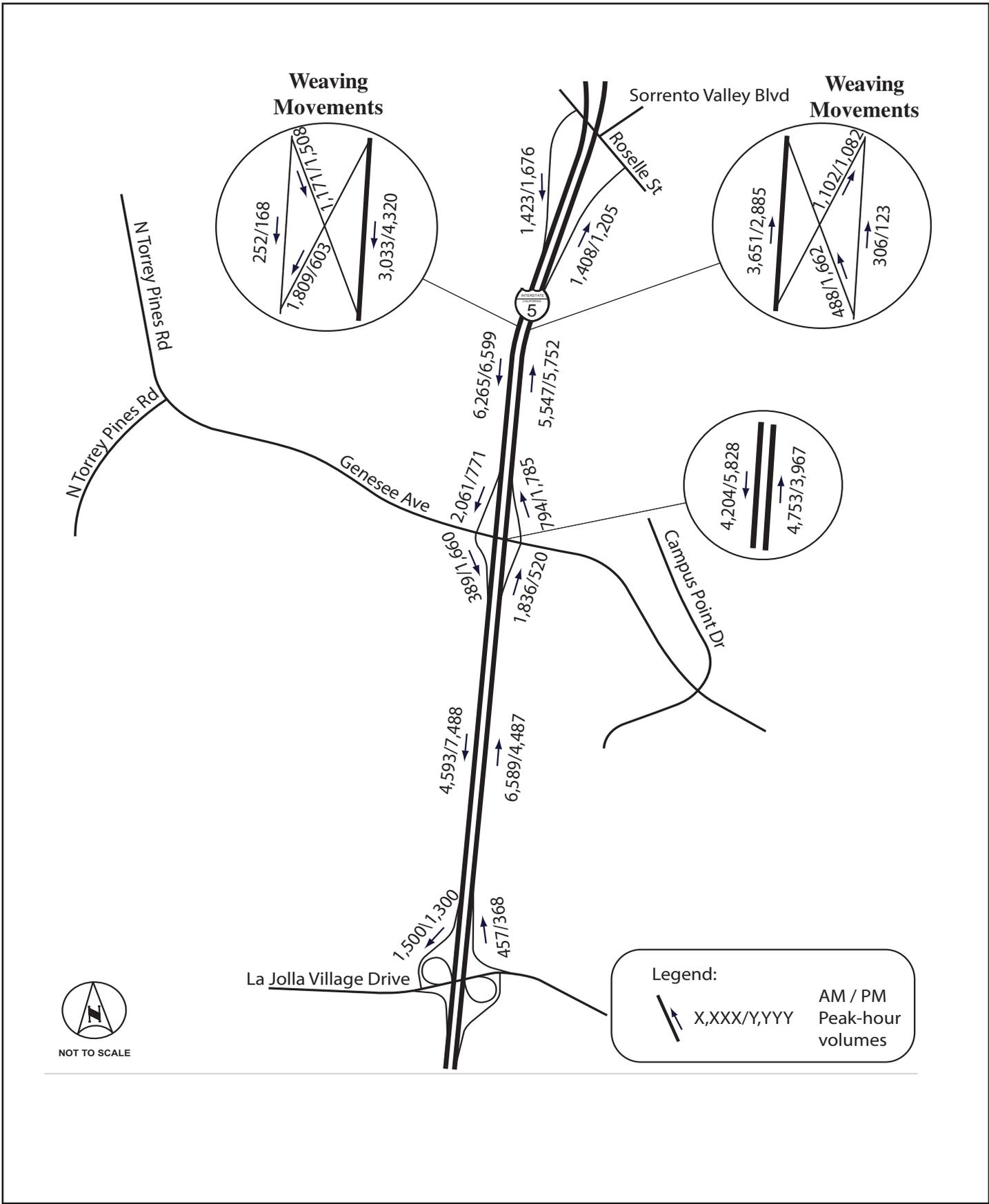


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Existing Intersection Peak Hour and Traffic Volumes

INTERSTATE 5/GENESEEE AVENUE INTERCHANGE RECONSTRUCTION

Figure 2.5-3

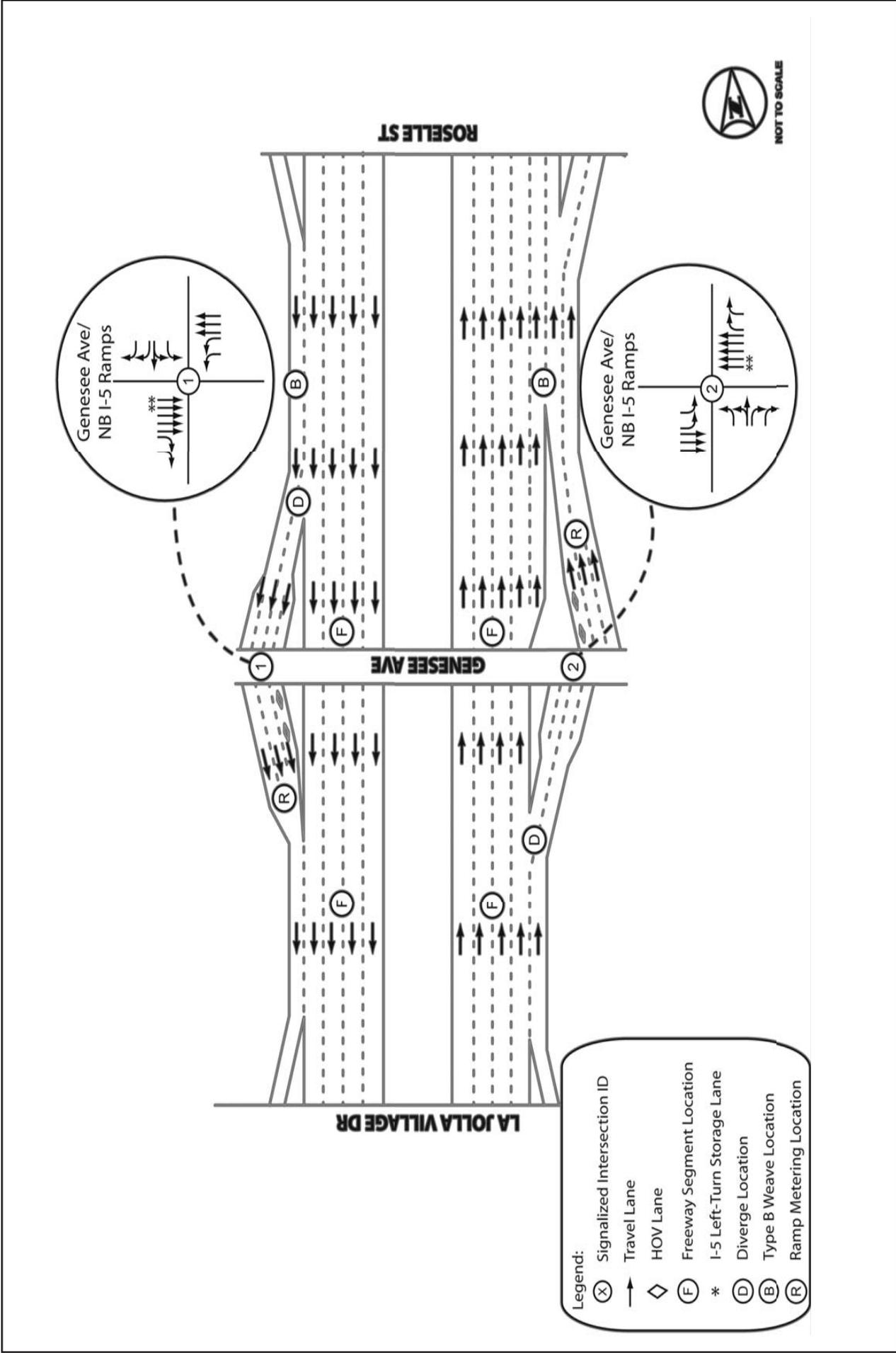


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Existing Freeway Facility Peak Hour and Traffic Volumes

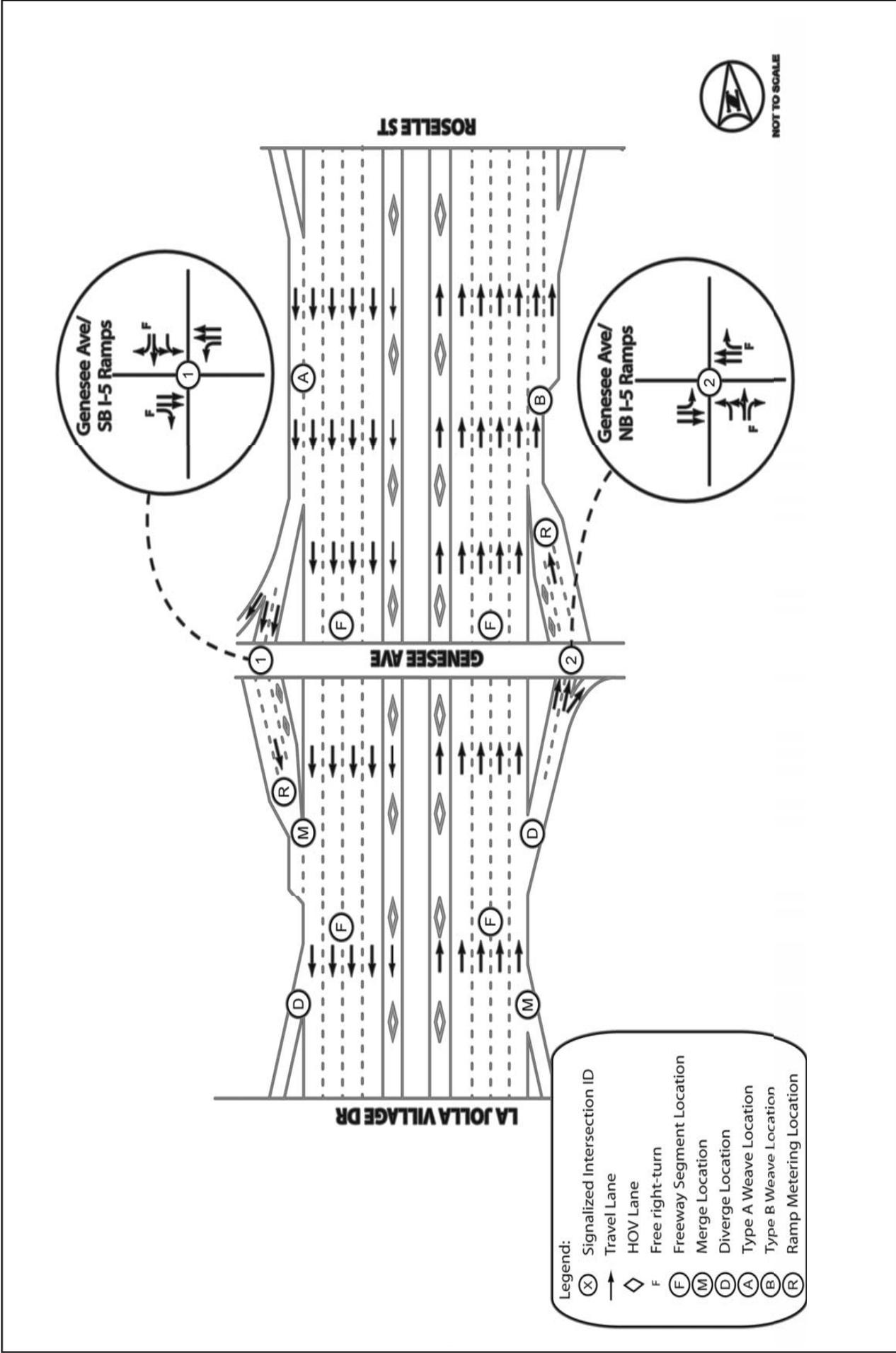
INTERSTATE 5/GENESEEE AVENUE INTERCHANGE RECONSTRUCTION

Figure 2.5-4



Year 2012 Build Intersection/Freeway Facility Geometrics
 INTERSTATE 5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION
 Figure 2.5-5

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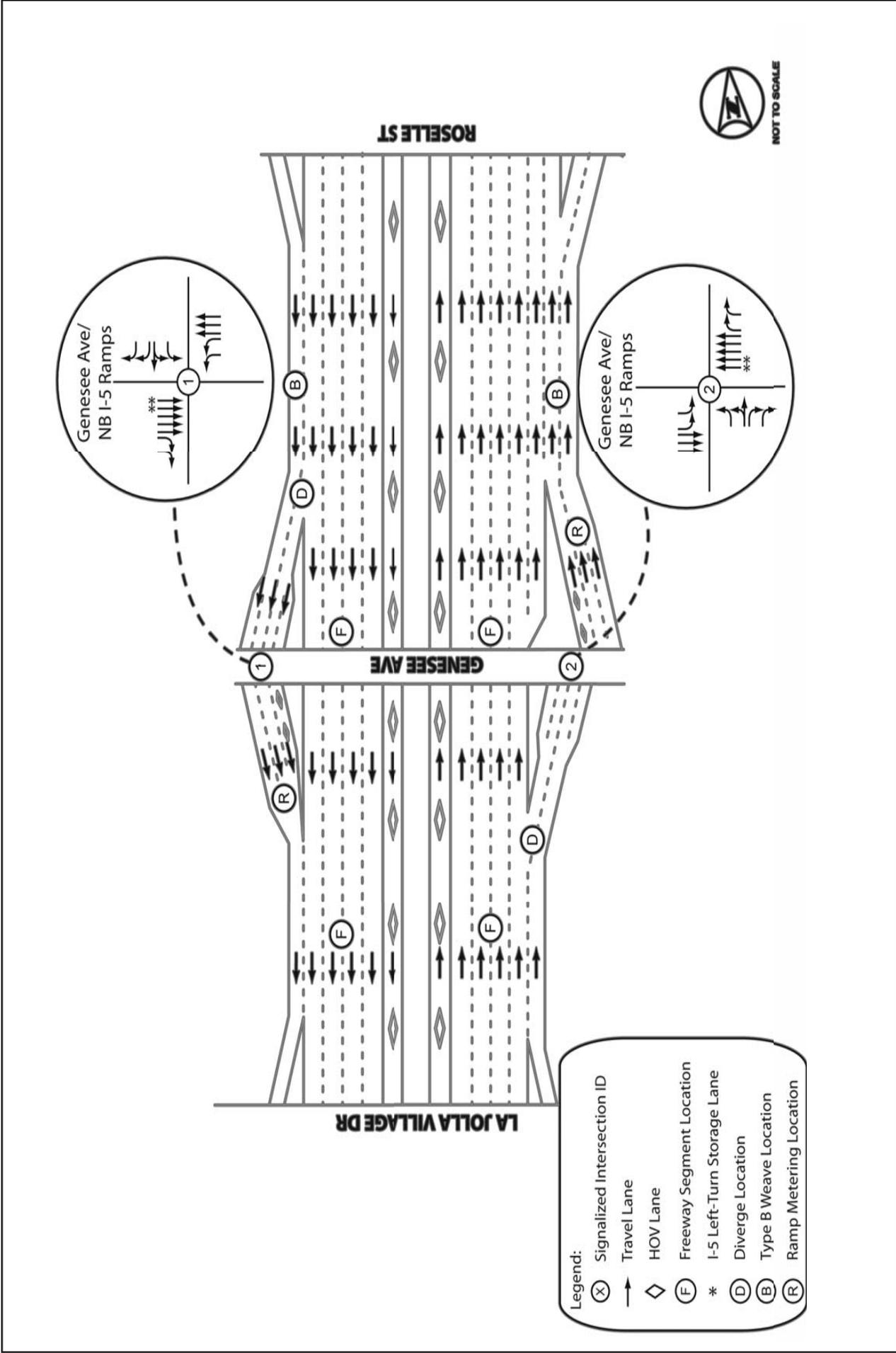


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Year 2030 No Build Intersection/Freeway Facility Geometrics

INTERSTATE 5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION

Figure 2.5-6



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Year 2030 Build Intersection/Freeway Facility Geometrics

INTERSTATE 5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION

Figure 2.5-7

2.6 VISUAL/AESTHETICS

2.6.1 Regulatory Setting

Federal Regulations

The National Environmental Policy Act (NEPA) establishes that the federal government use all practicable means to ensure all Americans safe, healthful, productive, and *aesthetically* (emphasis added) and culturally pleasing surroundings (42 USC 4331(b)(2)). To further emphasize this point, the FHWA administration in its implementation of NEPA (23 USC 109(h)) directs that final decisions regarding projects are to be made in the best overall public interest, taking into account adverse environmental impacts, including, among others, the destruction or disruption of aesthetic values.

Visual resources are evaluated in accordance with FHWA methodology in the Visual Impact Assessment of Highway Projects (FHWA 1981). Basic steps in the process include:

- Definition of project setting and viewshed
- Analysis of existing visual resources
- Analysis of viewer response
- Identification of key views
- Assessment of visual impacts using qualitative methods
- Identification of mitigation to reduce adverse visual effects

The concepts contained in this assessment evaluate visual resources. This is accomplished by comparing the existing visual environment to the construction period and post-construction buildout visual environment and, subsequently, determining whether the Project would result in physical changes deemed to be incompatible with visual character or which would degrade visual quality.

Visual character is descriptive and non-evaluative, which means it is based on defined attributes that are objectively described. (A change in visual character cannot be described as having good or bad attributes until it is compared with the viewer response to that change.) Visual quality is evaluated by identifying the vividness, intactness, and unity present in the viewshed:

- Vividness is the visual power or memorability of landscape components as they combine in distinctive visual patterns.
- Intactness is the visual integrity of the natural and human-built landscape and its freedom from encroaching elements. It can be present in well-kept urban and rural landscapes, as well as natural settings.
- Unity is the visual coherence and compositional harmony of the landscape considered as a whole.

State Regulations

The California Environmental Quality Act (CEQA) establishes that it is the policy of the state to take all action necessary to provide the people of the state “with...enjoyment of *aesthetic*

[emphasis added], natural, scenic and historical environmental qualities...” (California Public Resources Code [PRC] Section 21001[b]).

The California Scenic Highway Program is intended to protect and enhance California’s natural scenic beauty and to protect the social and economic values provided by the state’s scenic resources. A State Scenic Highway is any designated freeway, highway, road, or other public right-of-way that traverses an area of exceptional scenic quality. A scenic designation is determined by the local jurisdiction after consideration and evaluation of how much of the natural landscape a passing motorist sees and the extent to which visual intrusions (e.g., buildings, unsightly land uses, noise barriers) impact the “scenic corridor.” The state of California has adopted policies related to the protection of scenic corridors that guide planning and project development toward the use of context sensitive solutions to preserve scenic resources. I-5, part of the California Scenic Highway System, is eligible for official designation, but the City has not officially designated this portion of I-5 as a scenic route.

2.6.2 Affected Environment

A Visual Impact Assessment (2008) was prepared to discuss existing visual environment, as well as assess the visual impacts of the Project. This analysis is summarized below.

Project Setting/Regional Landscape

The regional landscape provides a frame of reference for analysis of the Project, providing a baseline for determination of visual effects of the Project, as well as their severity or beneficial effect. This section summarizes primary visual elements along the Project site. More detail as to character specifics and visual quality is provided in the discussion of “Existing Visual Resources,” which is presented later in this subchapter.

The Project area includes the I-5 corridor, which is an eight-lane divided freeway with four lanes in each direction in this location (Figure 2.6-1). The horizontal alignment of I-5 is relatively straight between La Jolla Village Drive and Genesee Avenue, and curves gently to the east, north of Genesee Avenue. The vertical alignment of the freeway slopes upward (1.6 percent grade) from La Jolla Village Drive to just north of the Voigt Drive overcrossing and then slopes downward (3 percent grade) to the north end of the Project study area. I-5 generally is located in a canyon in this area, with vegetated slopes rising on either side of the freeway (Figure 2.6-1). Oleanders in the center median currently function as a visual screen south of Genesee Avenue, blocking views of half of the freeway paving and automobiles going in the opposite direction and reducing nighttime glare from oncoming headlights.

Genesee Avenue near I-5 generally is bordered by landscaped or naturally vegetated slopes and canyons (Figure 2.6-1). The few buildings that are located nearest Genesee Avenue in this area are visually separated from the roadway by mature pine trees and short, vegetated slopes. The diamonds between the ramps and the freeway and the slopes immediately next to the ramps support mature shrubs and eucalyptus trees. These plants are green most of the year and serve to limit expansive views to and from the ramps. These landscaped areas are visually dominant and create a naturalistic character in the interchange (Figure 2.6-1).

Voigt Drive provides access to the University of California, San Diego (UCSD) campus and nearby hospitals. It is bordered by parking lots and hospital and campus buildings, including a secondary (grades 6 through 12) school. These various land uses support a variety of

landscaping, including lawns, trees, and ornamental shrubs. Several sculptures on the hospital property also are visible from Voigt Drive.

Overall, therefore, the Project area currently has a “suburban parkway” character. The hillsides bordering the freeway predominately are landscaped or vegetated with naturalized species. The Project site is located in a deeper section of a large canyon where the scale of the vegetated slopes is equally as dominant as the overcrossings, paving and highway features. These slopes limit views from the freeway toward the mesa tops in the landscape unit.

Freeway travelers driving north or south on I-5 beyond the Project boundaries have been exposed to large, vegetated slopes and canyon walls. This is especially true for travelers from the south heading north on I-5, where the tall vegetated slopes of Rose Canyon and part of San Clemente Canyon near the I-5/State Route 52 interchange border the freeway. With the minor exception of development occurring close to the highway in the vicinity of the Nobel Drive and La Jolla Village Drive interchanges, the natural canyons and hillsides currently dominate the visual setting.

Landscape Units

A landscape unit is a portion of the regional landscape and can be thought of as an outdoor room that exhibits a distinct visual character. A landscape unit often corresponds to a place or district that is commonly known among local viewers. Project landscape units are shown on Figure 2.6-2 and described below.

The great majority of the Project is located in the La Jolla Hills landscape unit, which extends from Rose Canyon 4.8 km (3 mi) south of the Project site to approximately 1.5 km (0.9 mi) north of Genesee Avenue, near the northern edge of the Project site. The La Jolla Hills landscape unit encompasses UCSD and the science parks in the vicinity of the Project site. The buildings on the UCSD campus generally are clustered in the center of the campus on the top of the mesas, with (grass) playing fields, parking lots, and roadways along the periphery. Hospital and science buildings, as well as housing units, are located in the southeastern portion of the campus. Similarly, most of the buildings within the science parks are located on the mesas, separated from Genesee Avenue by parking lots and landscaping, and therefore are not highly visible from the roadway. Undeveloped canyons and groves are scattered among the buildings of the UCSD and science parks. Both the developed and undeveloped areas define the visual environment in the vicinity of the Project site and are equally dominant. Several hotels also are located along the west side of North Torrey Pines Road. Torrey Pines Golf Course, not highly visible from the North Torrey Pines Road, spreads westward behind the hotels and research buildings along the coastal bluffs. Torrey Pines State Park overlays the northern slopes of the landscape unit, and provides a transition from the developed mesa top to the undeveloped lagoon area and coastal strip at the western edge of Sorrento Valley, a dominant visual feature of Carmel Valley (north of Sorrento Valley). The landscape unit encompasses a variety of residential and commercial land uses to the south of Genesee Avenue and UCSD, as well as east of the school. Although the residential and commercial land uses create a varied and complex visual environment and are somewhat visible from the freeway near La Jolla Village Drive and Nobel Drive, they are not dominant visual elements in views from I-5 or Genesee Avenue due to the canyons bordering the freeway.

I-5 also enters a small portion of the Sorrento Valley landscape unit at the northern end of the Project site. As it passes through Sorrento Valley, the highway is elevated above most of the valley floor with retaining walls and overcrossings. Just north of Genesee Avenue, I-5 meets

the grade of the hillside and begins to cut through it. At Genesee Avenue, I-5 is located within its own canyon, confined by cut slopes on the west and east.

Project Viewshed

A viewshed is a subset of a landscape unit and is comprised of all the surface areas visible from an observer's viewpoint. The limits of a viewshed are defined as the visual limits of the views located from the Project, and also include the locations of viewers likely to be affected by visual changes associated with Project features. The Project viewshed is illustrated on Figure 2.6-2 and described below by Proposed Project element.

Sorrento Valley Road

The northern extent of the Project limits, which includes the Sorrento Valley Road on-ramp, is visible from a small area immediately surrounding the on-ramp intersection. The on-ramp slopes upward toward the freeway. The slope blocks views toward the ramp from the west, I-5 restricts views of the on-ramp from the east, and buildings and vegetation screen views of the on-ramp from the majority of Sorrento Valley Road and the surrounding areas. The freeway overcrossing and support structures (columns) are visually dominant in this area, and the on-ramp comprises a relatively minor element.

The off-ramp lanes originate just north of where the Genesee Avenue on-ramp lanes merge with the northbound lanes of I-5. Because the off-ramp descends into a valley, is on-grade, and is located at the base of the eastern slope along northbound I-5, it is not visible from I-5 or from the hills above I-5. The off-ramp and adjacent slope may be visible from a few locations in Sorrento Valley but, for the most part, this portion of the valley consists of undeveloped steep slopes and the railroad corridor that are inaccessible.

I-5/Genesee Avenue Interchange

The areas from which the I-5/Genesee Avenue interchange is visible generally are limited by the surrounding topography and the alignments of I-5 and Genesee Avenue. Views of Genesee Avenue are available from approximately 1 km (0.7 mi) north and south of Genesee Avenue along I-5 and a shorter distance to the west and east. The viewshed generally is confined to the immediate hillsides bordering the roadways in this area, but also includes some science park areas on the mesas east and west of the interchange, as discussed below.

The I-5/Genesee Avenue interchange (overcrossing) is visible to southbound motorists from approximately 1 km (0.7 mi) north of the interchange, where the Sorrento Valley Road on-ramp meets the freeway. The off-ramp to Genesee Avenue slopes uphill toward the roadway, and begins to align more north-south, where the overcrossing becomes a more central element in southbound views.

For northbound motorists, the Genesee Avenue overcrossing is visible from south of the Project site (near the Voigt Drive overcrossing).

West of I-5, Genesee Avenue slopes upward and the alignment extends northwesterly toward Science Center Drive, approximately 0.5 km (0.3 mi) west of the interchange. Eastbound motorists and bicyclists on Genesee Avenue do not have direct views of the interchange until Genesee Avenue's intersection with Science Center Drive, as a hill in the southwestern

quadrant of the interchange blocks views. Views would be available to pedestrians on the sidewalk on the north side of Genesee Avenue.

Similarly, east of I-5, Genesee Avenue slopes upward and curves southward around Scripps Memorial Hospital and the medical buildings located in the southeastern quadrant of the interchange. A small hill located in this quadrant blocks views of the interchange from Genesee Avenue east of the interchange. Motorists traveling westbound toward the Project site would have views of the interchange from approximately 0.3 km (0.2 mi) away, as they drive downhill on Genesee Avenue from the hospital's entrance road.

The interchange is visible from the science park buildings, parking lots, and plazas to the northwest. I-5 and Genesee Avenue are visible in the background from these points, but these settings are visually busy with cars, landscaping, and buildings in the foreground that distract from views of the interchange. The buildings also block views of the interchange. The Project site is visible from the upper stories of some of the hospital buildings in the southeastern quadrant of the interchange, some taller buildings in the complexes accessed by Campus Point Drive, and some portions of the parking lots and plazas between these buildings.

The interchange is visible from the hillsides that surround it; however, these hillsides are not accessible either by vehicle or on foot; no formal walking paths transect these steep, vegetated slopes. There are, therefore, virtually no viewers within these areas.

Finally, the freeway in both directions and the Voigt Drive overcrossing is visible from the Genesee Avenue overcrossing, and the safety barriers are low enough that this view is available to motorists, bicyclists, and pedestrians.

Voigt Drive

The Voigt Drive overcrossing is more visible than the Genesee Avenue overcrossing, due to its position near the point where I-5 slopes up from the north and south. The overcrossing is visible to southbound motorists once they pass the Genesee Avenue overcrossing located approximately 0.5 km (0.3 mi) to the north, and to northbound motorists once they pass the La Jolla Village Drive overcrossing located approximately 1 km (0.7 mi) to the south.

Voigt Drive is aligned in a northeast to southwest direction; the roadway curves on each side approximately 0.2 to 0.3 km (0.1 to 0.2 mi) from the overcrossing. This alignment limits views of the overcrossing to motorists, pedestrians, and bicyclists traveling east and west on Voigt Drive. Voigt Drive, including its overcrossing, may be visible from some of the campus facilities and the hospital buildings located near Voigt Drive and I-5, and the campus facilities along either side of the freeway between Voigt Drive and La Jolla Village Drive.

The Voigt Drive overcrossing passes over the freeway near its highest elevation, providing extensive views for bicyclists and pedestrians from the overpass. The views include the freeway and its surroundings, including the Genesee Avenue overcrossing (from the north side of the Voigt Drive overcrossing), but are visually interrupted by the intervening vinyl-coated chain-link fence. The safety barrier is tall enough to block views for most motorists.

Gilman Drive

Motorists, bicyclists, and pedestrians can overlook I-5 from the northern end of Gilman Drive near its intersection with Voigt Drive. Gilman Drive and this intersection, however, are not

highly visible from the freeway, because of its location and the elevation difference. Views of Gilman Drive from northbound I-5 are brief and peripheral to the direction of travel. Southbound motorists would not see the intersection because the Voigt Drive overcrossing would block views toward it. Generally, views along Gilman Drive are limited. The roadway dips lower in elevation south of Voigt Drive, and most of this stretch (until it curves westward near the hospital) is lower in elevation than the surrounding area. Manufactured, vegetated slopes line Gilman Drive on each side. The slopes and dense vegetation screen views to and from Gilman Drive and on the east limit views of the freeway, while on the west, they buffer Gilman Drive from University housing buildings.

Existing Visual Resources

Interstate 5

The visual character of I-5 in the vicinity of the Project site is characterized by both the expanse of pavement and the bordering vegetated hillsides/canyon slopes and the median oleanders. Although I-5 generally is a straight roadway with multiple overcrossings, the symmetry and rigidity of this human-made environment is somewhat softened by the topography and vegetation. The latter provides green colors and softer textures, contributing to a suburban parkway character. This is perfectly illustrated at the I-5/Genesee Avenue interchange, with its densely vegetated diamond interchange and vegetated slopes. The eight-lane freeway has little diversity or human scale elements, particularly for bicyclists who travel at slower speeds. The vegetation, however, serves to lessen this effect, and to provide more human-scale elements, as well as visual complexity. This vegetation and the other elements that make up the visual environment of the freeway (lanes, overcrossings, and slopes) generally appear to be balanced, or equally dominant, with no features that are dissonant or contrasting.

Visual quality of the I-5 corridor in the vicinity of the Project site could be considered moderately high. The vividness of the corridor is moderate; the topography and vegetation provide memorable visual components and a sense of place related to the surrounding landscape unit. Where there is vegetation in the median, it helps to increase vividness by reducing the dominance of the broad expanse of pavement. The intactness of the freeway corridor is generally high, due to the integrity of the collected visual elements, such as the roadway itself, overcrossings, hillsides, and vegetation. None of these elements currently is out of scale or more dominant than the other. The vegetation and slopes that contribute to the parkway character provide coherence and harmony, providing moderately high visual unity, particularly where there are oleanders growing in the median. The visual quality of the corridor has only moderate unity to the north of Genesee Avenue, where there are no oleanders.

Genesee Avenue

Genesee Avenue is characterized by the vegetation bordering it. Although the roadway is six lanes wide, the narrow overcrossing and the vegetated canyons and hills bordering the roadway provide a green and parkway-like character in the vicinity of the Project site. This vegetation provides a variety of form and some complexity in the visual environment. The roadway is curvilinear and presents a fluid line as it extends across and between the canyons and hillsides on either side of the freeway, although some of the vegetation in the interchange area blocks views of this line. The vegetation provides predominantly green and earth-toned colors, as well as a softer texture. The scale of Genesee Avenue is not as large as the freeway, and although some portions are six lanes wide, it is not monumental. The curves of the roadway as it extends through the local topography and the vegetation on the hillsides next to it provide complexity

and varied textures. Although some elements, such as the lights and signs near the interchange, are somewhat dissonant with the parkway-like setting, they are small and sparse, and do not detract from the mostly harmonious visual environment. Overall, the character of the roadway is balanced without any prominent features disrupting or dominating the views.

The visual quality of Genesee Avenue is moderate to moderately high. The vividness of the roadway is moderate. Although the vegetation contributes to the parkway characteristic, it also blocks views of the distinctive curvilinear line of Genesee Avenue as it extends through and past the local topography. The intactness of the roadway is moderate; although it is consistently lined with vegetation, it varies in width and scale, and this variety lends some disjointedness to the visual environment. The vegetation and topography that create a parkway characteristic similar to the freeway provide moderately high unity. Roadway fixtures (e.g., lights and signs near the interchange) do somewhat detract from the unity; however, these elements are not dominant features.

Voigt Drive

The various buildings, parking lots, and landscape treatment bordering Voigt Drive near the Project site contribute to the impression of entering the larger UCSD campus. More buildings border the roadway the further west it extends, until it reaches the heart of the campus. At the Voigt Drive overcrossing, the roadway narrows and the varied roadway widths are not symmetrical. The various elements surrounding the interchange, such as the overcrossing structure and the buildings, mostly are geometric and rigid. Some landscaping contributes green tones in the area; however, the more dominant, mostly human-made elements create a more monotone environment (with the exception of the red hospital buildings) with more smooth textures that are not effectively softened by the landscaping. Voigt Drive has more human scale than Genesee Avenue or I-5, as it is only two lanes wide. The overcrossing and its related elements are slightly out of scale with the roadway, with tall curbs that are awkward for pedestrians to step up onto. The high barrier and fence also are not in keeping with the more open landscape bordering Voigt Drive to the east and west of the overcrossing. The diverse and complex elements are not balanced; buildings dominate the north side of the roadway east of the interchange, while few other buildings are as close to the roadway for several hundred meters/feet.

Voigt Drive has moderately low visual quality. The buildings surrounding Voigt Drive provide distinct indication that the roadway is an entrance into the UCSD campus, and artwork on the hospital grounds provides some vividness. The buildings, however, are not unique, nor is the area surrounding the roadway highly memorable. The intactness of the visual environment surrounding Voigt Drive is moderately low; it has a complex collection of varied elements, such as parking lots, buildings, and landscaped areas, as well as a varied roadway width that feels disjointed. Similarly, the unity of the area is moderately low; the pieces that make up the visual environment are varied and not harmoniously composed to create a coherent visual experience.

Gilman Drive

The portion of Gilman Drive that falls within the Project area is a two-lane, north-south trending roadway bordered by mature trees and shrubs to the east, and a playing field and University housing buildings on a slight rise to the west. While the roadway is generally symmetrical and straight, the vegetation contributes green tones and soft textures to the area. The street is smaller in scale than many streets in the area. Although the street has little diversity, it has high continuity and the elements are visually balanced.

Gilman Drive has moderately high visual quality. The buildings and the sports field on the west side of Gilman Drive are set back from the roadway and visually separated from it by trees and vegetated slopes. The mature vegetation on each side of Gilman Drive, although not highly memorable, has few visually distracting or encroaching elements, and is therefore highly intact. Although this roadway does not appear to be deliberately designed, the vegetation provides some compositional harmony, and the unity of the area is high, relative to roadways nearby.

Viewers

Viewer response is composed of two elements: viewer exposure and viewer sensitivity. These elements combine to form a method for predicting how the public might react to visual changes resulting from a highway project.

Viewers of the Project site mainly are motorists, both on I-5 and local roadways, as well as bicyclists and pedestrians along local roadways and bicyclists on I-5. Some views also are available from UCSD and local office and medical buildings within the viewshed. Each of these viewer groups has a different exposure (or view duration) and sensitivity to that change.

Existing Viewer Exposure and Awareness

Motorists on I-5

Current traffic volume on I-5 within the Project site is approximately 155,000 to 156,000 average daily traffic (ADT), and Year 2030 predicted traffic volume is 224,630 to 266,950 ADT. Most motorists pass underneath the Genesee Avenue overcrossing structure, while up to 4,000 vehicles exit at the interchange during peak hours.

At the posted speed limit (105 kilometers per hour [km/h; 65 miles per hour (mph)]), views of the Genesee Avenue interchange realignment area from I-5 are available for approximately 37 seconds for southbound motorists (from approximately where the Sorrento Valley Road on-ramp meets the freeway through lanes), and approximately 18 seconds for northbound motorists (from approximately the Voigt Drive overcrossing). The Voigt Drive overcrossing would be visible to southbound motorists for approximately 18 seconds (from approximately the Genesee Avenue overcrossing), and to northbound motorists for approximately 36 seconds (from approximately the La Jolla Village Drive overcrossing).

Motorists on I-5 would be viewing these overcrossings from the north and south, in the middle ground and foreground (and from below), as they travel along I-5. The most visible portions of the overcrossings from the freeway are the sides of the overcrossing decks and the support pilasters and slopes. Any vegetation in the median, the interchanges (between the ramps and the freeway), and bordering hillsides tend to be in the middle ground of views for motorists on I-5. Despite the short view duration, the number of viewers in this group, as well as the location of highway elements in the middle ground and foreground of views from the freeway, result in a moderate level of viewer exposure.

Motorists on Local Streets

Approximately 60,000 people pass through or use the Genesee Avenue overcrossing each day. Westbound motorists on Genesee Avenue would see the interchange for approximately 26 seconds at the posted speed of 72 km/h (45 mph), and eastbound motorists would see the

interchange for approximately 13 seconds. While the view duration is low, motorists on Genesee Avenue would have a moderate exposure to visual change because the number of viewers is high and the items they are viewing are located in the foreground.

At peak hours, Voigt Drive currently has approximately 300 ADT near Campus Point Drive, and 38 ADT at Gilman Drive. There are no stop signs or lights near the Voigt Drive overcrossing, so motorists would not experience long view duration, although they move through the area at slower speeds (relative to motorists on Genesee Avenue). Gilman Drive has approximately 300 ADT at peak times. At the posted speed of 56 km/h (35 mph), a motorist on Gilman Drive would be driving through the Project area for about seven seconds. Areas that would be changed by the Project that are most visible from local streets are the streets themselves, the slopes and hills on either side of the streets, and the overcrossing decks. These elements would be in the foreground for motorists on these streets. Views from the overcrossings to I-5 and the surrounding area also are peripherally available from each of these roadways; however, barriers limit these views, particularly along Voigt Drive. The number of viewers in this group is lower than on I-5. The viewers' speed of travel is slower and their duration of view slightly longer. Nonetheless, the elements are closer. Therefore, viewer exposure for motorists on local streets is assessed as moderate.

Bicyclists on I-5

The number of bicyclists traveling along I-5 is low. For these viewers, the visual components of Genesee Avenue and the Sorrento Valley Road off-ramp would be similar to views available for motorists, but would appear larger in scale and would be longer in duration due to their lower travel speeds. The need to navigate the freeway shoulder would distract bicyclists from prolonged views. Bicyclists along I-5 would have moderate exposure.

Bicyclists and Pedestrians on Local Streets

Genesee Avenue has bike lanes along either side and a sidewalk along the north side. The portion of Genesee Avenue within the Project area is not frequently traversed by pedestrians, because destinations located along Genesee Avenue are not located within a comfortable walking distance from each other; however, bicyclists regularly use this roadway. Voigt Drive and Gilman Drive are traversed by both bicyclists and pedestrians. Altogether, the number of pedestrians and bicyclists on these roadways would be much lower than the number of motorists along either roadway or I-5.

Pedestrians and bicyclists would have a longer time to view the visual elements surrounding these streets due to their slower travel speed. Pedestrians would have the longest exposure to these views. On Gilman Drive, a bicycle rider traveling at 16 km/h (10 mph) would traverse the Project area for approximately one minute. Pedestrians walking at five km/h (three mph) would pass through the area in about four minutes.

The composition of the visual elements (i.e., roadways, overcrossing decks, and slopes and vegetation surrounding the streets) for bicyclists and pedestrians would be similar to the views available to motorists in that the elements would be in the foreground. These viewers would be able to see more of the surrounding slopes and vegetation and have more extensive views from the Genesee Avenue and Voigt Drive overcrossings because of their slower speed of travel and elevated view point. Bicyclists and pedestrians on local streets would have moderate view exposure.

UCSD Students and Employees, and Local Businesses and Medical Facilities Patrons and Employees

As of Fall 2007, UCSD employed 24,730 people, and total campus enrollment was 27,500 students. When not traveling on local roadways, these viewers potentially have longer, stationary views of I-5 and the local roadways that would be altered by the Project from the buildings, campus areas, and parking lots within the Project site viewshed. Project site elements would be in the middle ground and comprise small elements in these stationary views. The number of viewers in this group would be low, because few of these buildings are located within the viewshed. The combination of the middle-ground views, the low number of viewers, and the long view duration results in an assessment of moderate viewer response for this group.

Existing Viewer Sensitivity

Motorists on I-5

Residents of the San Diego region take pride in the scenic resources of the I-5 corridor, and may be sensitive to changes within the corridor that could potentially contrast with the existing character. Daily commuters also would be sensitive to loss of scenic views, and may have longer exposures to the visual environment surrounding the freeway due to high traffic volumes and resultant slower speeds. However, commuters may be more sensitive to ease of travel than scenic quality. Tourists, while generally having a higher awareness of the visual environment, may have lower sensitivity, as they generally would not know the historic/past conditions of a roadway.

At freeway speeds, a motorist's attention generally is focused forward on more distant views rather than on peripheral or middle-ground views. Concentration is required by the driver to navigate traffic, while passengers have a greater awareness of a wider variety of views. Vehicle occupants' overall awareness would be moderate. Freeway travelers could include a wide variety of viewers, and as such would have mixed or moderate expectations for local values and goals. Sensitivity to change for this group is anticipated to be moderate.

Motorists on Local Streets

While Genesee Avenue and the local streets from which the Project may be visible are not designated scenic corridors, users of the local streets have a high awareness of the local roadways and the visual environment surrounding them, and therefore would be highly sensitive to changes in the visual character of the area. Motorists on local streets generally travel at slower speeds than on I-5, and drivers that are negotiating the interchange are aware of its configuration. While motorists are stopped at the stoplights of the I-5/Genesee Avenue interchange, they would have an opportunity to view the surrounding hillsides and open space. Motorists who are familiar with the area would not expect to see buildings or structures near the roadway for at least 0.5 km (0.3 mi) on either side of the interchange. Voigt Drive is bordered by buildings, parking lots, and some landscaped areas. Gilman Drive is bordered by vegetation that blocks views of I-5 and some buildings.

Motorists on these roads should be aware of their surroundings to safely navigate the roadway. These motorists are likely to be patrons, employees, and students of UCSD and the hospitals, and would have a high awareness of the visual environment that provides an entry to the campus and the hospital facilities. Accordingly, they would have higher expectations and

sensitivity to local values and goals than travelers along I-5. Overall, this viewer group is expected to have a moderately high sensitivity.

Bicyclists on I-5

The need to watch traffic and navigate the freeway shoulder would distract bicyclists along I-5 from prolonged views of the overcrossing and interchange components. Their attention to views, therefore, would be low. Their awareness also may be low, because their focus would be more on traffic and safety. Similar to bicyclists on local streets, these viewers are likely to be local commuters. While they might not expect a scenic view, they would have higher expectations for a safe route and heightened familiarity with the available views. Bicyclists along I-5 are assessed as having a moderate sensitivity to change.

Bicyclists and Pedestrians on Local Streets

Bicyclists and pedestrians on Genesee Avenue, Voigt Drive, and Gilman Drive would have a greater chance to focus attention on the views than would motorists due to slower travel speeds. This group also has more acute awareness of the visual environment surrounding the roadways on Genesee Avenue and Voigt Drive. These groups can see over the barriers that block views from vehicles on these roads. The need to navigate traffic, however, may lower bicyclists' attention to the view. For all three roads, these viewers are likely to have high expectations and local values and goals because they are likely to be familiar with the roadway. Overall, their sensitivity to change would be high.

UCSD Students and Employees and Local Businesses and Medical Facilities Patrons and Employees

Employees and students of UCSD, staff and patients of the hospitals, and employees and visitors to the business/science park areas on the hilltops generally would be expected to focus more internally to the campus or facilities within which their businesses occur, rather than on views of the Project area. Their expectations may be relatively high, however, as they would be familiar with the available views. Their anticipated sensitivity to change would be moderately low.

Key Views

Because it is not feasible to analyze all the views in which the Project would be seen, several key viewpoints that would most clearly display the visual effects of the Project have been selected. Key views also relate to the primary viewer groups that would potentially be affected by the Project. Key view locations are shown in Figure 2.6-3.

Key View 1

Orientation

Key View 1 was selected to represent the view of the I-5/Genesee Avenue interchange available to the greatest number of viewers on I-5. Key View 1 (Figure 2.6-3) was taken from southbound I-5 just north of where the Sorrento Valley Road entrance merges with the main freeway lanes, approximately 1.2 km (0.75 mi) north of the Genesee Avenue overcrossing. This view looks slightly eastward to encompass the hills adjacent to the northbound lanes, which have the potential to be impacted by the Project. These hills represent the typical dominant

topography and vegetation that compose the visual character of the area surrounding the I-5/Genesee Avenue interchange.

The southbound lanes of the freeway comprise the foreground of the photograph, and the slopes visible on the left side of the photograph are located at the edge of the La Jolla Hills landscape unit. The hills are vegetated with grasses, shrubs, and eucalyptus trees. The median barrier is visible as a diagonal line through the center of the photograph. No oleanders are planted in the median north of Genesee Avenue. Some northbound cars are visible beyond the median, although northbound traffic generally is hidden behind the barrier. The Sorrento Valley on-ramp lane that becomes the Genesee Avenue off-ramp lane is just visible on the right. Light poles, signs, and other freeway fixtures also are visible in this view, but are not dominant features. The Genesee Avenue overcrossing is not visible from this key view location.

Existing Visual Character/Quality

This view has moderately high visual quality. Although the geometric and simple, flat pavement is a dominant feature of the foreground, the forms that compose the visual environment are slightly more complex due to the topography and vegetation that border the freeway in this view. Similarly, the hills and trees add some fluidity and variation that provide some relief to the otherwise straight freeway lines. While the pavement in the foreground is gray, monotonous, and smooth, the hills and vegetation on either side and in the background of the photograph provide more earth-toned variation of color, as well as irregular texture.

The scale of the elements in the view is large, tending to be more monumental than human in size, but not visually overwhelming. The elements also have little diversity. The view is not homogeneous and monotonous because the hills provide some variety; however, the hills also are not visually diverse. The elements have high continuity, and are not highly contrasting or dissonant. The visual environment is relatively balanced, with no one element standing out more than another; pavement and hills are equally dominant.

The vividness of this key view is moderate. The broad expanse of pavement and the bordering hillsides support no memorable features; however, the visible hills do provide a sense of place related to the surrounding landscape units. The vegetation and the angle of the slope, however, are very uniform and the features generally do not serve to raise the vividness or memorability of this key view above a moderate level. The intactness of this view is high due to the integrity of the collected visual elements, comprised mainly of pavement, the hillside, and some freeway fixtures that all relate to I-5, which dominates the view. The unity of the key view is moderate, however, because the elements are neither individually carefully designed, nor collectively assembled as a cohesive whole.

Key View 2

Orientation

Key View 2 (Figure 2.6-3) was selected to represent the view of the I-5/Genesee Avenue interchange available to the highest number of viewers (motorists on I-5). No bicyclists are allowed on this segment of I-5. This photograph was taken from northbound I-5 just south of the Genesee Avenue exit looking northward at the overpass structure, ramp, median, and hillsides bordering the freeway.

Key View 2 is dominated by I-5, particularly the northbound lanes. Manufactured slopes rise on either side of I-5. The slope on the right is vegetated with shrubs and grasses and a few scattered eucalyptus trees. The slope on the left is vegetated mainly with eucalyptus trees and ground cover that visually blends in with the shrubs in the median. The southbound lanes of the freeway are not visible behind the concrete barrier and shrubs in the median. Some street signs and other fixtures also are visible in this view.

Existing Visual Character/Quality

This view has moderately high visual quality. Although I-5 takes up most of the foreground of this view, the oleander shrubs in the median, vegetated slopes bordering the freeway, and trees in the background provide more complexity and a more fluid and varying line that softens the rigid, straight line of the freeway. The oleanders, trees, and the vegetation on the hillsides provide green and earth-tone colors to the view, as well as an irregular texture that softens the hardness of the freeway paving.

The scale of a freeway has the potential to be large and monumental; however, the vegetation in the median lessens the scale by partially screening views of paving and oncoming cars. The shrubs also add complexity that attracts attention away from the otherwise homogenous freeway. The shrubs that blend with the vegetation visible on either side of the freeway provide continuity, which creates a balance within the view, rather than letting the view be dominated by the pavement.

The Genesee Avenue overcrossing is visible as a dark line over the freeway in the center of the photograph, but is not a dominant feature in this view. The Genesee Avenue off-ramp diverges from I-5 on the right side of this photograph. The background is composed of a portion of the La Jolla Hills landscape unit. In addition, one science park building is visible on the mesa top left of the freeway.

The vividness of this key view is moderate. The broad expanse of pavement that dominates this view is somewhat softened by the vegetation that surrounds it; however, I-5 continues to be a major feature of the view from this point, and the visible landscape features generally do not serve to raise the vividness or memorability of this key view higher than a moderate level. The intactness of this view is high due to the integrity of the collected visual elements, comprised mainly of pavement, freeway fixtures, and elements that relate to the freeway. Similarly, the slopes abutting I-5 are undeveloped and continue from Voigt Drive (south of the Key View 2 location) to Sorrento Valley to the north. The unity of the key view is moderate, because the elements are neither individually carefully designed nor collectively assembled as a cohesive whole.

Key View 3

Orientation

Key View 3 (Figure 2.6-3) was selected to represent the view of Genesee Avenue available to motorists, bicyclists, and pedestrians. The photograph was taken from westbound Genesee Avenue just east of the on-ramp. The photograph depicts the typical highly vegetated character of Genesee Avenue. The mature trees and shrubs growing next to the roadway are dominant elements in the foreground of this view. The slopes on either side of the roadway also are visible, as are two westbound lanes and the on-ramp to northbound I-5, which diverges from Genesee Avenue on the north side of the roadway (on the right side of the photograph).

Eastbound Genesee Avenue also is visible on the south side of the roadway (on the left side of the photograph), divided from the westbound lanes by a raised median. Interchange signals are visible in the middle of the photograph. Street signs, streetlights, and other fixtures also are present.

Genesee Avenue is three lanes in each direction. The existing conditions photograph was taken during recent road widening, and construction debris, machinery, and traffic cones are present in this view. Construction equipment and piles of dirt related to existing roadway improvements also can be seen. The widening of Genesee Avenue within the viewshed of Key View 3 did not include any modifications to the overcrossing deck or on- and off-ramps. The surrounding vegetation and the background slopes similarly remained unchanged. This view therefore is still relevant.

Existing Visual Character/Quality

Eucalyptus trees and smaller shrubs flank the roadway. In the foreground, to the south (at the left in the photograph), trees are visible at the foot of the slope immediately bordering the southeastern quadrant of the I-5/Genesee Avenue interchange. The trees and shrubs in the foreground to the north (right) also are growing on a slope; however, the slope gradient at the northern side of Genesee Avenue is gentler than that on the south. Trees within the diamond interchange are visible near the traffic lights in the center of the photograph, and vegetated hills make up most of the background. Genesee Avenue is visible to the right of the center in the background, between trees, as it rises up the hill west of the interchange.

As with the other two key views, Key View 3 has moderately high visual quality. The existing view has a generally complex, asymmetrical form, despite the pavement that makes up most of the foreground. This is due to the surrounding hillside and the masses of vegetation. The view elements mostly have fluid lines, also due to the vegetation; however, some rigidity of line is present in the straightness of the roadway. The colors are green and earth-toned with some gray pavement. The coarse texture of the vegetation helps to soften the visually smooth texture of views of the pavement.

The overall scale of this existing view is much smaller and more human-scale than the other key views due to the smaller size of the roadway. The vegetation provides continuity within the view, although diverse freeway elements are somewhat contrasting and dissonant. The vegetation dominates the view, but not overwhelmingly, and no one element creates a sense of unbalance.

The vividness of this key view is moderate. The pavement that dominates this view is somewhat softened by the vegetation that dominates the remainder of the view. The vegetated slopes that surround the interchange, however, generally do not serve to raise the vividness or memorability of this key view higher than a moderate level. The intactness of this view also is moderate. The collected visual elements, mainly the pavement, streetlights, signs, and surrounding vegetation, are not visually imposing and also do not all relate to the roadway that dominates the view. The unity of the key view similarly is moderate because the elements are neither individually carefully designed nor collectively assembled as a cohesive whole.

2.6.3 Environmental Consequences

Project

Analysis of Key Views

Changes to the visual environment, as well as the overall visual effect and aesthetics of the Project, are discussed in the following analysis of specific key views and simulations. The simulations illustrate the engineering elements of the Project so that the reader can track the discussion of the proposed change to the visual elements (scale, dominance, etc.) without having those elements obscured by screening vegetation. As noted above, trees, vines, shrubs, and groundcover, as well as surface treatment of the walls, would be included as project features, and would be detailed in a landscape concept plan for the Project.

Key View 1

Visible Project Features. The Project would add a lane and modify the existing slope on the eastern side of I-5, as shown in Figure 2.6-10. The proposed lane would not be highly visible from this key view. The modified slopes would be the most visible portions of the Project from this location and approaching Genesee Avenue from the north, until the off-ramp and Genesee Avenue overcrossing become more dominant in the views. The slopes, however, would be of similar steepness to the existing slopes, and the eucalyptus trees at the top of the hills, located on the adjacent properties, would remain. Generally, the hills would not change distinctly as a result of the Project.

Two retaining walls would be placed on a hill north of Genesee Avenue and east of I-5, on a hillside beyond the view within Key View 1, and are discussed in Analysis of Additional Views below.

Changes to Visual Quality/Character. As visible in Figure 2.6-10, the main change within Key View 1 would be the modification of the slopes on the east side of I-5. The modified slopes would have steepness similar to the existing slopes, but would be terraced and covered with vegetation for erosion control in the short term. The existing short wall below the overhead signs on the northbound side of I-5 would be removed. Similar signs, lights and fixtures would be reinstalled.

Generally, the new elements of the Project would cause a low level of change in the visual environment of Key View 1; the vividness, intactness, and unity would remain the same. The view would continue to be composed of the I-5 traffic lanes, adjacent hillsides, and freeway signs and fixtures. The existing vegetation at the top of the hills would not be altered, and although it may be slightly more visible due to the modified slopes, this visibility would not increase the vividness or visual quality of the view. By introducing a newly manufactured slope into the view, the modified slope would create slightly more geometric form, rectilinear line, monotonous color, and smooth texture in the visual environment of this view. The scale, continuity, and dominance would not change, because I-5 in the foreground would not be expanded, nor would the hillside become any more or less visible or dominant. The diversity would change slightly by becoming more uniform, due to the less varied and fluid lines of the newly manufactured slopes.

Anticipated Viewer Response. Motorists and bicyclists traveling on I-5 have moderate sensitivity and exposure. Some minor changes to the composition of the visual elements would occur; however, in general, the Project elements are very similar to those that make up much of the current visual character of the area. Viewer response among motorists, therefore, is anticipated to be low.

Bicyclists on I-5 between Sorrento Valley Road and Genesee Avenue have moderate sensitivity and low exposure, and have views similar to that represented by Key View 1. The minor changes to the visual elements would result in similar visual quality from the Project, and viewer response among bicyclists in this area would be low.

Resulting Visual Impact. Minor changes to the composition of the visual elements would occur due to the Project; however, the Project elements would be very similar to those that make up much of the current visual character of the area. The low level of change to the visual quality of southbound views combined with the low potential viewer response would predict a low visual impact to the visual environment shown in Key View 1 caused by the Project.

Key View 2

Visible Project Features. The Project features that would be most visible from this viewpoint would be the realigned off-ramp and the new retaining walls on either side of the freeway. The walls, as depicted in the simulation (Figure 2.6-11), would replace existing slopes. The bottom of each wall would be elevated above the freeway lanes, and the top of each wall would be aligned approximately with the top of the slope. The wall on the west side of I-5 (on the left side of this photograph) would be a maximum of 10 m (33 ft) high, and approximately 70 m (230 ft) long, with a generally flat top. The ends of the wall would taper to meet the existing grade. The wall would be visible above the shrubs in the foreground for northbound motorists, and would contrast with the median shrubs rather than blending in like the existing trees. This wall would be located just north of a second wall that would be located along the western side of I-5, but is not visible in this simulation.

The retaining wall represented on the east (right) side of this simulation would extend approximately 695 m (2,280 ft) along the eastern side of I-5, from approximately 100 m (328 ft) south of the Voigt Drive overcrossing to near the top of the off-ramp. The wall would be a maximum of 15.8 m (51.8 ft) tall. The wall would taper at the ends to meet the existing grade and would vary in height in relation to the topography it would support. This wall and the modified slopes would remove the existing vegetation, and would be larger in scale than the existing visual elements of I-5. The trees and shrubs within the current interchange also would be removed. The shrubs in the median would remain.

The realigned off-ramp would be a noticeable change in the northbound view. The off-ramp would be wider and longer than the existing ramp. Currently, the ramp diverges from I-5 with one lane at a point in front of the key view location. Under the Project, the ramp would start at a point just south of (behind) the key view location and would diverge from the freeway with two lanes, and widen to four lanes at its intersection with Genesee Avenue. The off-ramp lanes would be located more to the east (right) of the ramp currently visible in Key View 2.

The Project would add lanes to the Genesee Avenue overcrossing on the north side of the overcrossing. The south side of the overcrossing is visible from this key view; however, the widening of the overcrossing to the north would not be visible. The proposed lengthening and elevation of the overcrossing are changes that would be noticeable to northbound motorists and

are depicted in the simulation. The reconfiguration of the ramp and Genesee Avenue overcrossing would require the removal of some of the trees and shrubs within the current interchange, some of which are visible in this photograph. The shrubs in the median would remain. Even with these changes, the overcrossing structure would continue to be a less than dominant feature in northbound views. Modifications also would be made to the southbound on-ramp from Genesee Avenue. Those modifications would not be visible from this key view location.

Changes to Visual Quality/Character. As shown in the simulation, the main visual change within Key View 2 caused by the Project would be the new retaining walls and the modified off-ramp. The new retaining walls, as well as the widened ramp, would be symmetrical and geometric elements with more rigid, rectilinear lines than are currently present in this view. Their color, although possibly an earth-tone stain, would reduce the amount of green and natural earth-tones provided by the vegetation, and would contrast with the green of the existing (to be retained) shrubs in the median; this would be a change from the current visual environment where the slopes blend with the median plants. The walls also would introduce additional smooth textures into the view.

The walls and the expanded off-ramp would change the view to incorporate more monumental and fewer human-scale elements. This would be emphasized by the more discernable opposite edge of I-5. The introduction of more human-made elements that would contrast with the retained vegetation also would create a more homogeneous visual environment in this focused area. The walls and ramp would be much more prominent features than anything currently in the view, disrupting the currently balanced and open view.

The modified overcrossing structure would have little effect on the view, except perhaps to strengthen the geometrical impression and contribute to the introduction of more straight lines in the view.

The resulting vividness of Key View 2 would be reduced. The walls would replace the vegetation that softens the existing broad expanse of pavement. Although the proposed changes would not remove the oleanders in the median, it would introduce more homogeneous, large-scale features. Rather than vegetative elements providing vividness, the human-made walls would become the dominant vivid elements. The walls could be made of colored concrete and could include architectural features, such as pilasters and caps, to provide shadow lines and relief, as well as surface materials, such as mosaic tile or weathering steel. Despite these potential treatments, however, the walls would be new dominant features, combining with the pavement to create a more geometric composition.

The changes also would reduce the visual intactness of the I-5 corridor in this area. Currently, undeveloped slopes border I-5 from points south to Sorrento Valley to the north of the Project, and few buildings or other developed elements within the surrounding area are visible from I-5. The new walls would be dominant structures in an area where motorists would otherwise see little development. The reduced visible vegetation and introduction of elements that would contrast with retained vegetation also would lessen the intactness of the visual environment.

The walls would change the visual character of the area to be more similar to the I-5 corridor to the south, where residential and commercial development within the La Jolla Hills landscape unit is visible adjacent to the freeway near La Jolla Village Drive and Nobel Drive. This configuration would be less like the undeveloped freeway corridor north of Genesee Avenue, bringing more obviously human-made features closer to I-5, and causing the developed areas of

the La Jolla Hills landscape unit to begin to visually encroach on the I-5 corridor. The contrast created by new proposed features between the existing slopes and canyons north of Genesee Avenue and south of Nobel Drive would reduce the unity of northbound views.

There are no other walls adjacent to I-5 in the vicinity and, although the proposed walls would be unique in the area and would contrast with the existing hillsides, the Project would include several walls that would create moderate unity within the Project area itself. This would create less change in unity than the change caused by the Project to the vividness or intactness of the view, but would create contrast with the existing and retained vegetation and the existing nearby undeveloped slopes.

Anticipated Viewer Response. Motorists traveling on I-5, the sole viewer group at this location, have moderate sensitivity, and, due to high traffic volumes, high exposure. Project changes would reduce the vividness and intactness of the visual character of the area. The unity would remain moderate, but as a result of different elements. Motorists on I-5 may have a moderate response to the changes in visual character resulting from the Project.

Resulting Visual Impact. The Project would reduce the vividness and intactness of the visual character of the area and cause moderately high changes to the visual environment. Combined with an anticipated moderate viewer response, the visual impact of the Project on this key view would be moderately high.

Trees, vines, and other plantings, as well as surface treatment of the walls, would be included as Project features, and would be detailed in a landscape concept plan assumed as part of Project design. Additional mitigation measures would be required, however, due to the anticipated level of change in this area (see Section 2.6.4, Avoidance, Minimization, and/or Mitigation Measures).

Key View 3

Project Features. As depicted in Key View 3 (Figure 2.6-12), the Project would widen the Genesee Avenue overcrossing and would add more lanes to Genesee Avenue in each direction approaching the interchange. At the Key View 3 location, westbound Genesee Avenue would expand to five through lanes, a bike lane, and two right-turn lanes. This is an increase of three lanes on the north side of the roadway, and would necessitate the expansion of the pavement to the viewer's right.

Eastbound Genesee Avenue (on the left side of Key View 3) would consist of three lanes and one bike lane. The roadway generally would align with the edge of the existing roadway on the south (on the left edge of the photograph). The realigned I-5 off-ramp to eastbound Genesee Avenue would be minimally visible from this point. The entire roadway would be straightened slightly, and the eastbound lanes would replace the median visible in this photograph. The new median in this key view would support trees and low shrubs.

The Project roadway additions would remove much of the vegetation visible on existing roadway edges in the foreground and middle ground of this key view. This would open the westward view to include more of the widened overcrossing and interchange traffic lanes, which would replace the trees in the center of the view. Genesee Avenue to the west of the interchange also would become more visible beyond the interchange, as it extends westward through the La Jolla Hills landscape unit.

The retaining wall proposed on the west side of I-5, above the southbound on-ramp from Genesee Avenue just south of the interchange, also would be visible from this viewpoint. The north side of the slope in the center of the photograph (left of the roadway) would be modified to accommodate additional lanes on eastbound Genesee Avenue at the southbound on-ramp. The new slope would be similar to the existing slope.

Change to Visual Quality/Character. The new elements of the Project generally would change the visual character of this view by introducing more pavement, removing existing vegetation, and planting new vegetation in the median. The westward view would be expanded to include more of Genesee Avenue west of I-5 and existing natural open space in the distance, and a retaining wall west of I-5 would be visible in the background.

The increased paving, new wall, and wider overcrossing structure would introduce more geometric forms into this view; however, the new vegetation in the median would help to somewhat soften this change. The lines in the foreground would become more straight and rigid, while in the background, the curvilinear westbound roadway would be more visible. In combination, this would make the view only slightly more rigid and rectilinear. The removed vegetation would reduce the earth-tones, green colors, and complex textures in the view, and the wider pavement and overcrossing would introduce more gray monotones and smooth textures. New plants in the median and replaced vegetation on the roadway would slightly reduce the level of this change.

The expanded pavement would create a larger scale and somewhat more homogeneous, less complex view. The level of continuity would not change greatly and may remain the same, because although the view would change, the roadway elements would relate more to the roadway visible in this view. The western expanse of Genesee Avenue also would be more visible in the background, providing continuity with the roadway in the foreground. The dominance of the roadway would increase, creating a less balanced visual environment.

The unity of the visual environment would not change, because although the coherence of the elements of the roadway itself would increase, the removed vegetation would decrease the harmony of the view, and its coherence with the vegetation in the background.

Intactness would remain the same. The retaining wall visible on the left side of the photograph would be a distracting element (i.e., a strong vertical plane that would replace the vegetated slopes previously visible in the area) and would contrast with the view now available. The roadway in the foreground would be a continuous width, however, rather than varying in scale, as it currently does.

The vividness of the visual environment would be increased slightly. The view would be more memorable for motorists, bicyclists, and pedestrians due to the increased view of the roadway to the west. Additionally, the continuous sidewalk and better safety markings, as well as more clearly marked bike lanes and an interchange configuration that is safer for bicyclists (elimination of the free right-turns), would be more intact and continuous for these viewers.

Anticipated Viewer Response. The anticipated viewer response for the motorists, pedestrians, and bicyclists on Genesee Avenue would be moderately high.

Resulting Visual Impact. While the Project would create change in many aspects of the westbound views, the resulting change would be low. Combined with the viewer response, the overall visual impact to viewers would be moderately low. The median trees and slope erosion

control plantings would provide softening of the increased expanse of pavement created by the Project. Some features would still require lessening of impacts, such as the wall in the background that would create a higher level of change within other views. This wall and its associated potential impact are discussed in Key View 2 and below.

Analysis of Additional Views

Additional Project-related changes to the visual character/quality of the Project area would occur that are not depicted in Key Views 1 through 3. Visual effects resulting from Project implementation to viewers from Genesee Avenue, Voigt Drive, Gilman Drive, and I-5 are discussed below.

Genesee Avenue West of I-5

In addition to the portion of Genesee Avenue (east of I-5) addressed in Key View 3, the Project would widen Genesee Avenue west of the interchange. In this area, eastbound Genesee Avenue would include five through lanes, a bike lane, and two signalized right-turn lanes, which would replace the free right-turn on-ramp to southbound I-5. Westbound Genesee Avenue would be widened to three lanes and a bike lane. A sidewalk would be added on the north side of the roadway. New pavement required for the proposed configuration mostly would be added on the north side of Genesee Avenue, with some widening on the south side of the roadway. Two slopes bordering the south side of Genesee Avenue would be pushed back, and would have steepness similar to the existing slopes.

Where a canyon borders the roadway on the south side of Genesee Avenue, a support wall would be required. This wall would face the canyon and would not be visible from Genesee Avenue or from nearby roadways.

The expanded pavement on the north side of Genesee Avenue also would require the installation of a support wall. This would be placed below the roadway and facing open space areas, and would not be visible from Genesee Avenue. It may be slightly visible from the off-ramp, although the eastern end of the wall would be located approximately 100 m (328 ft) from the ramp. Refer to cross-section D in Figure 2.6-7, discussed above.

The most visible change resulting from the Project west of I-5 on Genesee Avenue would be the widened roadway. The expanded lanes would introduce more rigidity and straightness, and the whole roadway would be more geometric. Some mature trees and shrubs currently growing in the interchange between the ramps and I-5 would be removed, reducing the green and earth-tone colors and the complex textures provided by the vegetation. The walls east of I-5 near Genesee Avenue also may be visible in eastbound views, introducing more geometric and straight elements.

View changes west of the interchange would be similar to those to the east, as discussed in Key View 3. These viewers would have a moderate response to changes. The new configuration may improve the unity of the area through the increased continuity in scale; the roadway in this area would be as wide as the roadway to the west, near the intersection of Genesee Avenue and North Torrey Pines Road. The intactness similarly would be slightly increased. The scale of the overcrossing would be larger than that existing, however, causing a change to the visual environment through the introduction of new pavement and the removal of vegetation. Vegetation removal in the interchange also may decrease the vividness, but, as with the changes discussed in Key View 3, the removal of vegetation would provide more views toward

the roadway on the other side of the interchange, contributing to the increased continuity and providing new memorable view elements. Overall, the change to the visual environment of Genesee Avenue west of I-5 would be moderately low.

Genesee Avenue East of I-5

To the east of Key View 3, Genesee Avenue would be configured as a six-lane roadway with three lanes in each direction and a planted median. The Project would grade Genesee Avenue to meet existing conditions approximately halfway between the interchange and Campus Point Drive. The Project would require retaining walls on each side of Genesee Avenue. The wall located on the north side of the road would be a small support wall below the roadway and would face north. This wall would not be visible from Genesee Avenue, but may be visible from nearby parking lots.

The wall on the south side is depicted in cross-section E in Figure 2.6-8. It would be highest (7 m [23 ft]) near its western end, close to the driveway that meets Genesee Avenue just east of I-5. The wall would taper down toward the east to meet the existing grade at its eastern end, approximately 100 m (328 ft) west of the hospital entrance. It would be located approximately 9 m (30 ft) south of the edge of the roadway, and the bottom of the wall would be approximately 3 to 5 m (10 to 16 ft) above the roadway.

The western approximately 100 m (328 ft) of the wall (the tallest portion) would be located on a straighter portion of the roadway, and would be the most visible. Because of the curvature of the road, the entire wall would not be visible in one view, however, although it would be visible peripherally to both east- and westbound travelers on Genesee Avenue.

Similar to the walls along I-5 (see Key View 2/Simulation 2 on Figure 2.6-11), the wall along the south side of Genesee Avenue would contrast with existing conditions; currently, no wall exists along Genesee Avenue near the interchange. This new element, a strong vertical plane, would be a dominant, geometric element with straight lines, less complexity, less color, etc. It would require the removal of existing vegetation, and would contrast with any remaining vegetation. The new planted median and vegetation in front of the wall may help to soften the new wall; however, the dominance of the wall in an area where structures are set back from the roadway or buffered by landscape and are not highly visible would lower the intactness of the area. The resulting strong contrast with the existing conditions would lower the unity and the vividness of the parkway-like visual environment composed of vegetated slopes uninterrupted by structures.

Viewers of changes to the west of the interchange would be the same as those to the east (as discussed under Key View 3, above) and would have a moderately high response to changes. The change to the visual character of Genesee Avenue to the east of I-5 would be moderately high.

Voigt Drive

The Project would modify Voigt Drive. The connections to the overcrossing at I-5 would be widened to include two lanes in each direction on the western edge of the overcrossing, and two westbound lanes and one eastbound lane on the eastern side of the overcrossing. A sidewalk and enough shoulder room for bicycles also would be provided. Most of the widening of the overcrossing would occur on the north side of the roadway. The roadway and the overcrossing also would be lowered. This configuration would require the addition of a wall on the north side of Voigt Drive just east of I-5. This retaining wall would be tallest (10 m [33 ft]) at its western

end, nearest I-5 where it would turn to face more westerly. The wall would taper to meet the existing grade at its eastern end and would be set back approximately 8 m (26 ft) from the edge of the roadway. Cross-section F in Figure 2.6-9 depicts this wall.

The main change that would be visible from Voigt Drive in either direction would be the increased expanse of pavement associated with additional lanes. This wider roadway would introduce more geometric, flat, straight lines, and planes into the view along this street. Existing vegetation, including a few mature pine trees just east of I-5 and low shrubs growing next to the roadway on either side of I-5, would be removed by the proposed configuration. These are not, however, dominant visual elements. (The tall hospital building is more dominant than the surrounding landscape.) Parking lots next to Voigt Drive on the east side of the freeway also would be changed by the proposed configuration; however, this would not change the visual environment of Voigt Drive.

The widened roadway configuration may increase the dominance of the hospital building by reducing the space in front of it and removing the trees near it. This would increase the overall perception of the scale of elements within views along this roadway and visually introduce more geometric forms and straight lines. The hospital building is larger than the proposed wall, however, and may help to reduce the apparent size of the retaining wall due to its relative scale. The wall's placement away from the edge of the sidewalk also would reduce its apparent scale. Although this wall would be unique to the area, it would not be an element that contrasts highly with the surrounding area, because there already are existing buildings next to Voigt Drive.

The main viewers at this location are pedestrians, bicyclists, and motorists. Most of these viewers would be students, UCSD employees, and patrons and employees of the hospital facilities along Voigt Drive. These viewers would have a moderate exposure and moderately high sensitivity. Although the Project would introduce change to views along Voigt Drive, the changes would be moderate to moderately low; combined with viewer response, this would result in a moderate visual impact.

The changes to the Voigt Drive overcrossing would be discernable for viewers (motorists) on I-5 in both directions. This overcrossing is located above a high point of the freeway, and the structure therefore is silhouetted against the skyline for motorists on I-5 looking up at it. The depth of the structure would be similar to the existing structure, as would the general angle of the horizontal line. The most visible change would be the lower configuration of the overcrossing structure, which would bring the line created by the overcrossing lower and closer to the viewer, and at the same time would slightly reduce the scale and visibility of this structure. The increased width of the overcrossing structure would not be highly noticeable. A low level of visual impact can be anticipated for post-implementation views from I-5 toward the Voigt Drive overcrossing.

Gilman Drive

Although the width of Gilman Drive would not change, it would be realigned slightly to the west to accommodate the future ultimate width of the adjacent I-5 freeway. This would bring Gilman Drive closer to the UCSD residential buildings and the playing field at the southwestern corner of Voigt Drive and Gilman Drive. As a result, two retaining walls would be added along the west side of Gilman Drive. With only a short distance between them, their combined length would be approximately 340 m (1,116 ft). The walls would be a maximum height of 2.9 m (9.5 ft) at the southern edge of the playing field. For most of their length, the walls would be shorter (1 to 1.5 m [3 to 5 ft] high). Figure 2.6-5 depicts cross-section B and these walls.

Viewers in this location include bicyclists, pedestrians, and motorists. The project elements would be in the foreground for these viewers, and their knowledge and expectations of the area would be high. These viewers would have moderately high response to visual changes.

A short retaining wall currently exists at the top of the slope to the west of Gilman Drive (Figure 2.6-5). The additional retaining walls may be placed in front of or below the existing wall. Overall, the realignment and the addition of the walls would bring large-scale objects closer to the roadway and to pedestrians in particular. (The retaining walls would be relatively close to the sidewalk, compared to other walls proposed by the Project along Genesee Avenue and Voigt Drive.) This would create a major change to the character of the roadway, replacing the vegetated slopes adjacent to the west side of Gilman Drive with long, flat, dominant vertical planes very close to the sidewalk and roadway. The realignment also would make the adjacent buildings more visible and dominant; the roadway would be brought closer to the buildings and the existing walls. The vegetation on the east side of Gilman Drive, between the roadway and I-5, would be removed, increasing potential views from Gilman Drive to I-5.

These changes, in combination with the moderately high viewer response, would cause a moderately high level of change to the visual character of Gilman Drive.

I-5 South of Genesee Avenue

In addition to the walls that would be visible in the key views discussed above, walls would be added to either side of I-5 south of Genesee Avenue and Key View 1 location. Refer to Figure 2.6-3 for the location of the walls. South of Voigt Drive, three retaining walls would be located on the east side of the freeway, adjacent to the northbound lanes. The southernmost wall would be below I-5, and the other two walls would be located at the top of the slopes adjacent to the northbound lanes. Extending along most of both sides of I-5 between Voigt Drive and Genesee Avenue, these three walls and the wall discussed in Simulation 2 (Figure 2.6-11) would replace the existing vegetated slopes with tall, long, dominant vertical planes. The color would be more repetitive and the texture smoother than that currently seen. Element scale also would be affected, through the introduction of these large human-made elements. Diversity would be decreased as the walls would result in a homogeneous, geometric visual effect within the corridor. Although they would not contrast with each other, they would contrast with the retained vegetation in the median, and with other undeveloped slopes visible along the corridor. They also would be dominant visual elements, creating some unbalance.

There currently are no other walls adjacent to I-5 in the vicinity. The proposed walls would begin to create a more developed, enclosed visual character within the corridor, more similar to the freeway corridor to the south than to existing conditions or to the hillside-lined freeway to the north of Genesee Avenue. This configuration essentially would cause the developed areas of the La Jolla Hills landscape unit to begin to visually encroach on the I-5 corridor, where currently little development is visible, reducing the current unity of the visual character of the corridor.

Although the walls would be unique in the immediate area and would contrast with the existing hillsides, the Project would include several other walls. These would contribute to moderate unity within the Project area itself. The walls would, however, reduce the intactness of the visual environment of the corridor by creating contrast with the existing and retained vegetation and the existing nearby undeveloped slopes. The vividness of the parkway-like environment of the corridor (currently composed of vegetated slopes) would be lessened by the introduction of these new strongly geometric visual elements.

The Project would result in moderately high change to the visual environment of the I-5 corridor to the south of Genesee Avenue. Combined with an anticipated moderate viewer response, the visual impact of the Project in this area would be moderately high.

I-5 North of Genesee Avenue

Two retaining walls would be placed north of Genesee Avenue and east of I-5 on a hillside beyond the view depicted in Key View 1. One small wall would be located just above another large wall near the top of the slope on the hill just behind the one visible in Key View 1. These walls would be the only proposed retaining walls visible to the north of Genesee Avenue. They would be placed approximately 10 m (33 m) east of and 8 m (26 ft) above the on-ramp from Genesee Avenue to northbound I-5.

These walls would be a unique feature in the area, but would not be a dominant element due to their smaller scale relative to the surrounding hillsides and their location high above I-5. The walls would be visible to motorists on I-5, but would create a moderately low level of visual change. An additional lane would be added to the Sorrento Valley Road off-ramp. This additional lane would require a support wall to the east of the freeway, which would not be visible from the freeway or from the surrounding area. The lane would be an extension of the additional lane discussed in Key View 1, above, and would create a low level of change in the visual element surrounding the off-ramp.

Project Features

In addition to reconfiguring the ramps and Genesee Avenue overcrossing, the Project would include 16 retaining walls. These would be located on both sides of the freeway, both sides of Genesee Avenue, and on one side of Gilman Drive and Voigt Drive. Refer to Figure 1-4 for the locations, lengths, and maximum heights of the walls.

The walls would be the most visible elements of the Project and would provide the greatest level of change in the visual environment. I-5 and Genesee Avenue currently are each bordered by slopes, either natural or manufactured. Few buildings are visible from I-5 between Voigt Drive and Sorrento Valley. The slopes currently are covered with naturalized or native vegetation, including grasses, groundcovers, eucalyptus trees, and some shrubs. An installed wall would replace part or most of the slope, presenting a uniform plane where currently a varied, vegetated slope is visible.

Retaining walls proposed for the Project range from vertical walls to a 1:6 batter (a receding upward slope of the outer face of a structure). Treatment of the walls could include colored concrete and architectural features, such as pilasters and caps to provide shadow lines and relief. Surface materials also could include mosaic tile or weathering steel. Where enough space is provided, vines and vegetation would be planted in front of the walls to prevent graffiti (see additional discussion of landscaping, below).

As indicated above, landscaping would be a required element of this Project and certain elements are currently known. Known elements include incorporation of drought-tolerant plant species and no use of invasive species. Trees, shrubs, and vines would be planted in front of walls. A conceptual landscape plan would detail plant species, sizes, layout, etc.

The proposed walls would be most visible south of Genesee Avenue, where in some areas they would be present on both sides of I-5. For example, for most of the length of I-5 between the Voigt Drive and Genesee Avenue overcrossings, walls would be placed at the top of the slopes both to the east and west of the freeway. On the east side, a wall (Wall 4) would extend from just south of Genesee Avenue to south of the Voigt Drive overcrossing. The wall would vary in height depending on the topography it retains, and would be a maximum of 15.8 m (51.8 ft) high. The bottom of the wall would be approximately 8 m (26 ft) above the freeway and off-ramp lanes. A vegetated slope would extend between the wall and the eastern shoulder of I-5. Refer to Figure 2.6-4 for a cross-section of northbound I-15 and the adjacent embankment located north of the Voigt Drive overcrossing.

Two walls would be placed on the western side of the freeway between Genesee Avenue and Voigt Drive. The first (Wall 1) would be placed above the on-ramp to southbound I-5. The second (Wall 3) would be placed between the first wall and the Voigt Drive overcrossing. Both of these walls would vary in height and taper to meet the existing grade at each end. They would be placed approximately 8 m (26 ft) above the lanes and 12 m (39 ft) west of I-5.

Additional walls would be placed south of Voigt Drive. The southernmost wall on the eastern side of I-5 (Wall 13) would be located approximately 6 m (20 ft) above the level of the freeway. Another wall (Wall 16) would face away from I-5. On the western side, a support wall (Wall 15) would face away from I-5. Neither of these walls would be visible from I-5 or from surrounding roadways or businesses.

Two retaining walls (Walls 2 and 20) would be placed along the western side of Gilman Drive. These walls generally would not be visible from I-5, because Gilman Drive is separated from I-5 by a small slope and vegetation. See Figure 2.6-5 for a cross-section of Gilman Drive and the proposed Walls 2 and 20.

Along Voigt Drive, east of I-5, a wall (Wall 9) would be placed on the northern side of the roadway for slope support. This wall would be covered with plants to make it less visible to motorists along Voigt Drive.

Three walls would be placed north of Genesee Avenue along the eastern side of I-5. One wall, supporting the Sorrento Valley Road off-ramp (Wall 17) would be below the lanes, facing away from them, and would not be visible to I-5 motorists. Two other walls (Walls 21 and 8) would be placed below one of the buildings on the slope above the freeway, approximately 8 m (26 ft) above the on-ramp from Genesee Avenue to northbound I-5 (Figure 2.6-6). These walls would be visible from the freeway and possibly from businesses west of the freeway.

Four walls would be placed along Genesee Avenue. Two walls would support the roadway west of I-5 between Science Center Drive and the Genesee Avenue/I-5 interchange; one would be on the north side (Wall 14) and the other would be on the south side (Wall 18) of the roadway. The walls would be placed below the level of the lanes facing canyons that border the road and would not be visible from Genesee Avenue. The wall on the north side of Genesee Avenue may be visible from the southbound off-ramp from I-5, although its eastern end would be placed approximately 100 m (328 ft) west of the intersection of the off-ramp with Genesee Avenue. The wall on the south side of the roadway would face an undeveloped canyon and would not be visible from any local roadways. See Figure 2.6-7 for a cross-section of Genesee Avenue and the proposed Wall 14 and roadway configuration.

Two walls would be placed along Genesee Avenue to the east of I-5. On the northern side, a wall (Wall 10) would be placed below the level of Genesee Avenue and would not be visible to motorists on Genesee Avenue, but may be visible from adjacent parking lots. The second wall (Wall 11) would be approximately 9 m (30 ft) from the southern side of Genesee Avenue. The bottom of the wall would remain approximately 4 m (13 ft) above the roadway, and the top would slope down toward the east. See Figure 2.6-8 for a cross-section illustrating the proposed Genesee Avenue configuration and this wall.

Along Voigt Drive, east of I-5, a wall (Wall 9) would be placed on the northern side of the roadway for slope support. See Figure 2.6-9 for a cross-section illustrating the wall's placement in relation to the roadway.

A landslide buttress is proposed to the west of I-15 and to the north of Genesee Avenue. Due to topography, the buttress would not be visible from public viewpoints. Since the buttress would not be visible, it is not discussed further.

Construction-related Impacts

The Project would be constructed in two phases over a period of approximately two years. During this time, the construction of the Project would disrupt the visual character of I-5 and the local streets. It is anticipated that construction staging would occur in a disturbed area between the Sorrento Valley Road southbound on-ramp and I-5 that was previously used for construction staging for another freeway project. Use of this staging area would limit views of the largest equipment, because this area is below I-5 and all but the tallest equipment (such as concrete mixing plants) generally would not be visible from I-5. This area also is not visible from Genesee Avenue, Voigt Drive, Gilman Drive, or most of the La Jolla Hills landscape unit. Although it is visible from several points within the Sorrento Valley landscape unit, this area is visually dominated by the interchange structures, which are high, complex, and geometric. The construction equipment would not highly contrast with the visual character of these interchange structures.

Visible indications of construction on the roadways would contrast with existing conditions due to the introduction of new dominant elements, including newly cut or filled slopes; raw soil; stockpiled dirt, rocks, and overcrossing debris; signs; temporary construction fencing; construction equipment; and night lighting. Visual disruptions may include detours and ramp closures, with signs, equipment, and other visual indicators of construction activity.

Construction impacts would be temporary, are in a focused locale, and ultimately would be addressed through Project design and mitigation.

No Build Alternative

Under the No Build Alternative, no construction would occur as proposed by this Project, and no improvements to the I-5/Genesee Avenue interchange or Voigt Drive overcrossing would occur. This visual environment is illustrated in the existing condition for this analysis, both within the text and within the existing views depicted in each key view. No walls would be built, no vegetation would be removed or added beyond the continued maintenance of the existing landscape, and no overcrossings would be reconstructed. As a result, no change from existing visual conditions would occur under this alternative. Motorists, pedestrians, and bicyclists would continue to view the predominantly urban visual environment of buildings, and roadway and

interchange networks, interspersed with occasional natural elements and landscaped area, particularly the Sorrento Valley area.

2.6.4 Avoidance, Minimization, and/or Mitigation Measures

Visual mitigation for impacts addressed in the key view assessments and summarized in the previous section would consist of adhering to the following design requirements in cooperation with the Caltrans District 11 landscape architect.

1. Development and implementation of a comprehensive landscape concept plan. This plan would be consistent with corridor-wide design themes developed by the office of the District 11 landscape architect. This plan would include planting and irrigation layouts that specify plant materials and container sizes. Types of landscape features are illustrated in Figures 2.6-4 through 2.6-9, as well as Figures 2.6-13 through 2.6-15, and include:
 - Drought-tolerant and sustainable landscape palettes.
 - Trees planted between the freeway traveler's viewpoint and retaining walls more than 3 m (10 ft) tall, where feasible.
 - Vine planting sufficient to cover 90 percent of retaining walls within five years to reduce the visual impact of the walls and to act as a graffiti deterrent.
 - Median oleanders would be replaced where they cannot be preserved.
 - Slopes graded to 2:1 or flatter to sustain landscape planting and irrigation. Grading design and operations would include techniques such as slope rounding, slope sculpting, and variable gradients to mimic the appearance of natural topography. Steeper slopes may be possible if they are serrated and contain benches wide enough to accept plants from 15-gallon containers.
2. Bicycle lanes, pedestrian lighting, wider sidewalks and other urban amenities on the local street sections of structures would be consistent with local Community Plan guidelines and the corridor-wide design themes.
3. Lighting and signage attachments would occur at pilasters or be incorporated in other architectural features and be consistent with corridor-wide design themes developed by the office of the District 11 landscape architect.
4. Visible sections of retaining walls would receive color and texture treatments consistent with corridor-wide design themes developed by the office of the District 11 landscape architect.
5. Structure design would be enhanced with architectural features consistent with corridor-wide design themes developed by the office of the District 11 landscape architect.
6. Retaining walls would be designed to visibly blend with graded slopes using techniques such as slope rounding, slope sculpting, and variable gradients to mimic the appearance of natural topography when feasible.

7. Enhanced landscape plantings, including more densely spaced vines, a wider variety of vines, some with seasonal color, and more trees would be planted in front of the walls, where possible.

These measures may take longer than five years to be effective, but eventually would reduce the apparent scale of the walls and reduce the contrast of these structures with the existing and retained undeveloped slopes and vegetation. Figures 2.6-13 through 2.6-15 show simulations of key views five years after mitigation is implemented.



Northward view over I-5 from Voigt Drive



Eastbound Genesee Avenue



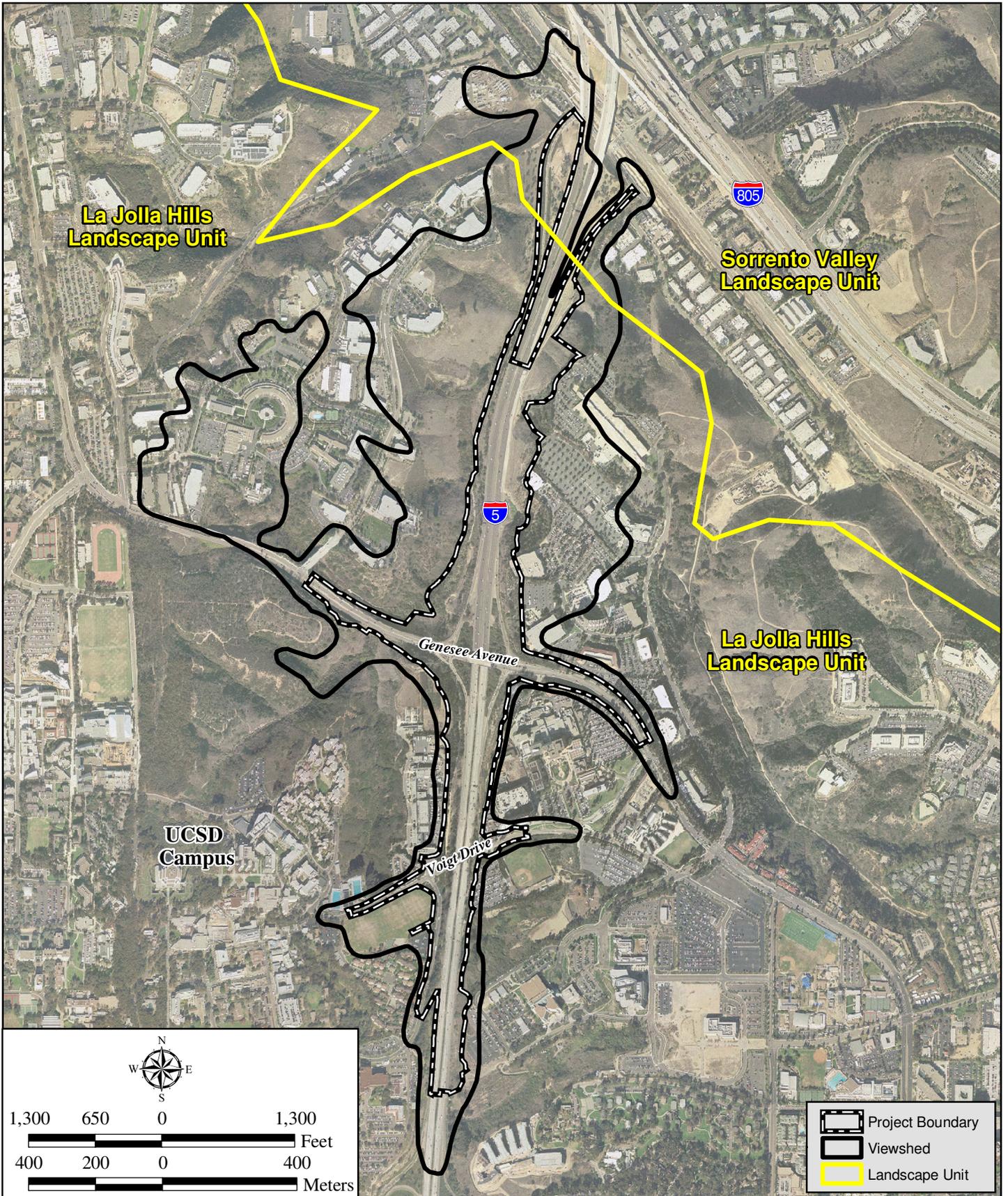
Vegetated slopes at Genesee Avenue I-5 overcrossing

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Existing Conditions

INTERSTATE 5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION

Figure 2.6-1

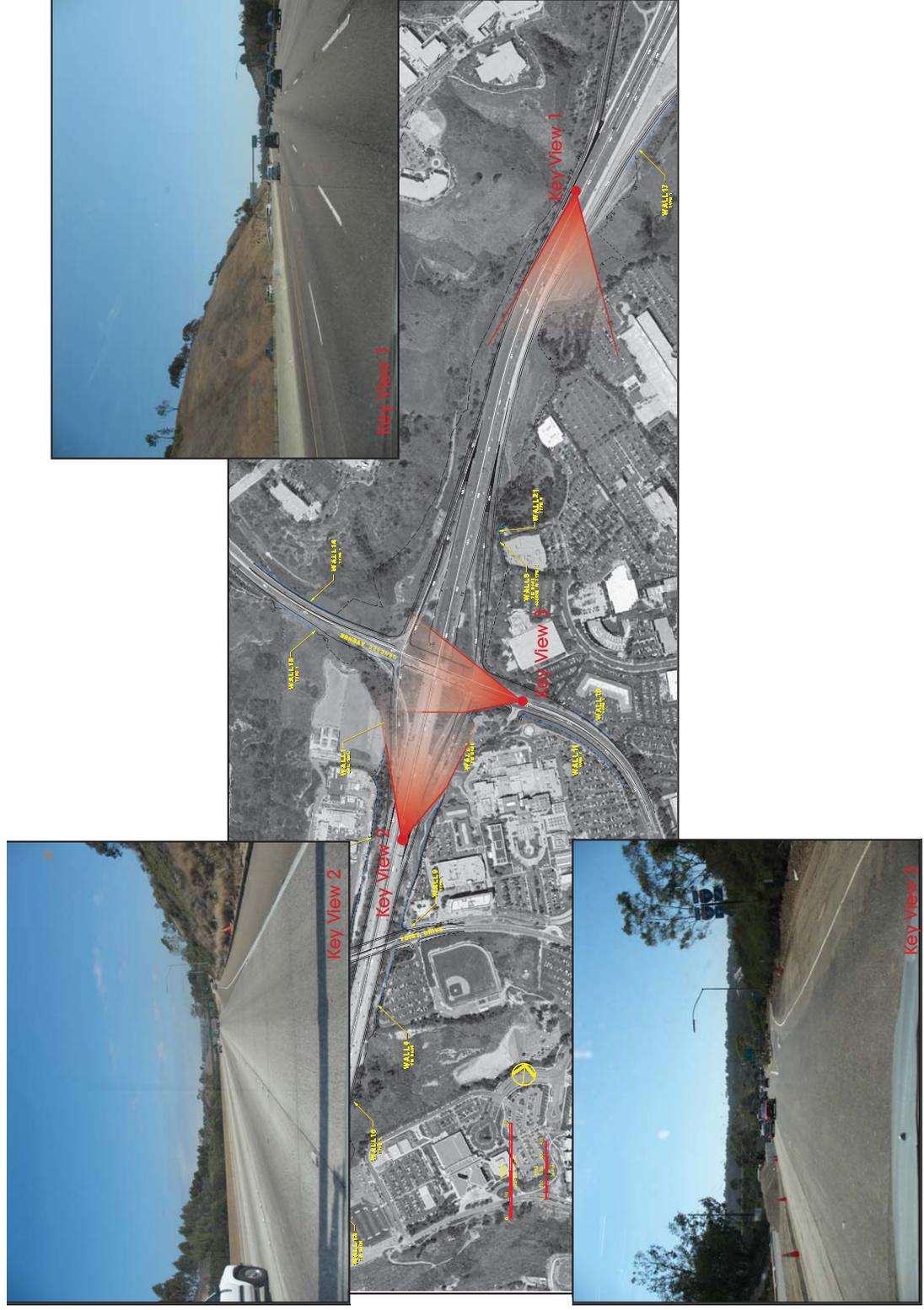


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Viewshed and Landscape Unit Map

INTERSTATE 5/GENESEEE AVENUE INTERCHANGE RECONSTRUCTION

Figure 2.6-2

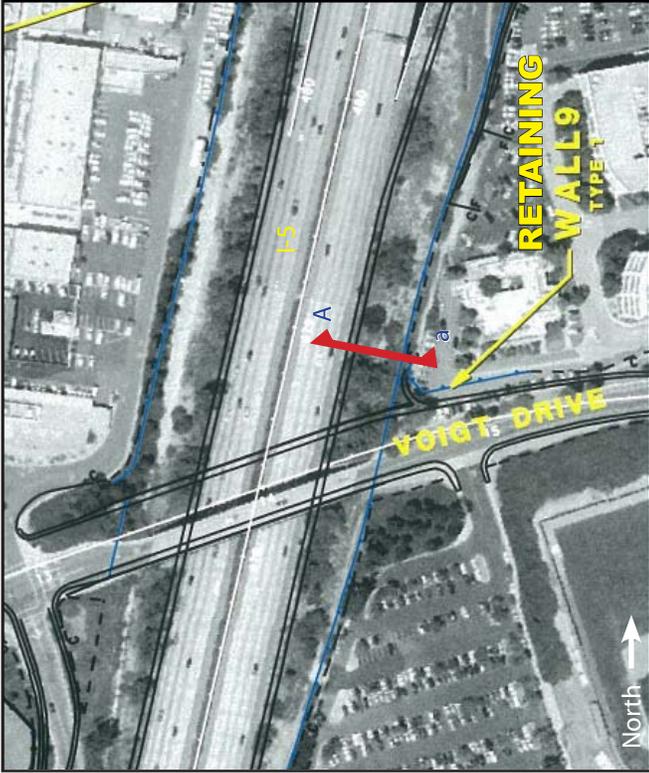


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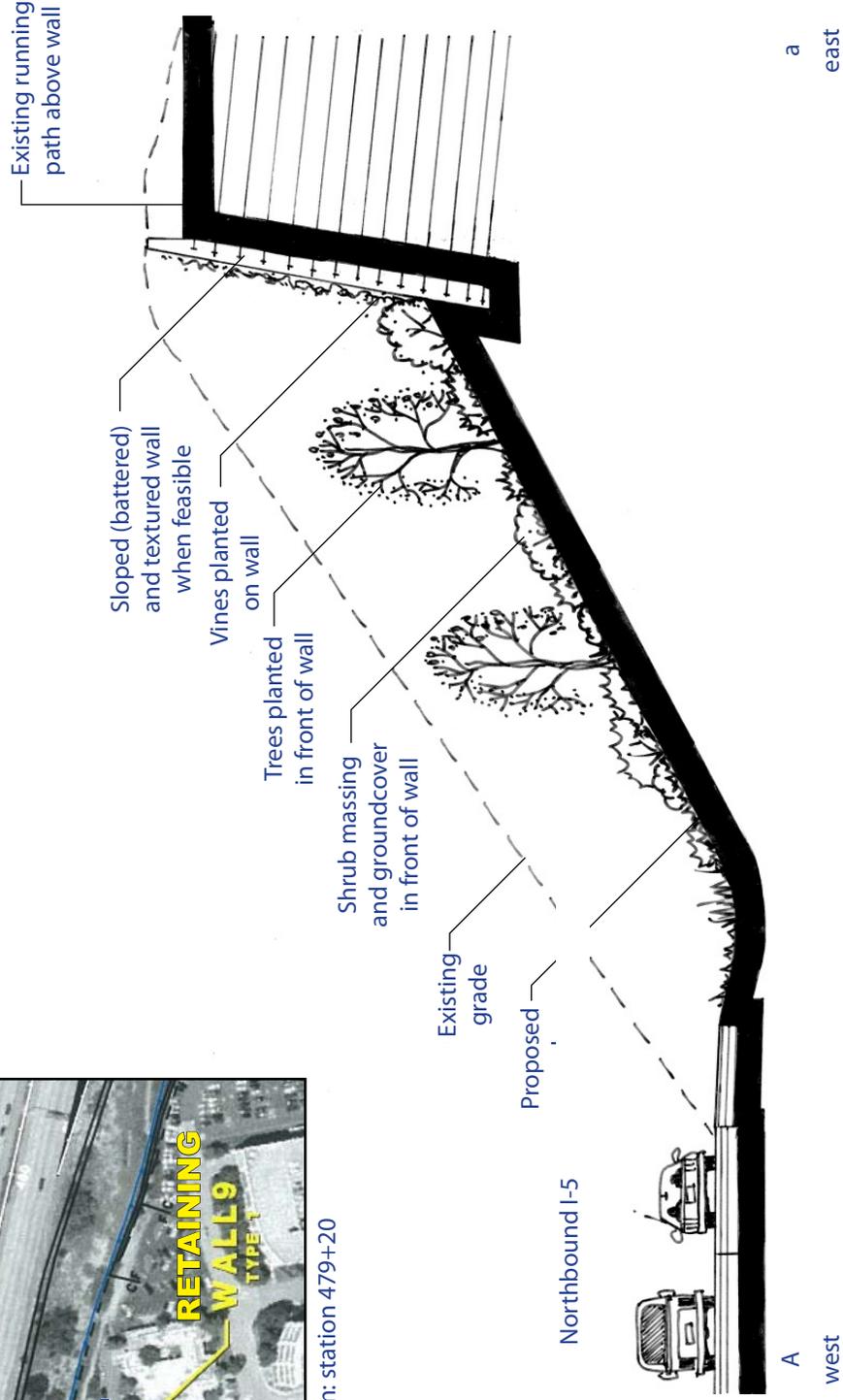
Key View Location Map

INTERSTATE 5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION

Figure 2.6-3



Cross-section A-a, I-5 location: station 479+20



Cross-section A-a: northbound I-5, north of Voigt Drive overcrossing

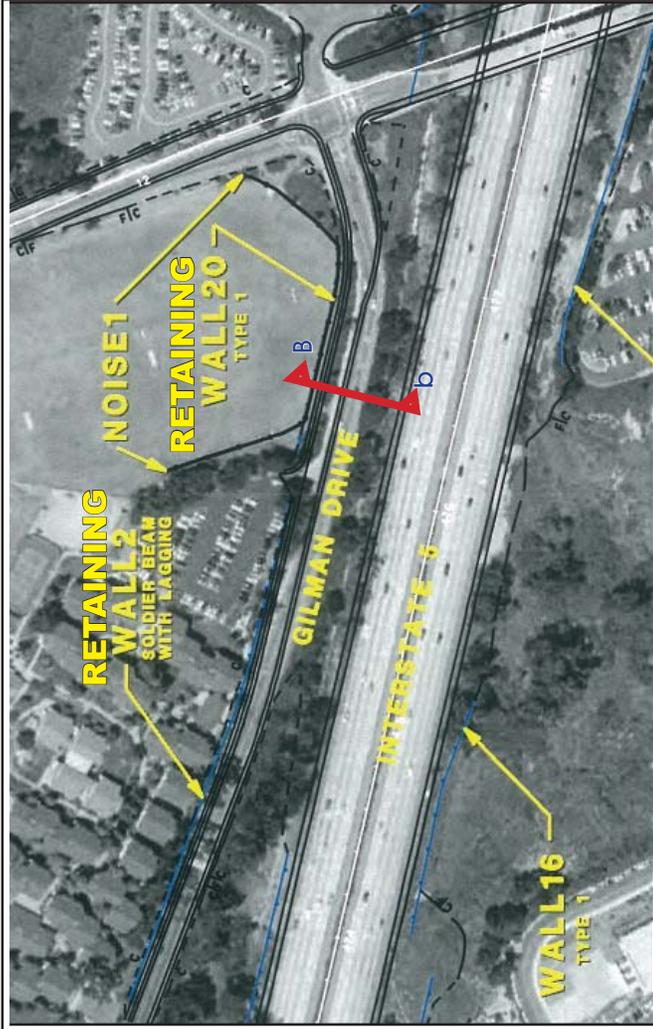
Source: Kimley-Horn and Associates

F:\ArcGIS\K\KHA-10 I-5 Genesee Interchange\Map\SEA\Fig2-6-4 Cross-section A.pmd -KF

Cross-section A

INTERSTATE 5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION

Figure 2.6-4



Cross-section B-b, Gilman Drive location: station 487 +40

Noise Attenuation Wall (if found feasible and reasonable)

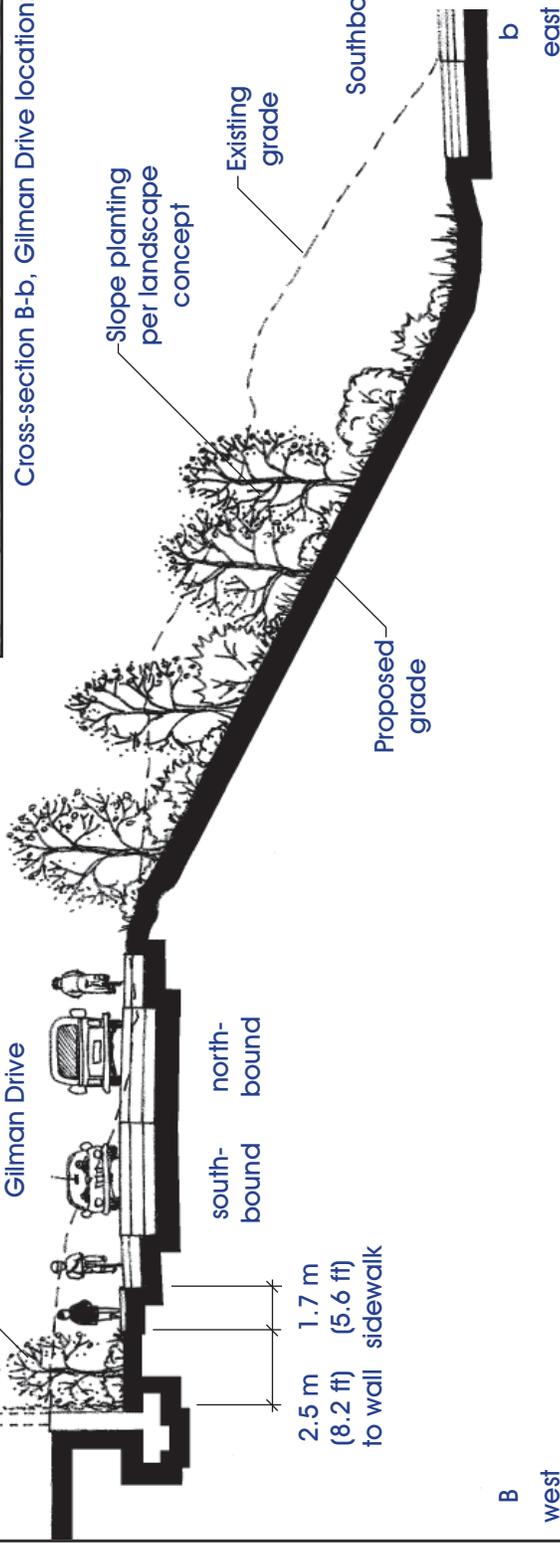
Landscaped buffer

Gilman Drive

south-bound north-bound

2.5 m (8.2 ft) to wall sidewalk
1.7 m (5.6 ft)

B west



Cross-section B-b: Gilman Drive

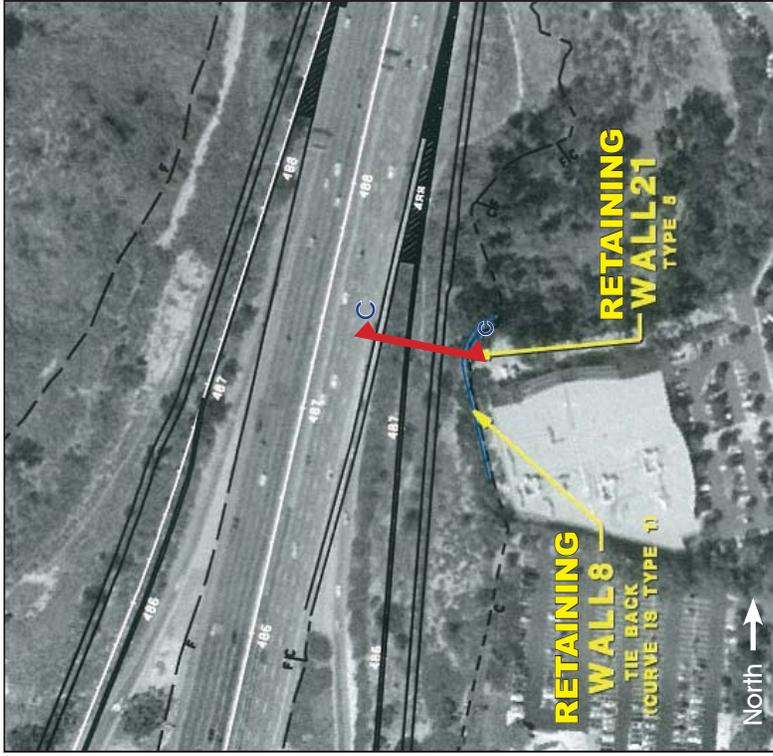
Source: Kimley-Horn and Associates

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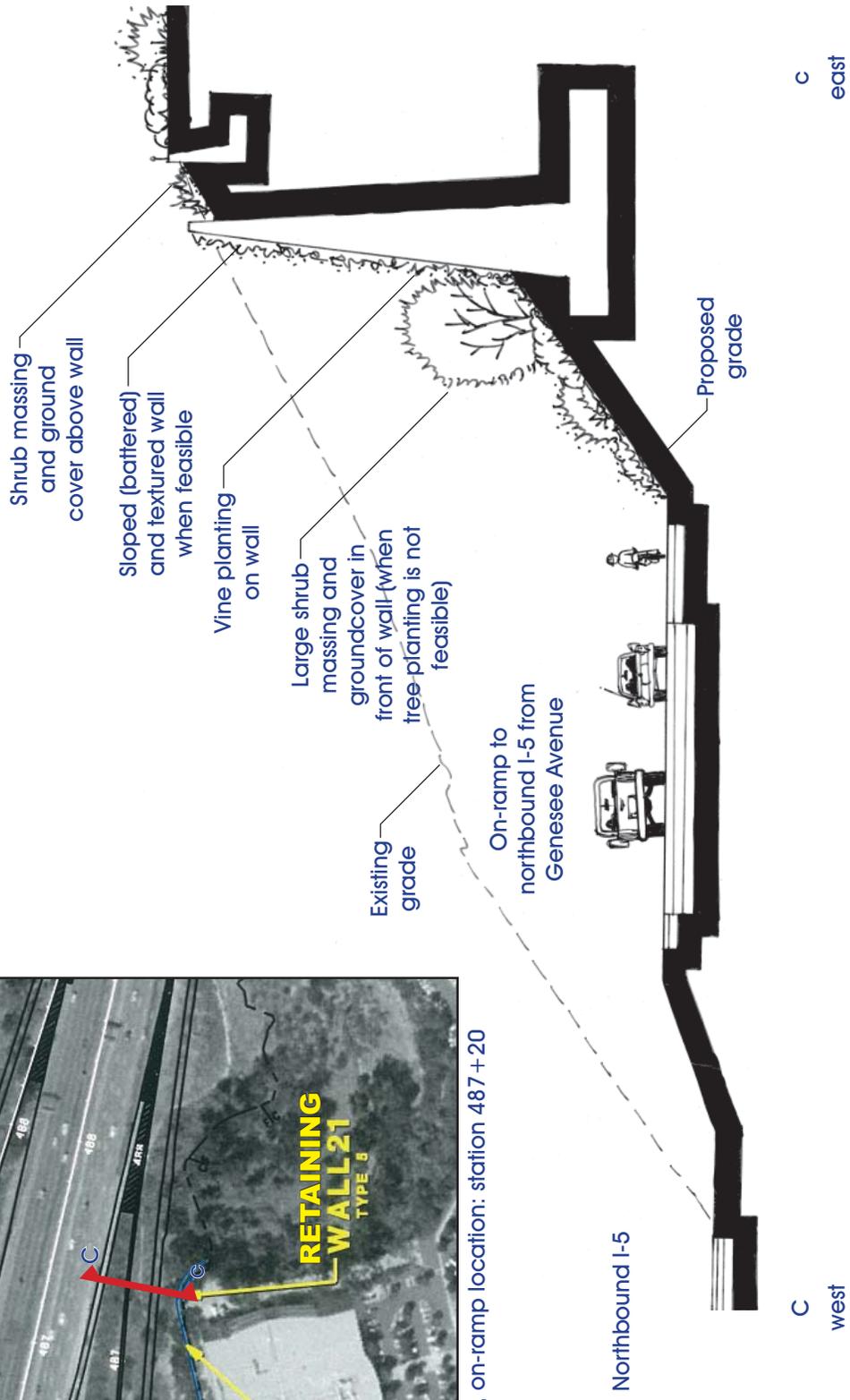
Cross-section B

INTERSTATE 5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION

Figure 2.6-5



Cross-section C-c, on-ramp location: station 487 +20



Cross-section C-c: Genesee Avenue on-ramp to northbound I-5

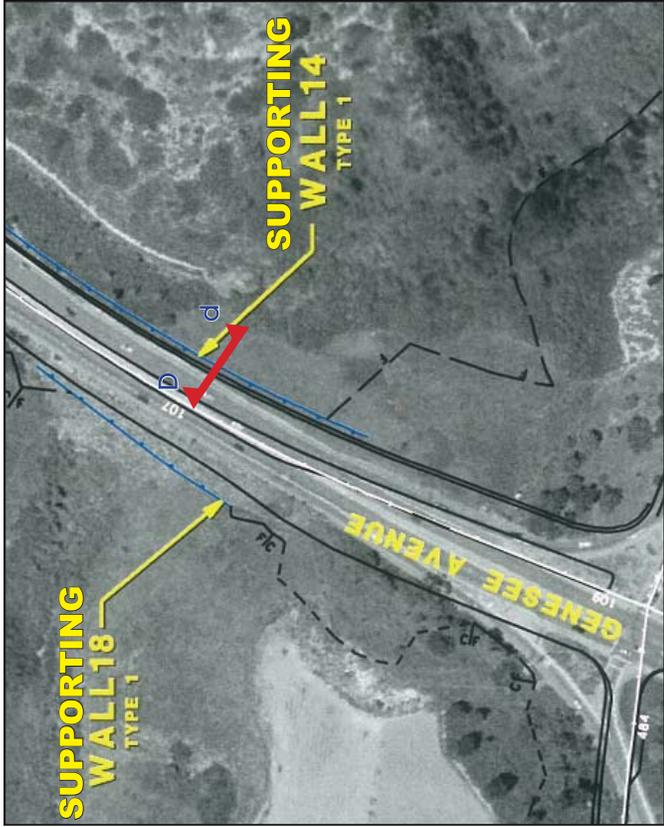
Source: Kimley-Horn and Associates

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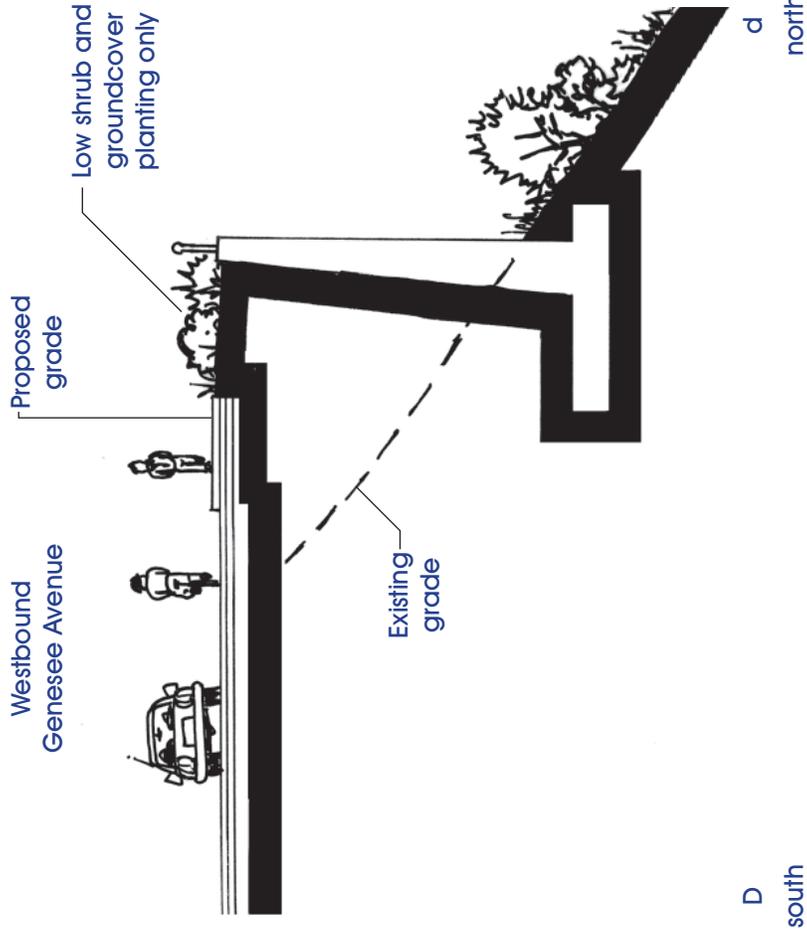
Cross-section C

INTERSTATE 5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION

Figure 2.6-6



Cross-section D-d, Genesee Avenue location: station 107+00



Cross-section D-d: westbound Genesee Avenue, west of I-5

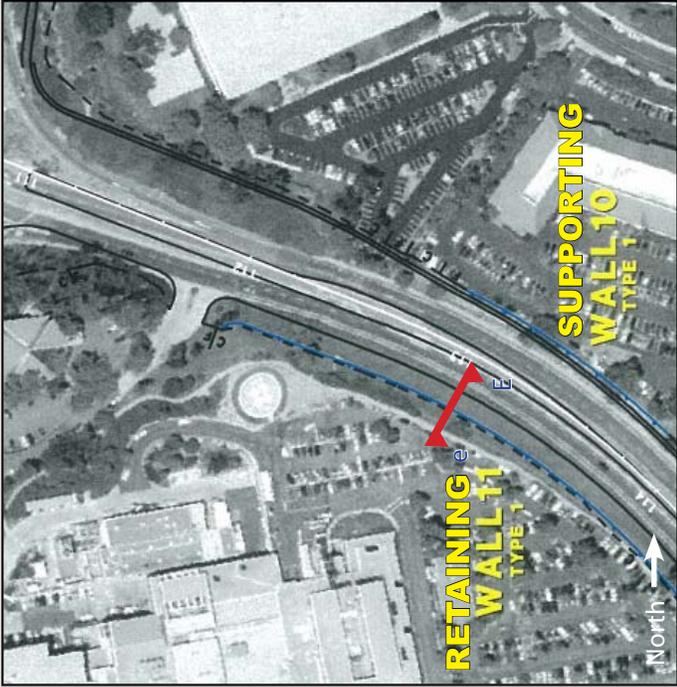
Cross-section D

INTERSTATE 5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION

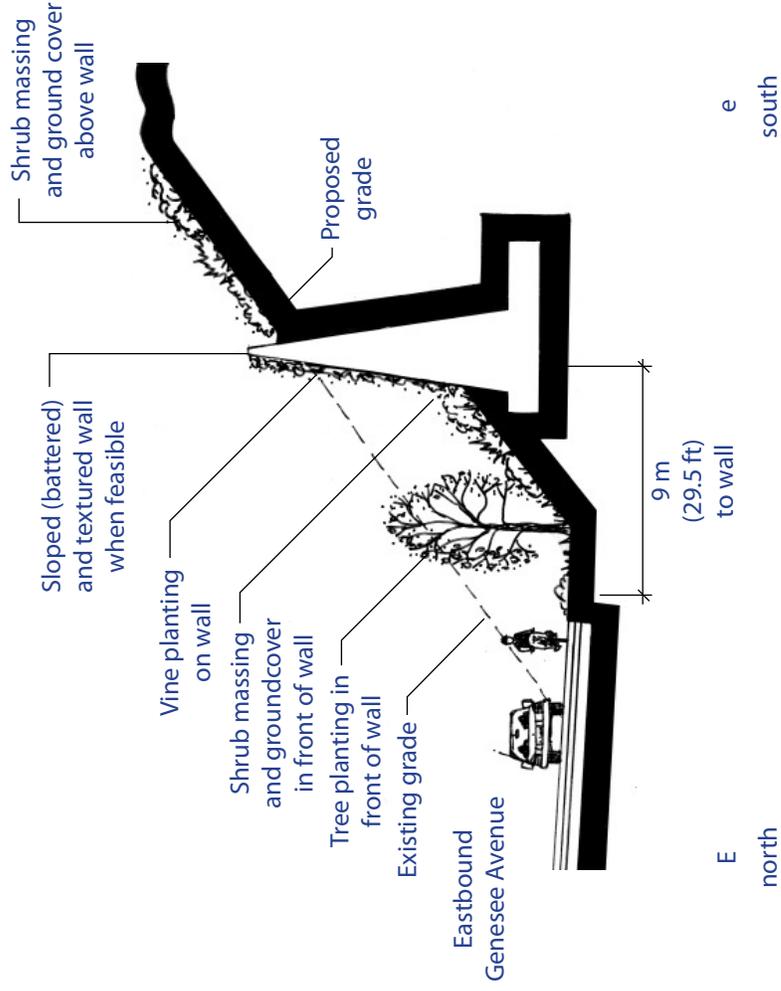
Figure 2.6-7

Source: Kimley-Horn and Associates

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Cross-section E-e, Genesee Avenue location: station 113+20



Cross-section E-e: eastbound Genesee Avenue, east of I-5

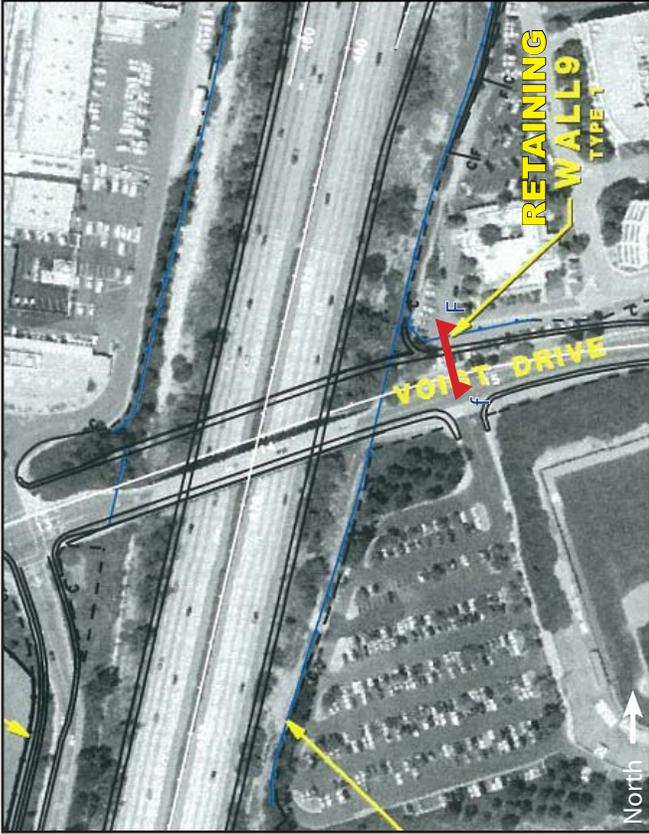
Source: Kimley-Horn and Associates

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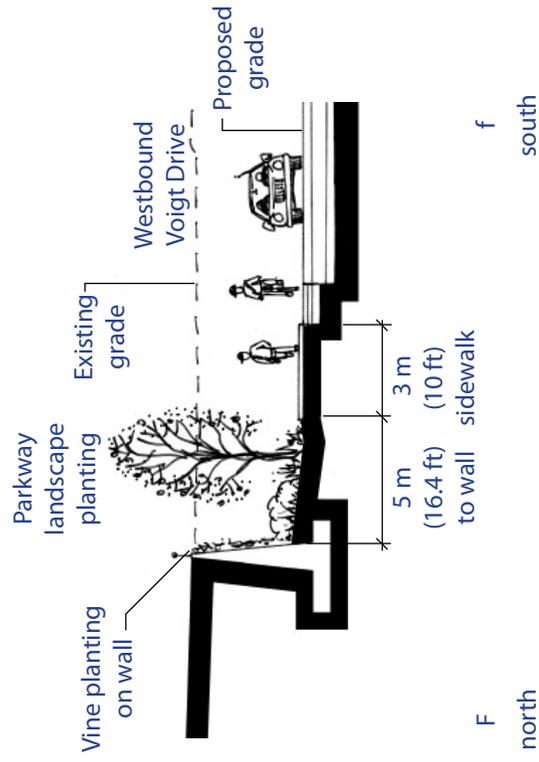
Cross-section E

INTERSTATE 5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION

Figure 2.6-8



Cross-section F-f, Voigt Drive location: station 14+80



Cross-section F-f: westbound Voigt Drive, west of I-5

Source: Kimley-Horn and Associates

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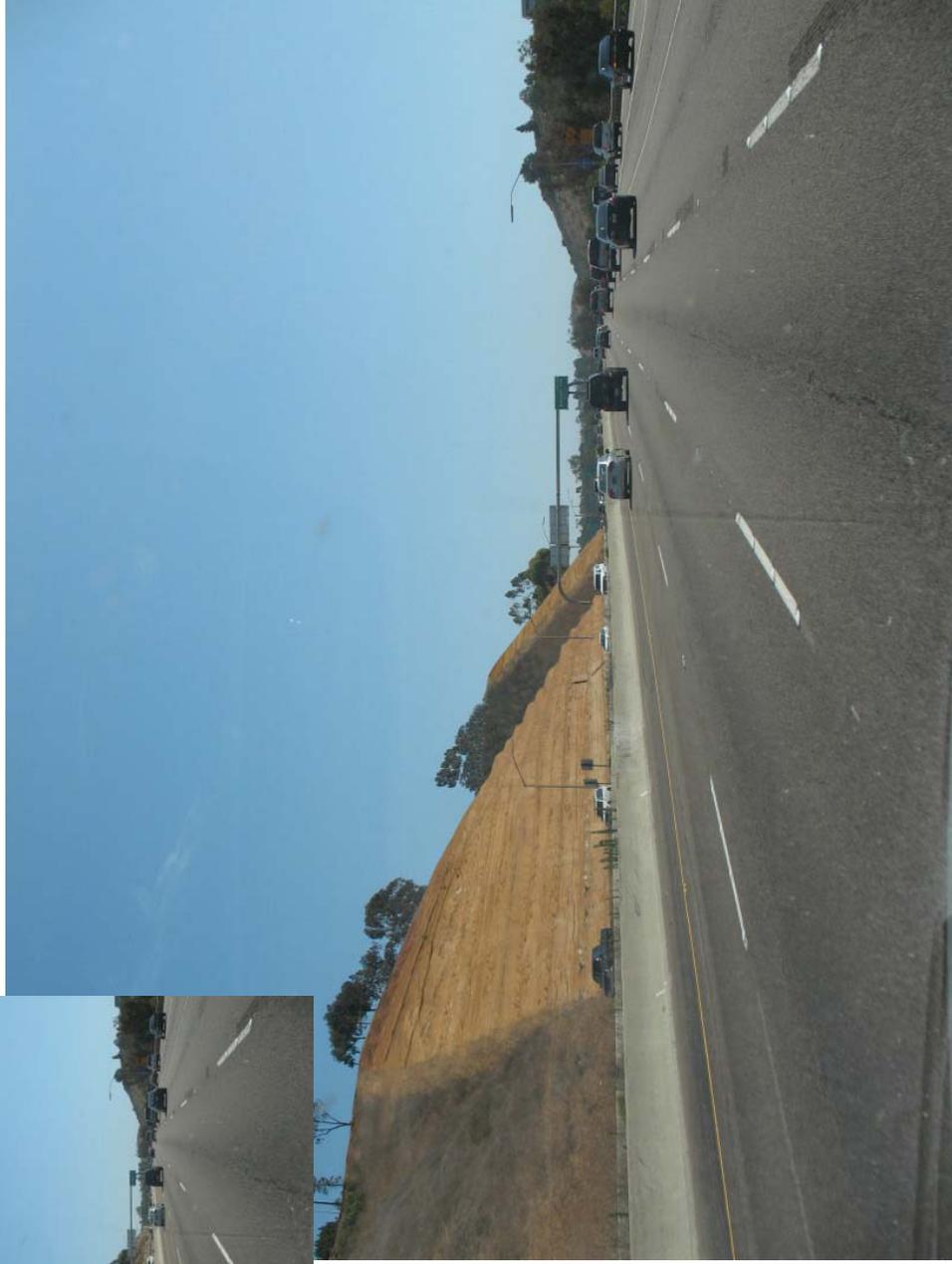
Cross-section F

INTERSTATE 5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION

Figure 2.6-9



Key View 1



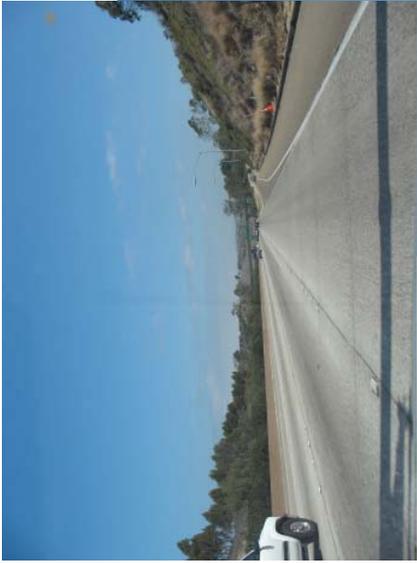
Simulation 1: Southward view from southbound I-5 north of Genesee Avenue

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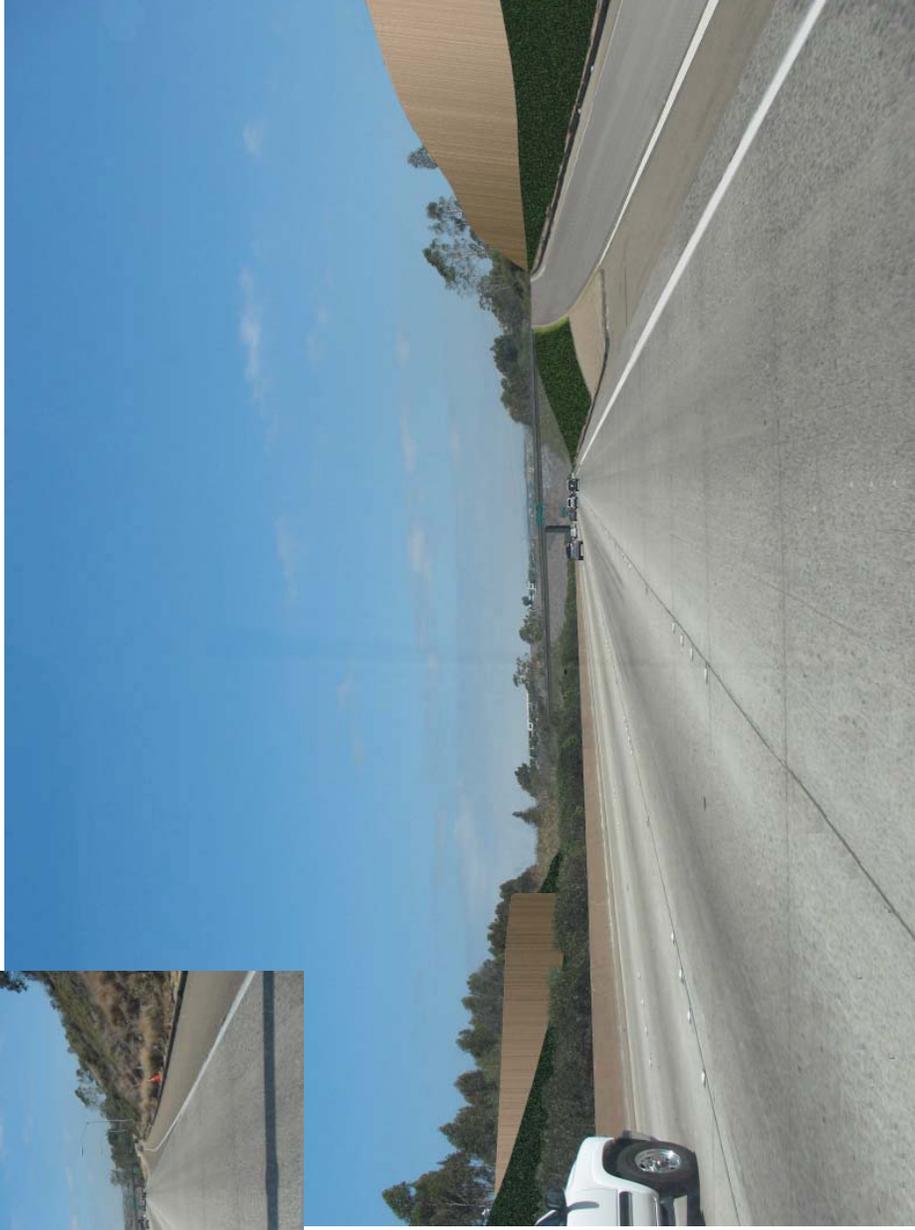
Key View 1 - Southbound I-5

INTERSTATE 5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION

Figure 2.6-10



Key View 2



Simulation 2: Northward view from northbound I-5, south of Genesee Avenue

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Key View 2 - Northbound I-5

INTERSTATE 5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION

Figure 2.6-11



Key View 3



Simulation 3: Westward view from westbound Genesee Avenue at I-5 interchange

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Key View 3 - Westbound Genesee Avenue

INTERSTATE 5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION

Figure 2.6-12



Simulation 1: Southward view from southbound I-5, north of Genesee Avenue after five years

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Key View 1

INTERSTATE 5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION

Figure 2.6-13



Simulation 2: Northward view from northbound I-5, south of Genesee Avenue after five years

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Key View 2

INTERSTATE 5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION

Figure 2.6-14



Simulation 3: Westward view from westbound Genesee Avenue at I-5 interchange after five years

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Key View 3

INTERSTATE 5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION

Figure 2.6-15

2.7 CULTURAL RESOURCES

2.7.1 Regulatory Setting

“Cultural resources” as used in this document refers to all historical and archaeological resources, regardless of significance. Laws and regulations dealing with cultural resources include:

The National Historic Preservation Act of 1966, as amended (NHPA), sets forth national policy and procedures regarding historic properties, defined as districts, sites, buildings, structures, and objects included in or eligible for the National Register of Historic Places. Section 106 of NHPA requires federal agencies to take into account the effects of their undertakings on such properties and to allow the Advisory Council on Historic Preservation the opportunity to comment on those undertakings, following regulations issued by the Advisory Council on Historic Preservation (36 CFR 800). On January 1, 2004, a Section 106 Programmatic Agreement (PA) between the Advisory Council, FHWA, State Historic Preservation Officer (SHPO), and Caltrans went into effect for Caltrans projects, both state and local, with FHWA involvement. The PA implements the Advisory Council’s regulations, 36 CFR 800, streamlining the Section 106 process and delegating certain responsibilities to Caltrans. The FHWA’s responsibilities under the PA have been assigned to Caltrans as part of the Surface Transportation Project Delivery Pilot Program (23 CFR 773) (July 1, 2007).

Historic properties may also be covered under Section 4(f) of the U.S. Department of Transportation Act, which regulates the “use” of land from historic properties.

Historical resources are considered under the CEQA, as well as PRC Section 5024.1, which established the California Register of Historical Resources. PRC Section 5024 requires state agencies to identify and protect state-owned resources that meet National Register of Historic Places listing criteria. It further specifically requires Caltrans to inventory state-owned structures in its rights-of-way. Specifically, Sections 5024(f) and 5024.5 require state agencies to provide notice to and consult with the SHPO before altering, transferring, relocating, or demolishing state-owned historical resources that are listed on or are eligible for inclusion in the National Register or eligible for registration as California Historical Landmarks.

2.7.2 Affected Environment

An Archaeological Survey Report (ASR; 2007) and Historic Property Survey Report (HPSR; 2008) were prepared for the Project. These reports are summarized below.

The area of potential effect (APE) established for the Project encompasses the anticipated maximum extent of proposed disturbance, including roadway improvements, staging areas, and temporary impacts. The APE encompasses the same area as shown on Figure 1-2 and consists of disturbed and developed areas comprised of I-5, local roadways, and manufactured slopes. No structures are located within the APE.

Historic Property Survey Report

The HPSR serves as the formal document transmitting the Section 106 findings to the SHPO, when resources occur within the APE. Since no cultural resources occur within the APE, the HPSR was prepared in accordance with the Section 106 PA, which documented that fact. When no cultural resources occur within the APE, formal concurrence from the SHPO is not

required for the National Environmental Policy Act (NEPA) or California Environmental Quality Act (CEQA) compliance purposes. Section 106 was completed on January 9, 2008, when the HPSR was completed and signed by District 11 Professionally Qualified Staff (PQS).

Records Searches and Field Reconnaissance

The records searches and field reconnaissance performed for the Project are described in the ASR, dated July 2007. Records searches were obtained from the South Coastal Information Center (SCIC) at San Diego State University and from the San Diego Museum of Man in April 2004 and updated in July 2007. The records searches from SCIC included a review of the National Register of Historic Places and the California Register of Historical Resources. The survey report for another project in the area, the proposed I-5 Widening Project, also was reviewed. The records searches indicated that two archaeological sites were previously identified within the Project APE (CA-SDI-1010 and CA-SDI-9288A). Both of these recorded sites have been destroyed by development.

The Native American Heritage Commission (NAHC) was contacted for a records search of their Sacred Lands Files. The results of the search indicated that no sacred lands are recorded in the Project area. Refer to Appendix B for correspondence with NAHC. Consultation with local Native American tribes was recommended, and a list of Native American contacts was provided. Letters describing the Project and a map of the study area were mailed to local Native American representatives in July 2007, and follow-up telephone calls were made. A Native American representative who provided a monitor for field reconnaissance expressed no concerns regarding the Project. A representative of the Kwaaymii Laguna band requested a Native American monitor be present if ground disturbance occurred, but Caltrans considers this unnecessary due to the area's geomorphology and highly disturbed nature.

In addition to reviewing records searches, historical maps and aerial photographs were reviewed to determine the potential for historic and prehistoric archaeological resources within the APE. Historic topographic maps, including 1930, 1943, and 1953 United States Geological Survey (USGS) topographic maps, as well as the 1928 San Diego County tax factor aerial photographs show a few structures in Sorrento Valley, one of which appears to be within the APE; however, this area has been subject to so much disturbance that the potential for the presence of remnant archaeological resources is considered extremely low.

Most of the Project APE was previously surveyed for archaeological resources as part of the aforementioned I-5 Widening Project. A survey of the areas within the APE that were not previously surveyed was conducted on July 17, 2007, by qualified archaeologists accompanied by a Native American monitor. The survey consisted of walking parallel transects approximately 10 m (33 ft) apart where possible. Much of the APE is paved, landscaped or consists of manufactured slopes, which limited the ability to use standard transects. No extant archaeological sites or historical resources were identified within the APE during the previous or current survey.

Overcrossing structures within the APE include the Genesee Avenue overcrossing of I-5 (No. 57-0527 in the statewide inventory) and the Voigt Drive overcrossing of I-5 (No. 57-0526). These overcrossings were previously determined not eligible for listing on the National Register, and are not considered historical resources, pursuant to Caltrans' statewide historic bridge inventory.

2.7.3 Environmental Consequences

Project

No archaeological or historical resources occur within the Project APE. Given the highly disturbed nature of the APE, there also is no potential for buried cultural deposits occurring within the APE. As such, implementation of this undertaking would not affect any known cultural resources; i.e., historic properties for the purposes of NEPA, or historical resources under CEQA.

No Build Alternative

Under the No Build Alternative, no effects would occur to cultural resources because no construction is proposed.

2.7.4 Avoidance, Minimization, and/or Mitigation Measures

No effects to archaeological or historical resources would occur due to implementation of the Project. Nonetheless, it is FHWA, Caltrans, and City policy to avoid cultural resources should any cultural materials or human remains be discovered during Project construction. Accordingly, the following avoidance and minimization measures would be implemented:

- If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area would be diverted until a qualified archaeologist can assess the nature and significance of the find.
- If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities would cease in any area or nearby area suspected to overlie remains, and the County Coroner contacted. Pursuant to Public Resources Code Section 5097.98, if the remains are thought to be Native American, the coroner would notify the Native American Heritage Commission who would then notify the Most Likely Descendant (MLD). At this time, the person who discovered the remains would contact Caltrans District Senior Environmental Planner for Cultural Resources, so that they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.

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PHYSICAL ENVIRONMENT

2.8 HYDROLOGY AND FLOODPLAIN

2.8.1 Regulatory Setting

The Project is subject to a number of regulatory requirements related to hydrology and floodplain issues, as outlined below. These guidelines are intended to avoid or reduce effects related to hydrology and flood hazards through efforts such as maintaining pre-development conditions, protecting hydrologic resources, and avoiding or minimizing development in mapped floodplains.

Executive Order 11988

Executive Order (EO) 11988 (Floodplain Management) directs all federal agencies to refrain from conducting, supporting, or allowing actions in floodplains unless it is the only practicable alternative. The FHWA requirements for compliance are outlined in 23 CFR 650 Subpart A.

In order to comply, the following must be analyzed:

- The practicability of alternatives to any longitudinal encroachments
- Risks of the action
- Impacts on natural and beneficial floodplain values
- Support of incompatible floodplain development
- Measures to minimize floodplain impacts and to preserve/restore any beneficial floodplain values impacted by the project

The base floodplain is defined as “the area subject to flooding by the flood or tide having a one percent chance of being exceeded in any given year.” An encroachment is defined as “an action within the limits of the base floodplain.”

2.8.2 Affected Environment

A Preliminary Drainage Report was prepared for the Project (2008). A Location Hydraulic Study (2008) also was completed for the Project to evaluate floodplain impacts. These documents are summarized in the following sections.

Watershed and Drainage Characteristics

The Project site is within the Peñasquitos Hydrologic Unit (HU), 1 of 11 major drainage areas identified in the Water Quality Control Plan for the San Diego Basin (Basin Plan; San Diego Regional Water Quality Control Board [RWQCB] 1994, as amended). The Peñasquitos HU is a triangular-shaped area of approximately 440 square kilometers (km²; 170 square miles [mi²]) and extends generally from Poway on the east to Mission Bay/Del Mar along the coast. The HU is divided into a number of hydrologic areas (HAs) based on local drainage characteristics, with the Project site located in portions of the Miramar and Miramar Reservoir HAs (Figure 2.8-1). Surface drainage in the Peñasquitos HU occurs through a number of small- to moderate-sized streams, including Rose Canyon and San Clemente creeks in the Miramar HA, and Carroll Canyon, Carmel Valley, and Peñasquitos creeks in the Miramar Reservoir HA. Average annual

precipitation in the Peñasquitos HU ranges from approximately 25.4 to 45.7 centimeters (cm; 10 to 18 inches [in], RWQCB 1994), with the Project site vicinity (La Jolla) receiving an average of approximately 30.5 cm (12 in) per year (Weather.com 2007).

Surface drainage within the Project site occurs as both point (confined) flows in existing storm drains and creeks, and non-point runoff (sheet flow). The Project site is located within portions of two distinct (northern and southern) watersheds. The two Project site discharge points (north and south) contain significant amounts of runoff generated from off-site areas. Approximately 93 percent of the runoff area is located outside of the Project limits (on-site areas, within the Project R/W, comprise the remaining 7 percent of the total runoff area). The boundary between the northern and southern watersheds within the Project site is located near the Voigt Drive overpass, and associated flows move primarily north and south, respectively (although flow directions vary locally with topography).

The watershed encompassing the northern portion of the site includes approximately 290 ha (717 ac), with associated flows from off-site areas moving generally east to west from adjacent mesa tops and canyons into and through the freeway right-of-way via a number of channels and cross drains (i.e., culverts extending underneath the freeway). On-site flows within the northern watershed are conveyed north through existing drainage facilities and enter the Soledad Canyon channel near the northern Project site boundary via five discharge points under the Sorrento Valley Road overpass. These flows (along with upstream drainage from Carroll Canyon and Peñasquitos creeks) continue northwest for approximately 1.6 km (1 mi) before reaching Los Peñasquitos Lagoon.

The southern watershed encompasses approximately 86 ha (212.5 ac), with flows from off-site areas moving generally east to west into the freeway corridor and then conveyed south through existing drainage channels and cross drains. These flows discharge into Rose Canyon Creek via a concrete-lined channel that flows beneath the La Jolla Village Drive interchange, and continue west and south before ultimately entering Mission Bay approximately 4.8 km (3 mi) south of the Project site.

The Project site is largely developed with existing freeway facilities, including landscaped slopes and interchange areas. Off-site portions of the described watersheds include extensive development such as Scripps Hospital and business parks on the east side of the freeway, and the UCSD campus and business park development on the west side. The west side of the freeway also includes relatively extensive open space areas, including native habitat preserves associated with UCSD, as well as both native habitat and previously disturbed (but undeveloped) properties north of Genesee Avenue. Existing drainage facilities in the off-site areas include storm drain systems related to existing development, as well as crossing structures along larger drainages at a number of roadways.

Floodplain Characteristics

The Project site and vicinity have been mapped for flood hazards by the Federal Emergency Management Agency (FEMA). The northernmost portion of the Project site extends into a mapped 100-year floodplain associated with Soledad Canyon, as shown on Figure 2.8-2. All other portions of the Project site and adjacent areas are mapped as Zone X, or areas determined to be outside of mapped floodplains (FEMA 2000, 1997a, 1997b).

2.8.3 Environmental Consequences

Project

Watershed and Drainage

Construction of the Project would result in the generation of approximately 4.76 ha (11.76 ac) of new impervious surfaces (pavement). This additional impervious area would reduce on-site infiltration capacity, and increase runoff volumes and velocities both within and from the site. Specifically, calculated post-construction 100-year storm flows from the northern watershed would increase approximately 6 percent over the existing flow. This projected increase in existing flow from the northern watershed would be reduced by the proposed use of biofiltration in the Project drainage system as a water quality treatment measure (refer to Subchapter 2.9, Water Quality and Storm Water Runoff, for additional discussion of biofiltration). The installation of detention basins to regulate post-construction flows to pre-construction levels was determined to be infeasible due to substantial grading impacts, potential flooding hazards and would preclude the proposed I-5 North Coast Corridor project. The post-construction 100-year storm flows from the southern watershed would be slightly less as that identified for the pre-construction condition. This condition is based on the use of vegetated swales, an increase in the time of concentration within the southern watershed, and a proposed minor diversion of flow from the southern to the northern watershed.

All proposed storm drain facilities would be designed to accommodate appropriate storm flows, including 100-year flows for cross drains and 25-year flows for other on-site and roadway drainage systems. The Project storm drain system would include construction of new facilities, as well as upgrading a few existing structures that have inadequate capacity for the described flows. The proposed design also includes appropriately sized energy dissipation structures (riprap/concrete aprons) at drain outlets where objectionable outlet velocity occurs, in order to reduce these velocities prior to discharging into natural watercourses.

Floodplain

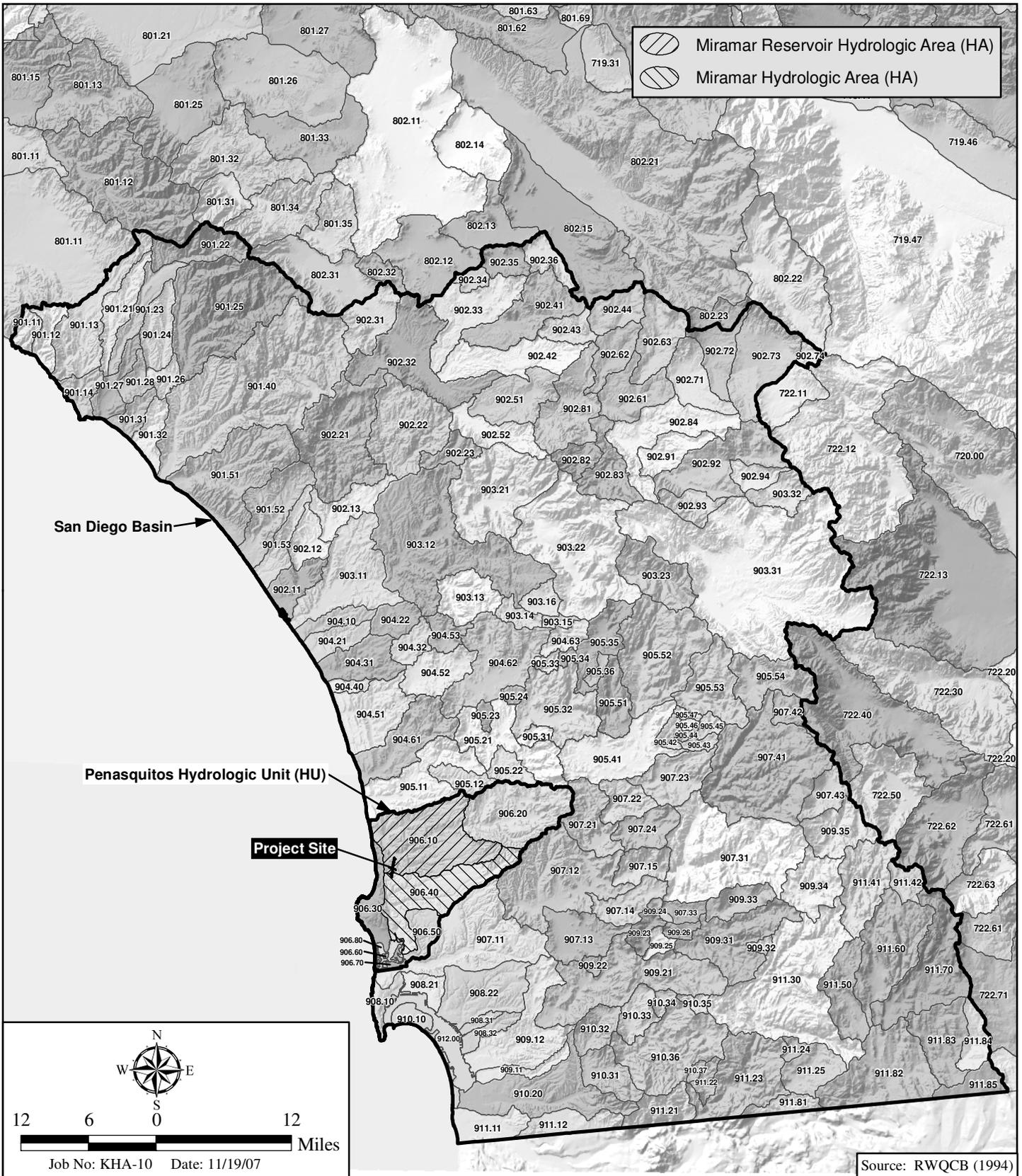
Per 23 CFR 650.105, a significant encroachment into a floodplain is defined as an encroachment that would lead to potential interruption or termination of a transportation facility that is needed for emergency vehicles or community evacuation, a significant risk to life or property, or a significant adverse impact on natural and beneficial floodplain values. As previously discussed, the northernmost portion of the Project site extends into a mapped 100-year floodplain associated with Soledad Canyon, with all other portions of the Project site and adjacent areas located outside of mapped floodplains (refer to Figure 2.8-2). To evaluate potential Project effects to the floodplain, a Location Hydraulic Study was completed (2008). Proposed operations/facilities would be located within the mapped floodplain at the southbound on-ramp and northbound off-ramp intersections with Roselle Street. The on-ramps would be widened in these locations, requiring grading and installation of new pavement within the floodplain. No fill would be placed within the floodplain at either location, however, as the proposed curb and pavement grades would be required to match the existing grades. The location of proposed operations/improvements within the Soledad Canyon floodplain would not affect the horizontal or vertical extent of floodwaters, or associated flood hazards. This conclusion is based on the nature and minor extent of activities/facilities within the floodplain, as well as the noted requirements for proposed improvement to match existing grades (thereby precluding structures that would create obstructions to floodwaters).

No Build Alternative

Under this alternative, no improvements or modifications would be implemented in the study area. No changes to the existing watershed or drainage would occur and there would be no encroachment into mapped floodplain areas. Accordingly, no associated impacts related to hydrology or floodplain would occur.

2.8.4 Avoidance, Minimization and/or Mitigation Measures

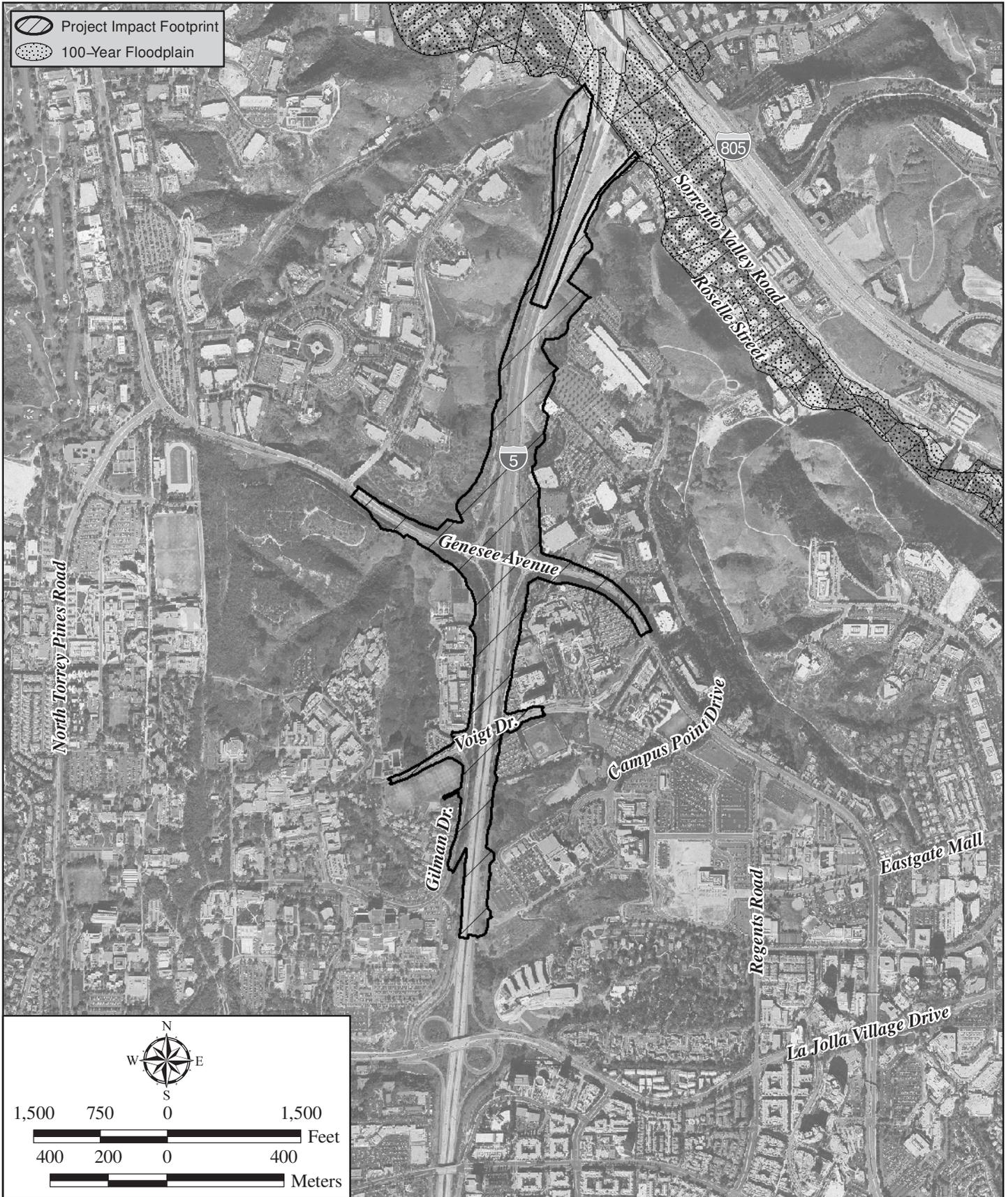
No mitigation measures are proposed with regard to hydrology and floodplain. Avoidance and minimization measures related to hydrology and floodplain concerns include appropriate sizing and location of proposed and (where applicable) existing drainage facilities (i.e., through upgrading current facilities that cannot adequately convey the anticipated flows after completion of the Project), using appropriately sized energy dissipation structures at drainage outlets to reduce flow velocities prior to discharge, minimizing Project encroachment into mapped floodplains, and matching existing curb and pavement grades for proposed improvements within floodplains.



Project Location within Local Hydrologic Designations

INTERSTATE 5/GENESEEE AVENUE INTERCHANGE RECONSTRUCTION

Figure 2.8-1



F:\ArcGIS\KHA-10 1-5 Genesee Interchange\Map\USA\Fig2-8-2_100YearFloodplain.mxd -JP

100-Year Floodplain Boundaries

INTERSTATE 5/GENESEEE AVENUE INTERCHANGE RECONSTRUCTION

Figure 2.8-2

2.9 WATER QUALITY AND STORM WATER RUNOFF

2.9.1 Regulatory Setting

Federal Requirements: Clean Water Act

In 1972, the Federal Water Pollution Control Act was amended, making the discharge of pollutants to the waters of the U.S. from any point source unlawful, unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. The Federal Water Pollution Control Act was subsequently amended in 1977, and was renamed the Clean Water Act (CWA). The CWA, as amended in 1987, directed that storm water discharges are point source discharges. The 1987 CWA amendment established a framework for regulating municipal and industrial storm water discharges under the NPDES program. Important CWA sections are as follows:

- Sections 303 and 304 provide for water quality standards, criteria, and guidelines.
- Section 401 requires an applicant for any federal project that proposes an activity, which may result in a discharge to waters of the U.S. to obtain certification from the State that the discharge will comply with other provisions of the act.
- Section 402 establishes the NPDES, a permitting system for the discharges (except for dredge or fill material) into waters of the U.S. Regional Water Quality Control Boards (RWQCB) administer this permitting program in California. Section 402(p) establishes addresses storm water and non-storm water discharges.
- Section 404 establishes a permit program for the discharge of dredge or fill material into waters of the U.S. This permit program is administered by the U.S. Army Corps of Engineers (ACOE).

The objective of the CWA is “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.”

State Requirements: Porter-Cologne Water Quality Control Act (California Water Code)

California’s Porter-Cologne Act, enacted in 1969, provides the legal basis for water quality regulation within California. This Act requires a “Report of Waste Discharge” for any discharge of waste (liquid, solid, or otherwise) to land or surface waters that may impair beneficial uses for surface and/or groundwater of the state.

The State Water Resources Control Board (SWRCB) and RWQCBs are responsible for establishing the water quality standards (objectives) required by the CWA, and regulating discharges to ensure that the objectives are met. Details regarding water quality standards in a project area are contained in the applicable RWQCB Basin Plan. States designate beneficial uses for all water body segments, and then set criteria necessary to protect these uses. Consequently, the water quality standards developed for particular water segments are based on the designated use and vary depending on such use. In addition, each state identifies waters failing to meet standards for specific pollutants, which are state listed in accordance with CWA Section 303(d). If a state determines that waters are impaired for one or more constituents and the standards cannot be met through point source controls, the CWA requires establishing Total Maximum Daily Loads (TMDLs). TMDLs establish allowable pollutant loads from all sources (point, non-point, and natural) for a given watershed.

State Water Resources Control Board and Regional Water Quality Control Boards

The SWRCB administers water rights, water pollution control, and water quality functions throughout the state. RWCQBs are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

NPDES Program

The SWRCB adopted Caltrans Statewide NPDES Permit (Order No. 99-06-DWQ) on July 15, 1999. This permit covers all Caltrans rights-of-way, properties, facilities, and activities in the State. NPDES permits establish a five-year permitting time frame. NPDES permit requirements remain active until a new permit has been adopted. A proposed renewal of the Caltrans NPDES Permit is currently being evaluated by the SWRCB, and was released for public review in January 2011. After the evaluation process is complete and the permit renewal is adopted, Caltrans will implement all applicable requirements for associated planning, design, construction, and maintenance efforts.

In compliance with the permit, Caltrans developed the Statewide Storm Water Management Plan (SWMP) to address storm water pollution controls related to highway planning, design, construction, and maintenance activities throughout California. The SWMP describes the minimum procedures and practices Caltrans uses to reduce pollutants in storm water and non-storm water discharges. It outlines procedures and responsibilities for protecting water quality, including the selection and implementation of BMPs. The Proposed Project would be programmed to follow the guidelines and procedures outlined in the 2003 SWMP to address storm water runoff or any subsequent approved SWMP. As noted above for the Caltrans NPDES Permit, when an updated SWMP is adopted in association with approval of the pending Permit renewal, Caltrans will implement all applicable requirements for related projects.

Municipal Separate Storm Sewer System Program

The U.S. Environmental Protection Agency (USEPA) defines a Municipal Separate Storm Sewer System (MS4) as any conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, and storm drains) owned or operated by a state, city, town, county, or other public body having jurisdiction over storm water, that are designed or used for collecting or conveying storm water. As part of the NPDES program, USEPA initiated a program requiring that entities having MS4s apply to their local RWQCBs for storm water discharge permits. The program proceeded through two phases. Under Phase I, the program initiated permit requirements for designated municipalities with populations of 100,000 or greater. Phase II expanded the program to municipalities with populations less than 100,000.

Construction Activity Permitting

Section H.2, Construction Program Management of Caltrans' NPDES permit states: "The Construction Management Program shall be in compliance with requirement of the NPDES General Permit for Construction Activities (Construction General Permit)". Construction General Permit (Order No. 2009-009-DWQ, adopted on September 2, 2009), became effective on July 1, 2010. The permit will regulate storm water discharges from construction sites that result in a disturbed soil area (DSA) of one acre or greater, and/or are part of a common plan of

development. By law, all storm water discharges associated with construction activity where clearing, grading, and excavation results in soil disturbance of at least one acre must comply with the provisions of the Construction General Permit.

The newly adopted permit separates projects into Risk Levels 1, 2, or 3. Requirements apply according to the Risk Level determined. For example, a Risk Level 3 (highest risk) project would require compulsory storm water runoff pH and turbidity monitoring. Risk levels are determined during the design phase and are based on sediment risk (potential sediment transport to receiving waters) and on the receiving water risk (receiving water's quality and beneficial uses). Caltrans requires contractors to develop and implement an effective Storm Water Pollution Prevention Plan (SWPPP) for all projects subject to the general construction permit regardless of the project's risk level.

Caltrans Statewide NPDES Permit requires Caltrans to submit a Notice of Construction (NOC) to the RWQCB to obtain coverage under the Construction General Permit. Upon project completion, a Notice of Completion of Construction (NOCC) is required to suspend coverage. This process will continue to apply to Caltrans projects until a new Caltrans Statewide NPDES Permit is adopted by the SWRCB. An NOC or equivalent form will be submitted to the RWQCB at least 30 days prior to construction if the associated DSA is one acre or more. In accordance with Caltrans' Standard Specifications, a Water Pollution Control Plan (WPCP) is used for projects with DSA less than one-acre.

During the construction phase, compliance with the permit and Caltrans' Standard Specifications requires appropriate selection and deployment of both structural and non-structural BMPs. These BMPs must achieve performance standards of Best Available Technology economically achievable/Best Conventional Technology (BAT/BCT) to reduce or eliminate storm water pollution.

2.9.2 Affected Environment

A Storm Water Data Report (SWDR) was prepared for the Project and approved on June 25, 2009. As described in Subchapter 2.8, Hydrology and Floodplain, the Project site extends into portions of the Miramar (906.40) and Miramar Reservoir (906.10) Hydrologic Areas (HAs), both of which are subdivisions of the Peñasquitos Hydrologic Unit (HU, 906.0, refer to Figure 2.8-1). Based on local drainage characteristics, the Project discharges to two separate sets of receiving waters. The southern portion of the Project drains through a multiple separate storm sewer system (MS4) into Rose Canyon Creek, which ultimately drains to Mission Bay approximately eight km [five mi] away. The northern portion of the Project drains to Soledad Canyon under the I-5/I-805 merge, which confluences with Los Peñasquitos Creek prior to draining into Los Peñasquitos Lagoon and ultimately into the Pacific Ocean approximately five km [three mi] away.

Beneficial Uses

The San Diego RWQCB Basin Plan (1994) establishes beneficial uses and water quality objectives for surface and groundwater resources. Beneficial uses are defined in the Basin Plan as "the uses of water necessary for the survival or well being of man, plus plants and wildlife." Identified existing and potential beneficial uses for inland and coastal receiving waters located within and downstream of the Project site are listed below for the Miramar (southern watershed, 906.40) and Miramar Reservoir (northern watershed, 906.10) HAs (refer to Subchapter 2.8, Hydrology and Floodplain, for additional discussion of Project site watersheds).

Miramar HA (906.40)

Receiving waters within the Miramar HA include Rose Canyon Creek and Mission Bay. Beneficial uses identified for Rose Canyon include:

- Municipal and Domestic Supply (Exempted)
- Industrial Service Supply (Potential)
- Contact Water Recreation (Existing)
- Non-Contact Water Recreation (Existing)
- Warm Freshwater Habitat (Existing)
- Wildlife Habitat (Existing)

Beneficial uses identified for Mission Bay include:

- Industrial Service Supply (Existing)
- Contact Water Recreation (Existing)
- Non-Contact Water Recreation (Existing)
- Commercial and Sport Fishing (Existing)
- Estuarine Habitat (Existing)
- Wildlife Habitat (Existing)
- Rare, Threatened, or Endangered Species (Existing)
- Marine Habitat (Existing)
- Migration of Aquatic Organisms (Existing)
- Spawning, Reproduction, and/or Early Development (Existing)
- Shell Fish Harvesting (Existing)

Miramar Reservoir HA (906.10)

Receiving waters within the Miramar Reservoir HA include Soledad Canyon, Los Peñasquitos Creek, Los Peñasquitos Lagoon, and the Pacific Ocean. Beneficial uses identified for Soledad Canyon include:

- Municipal and Domestic Supply (Exempted)
- Agricultural Supply (Existing)
- Industrial Service Supply (Existing)
- Contact Water Recreation (Potential)
- Non-Contact Water Recreation (Existing)
- Warm Freshwater Habitat (Existing)
- Cold Freshwater Habitat (Existing)
- Wildlife Habitat (Existing)

Beneficial uses identified for Los Peñasquitos Creek include:

- Municipal and Domestic Supply (Exempted)
- Agricultural Supply (Existing)
- Industrial Service Supply (Existing)

- Contact Water Recreation (Potential)
- Non-Contact Water Recreation (Existing)
- Warm Freshwater Habitat (Existing)
- Cold Freshwater Habitat (Existing)
- Wildlife Habitat (Existing)
- Preservation of Biological Habitats of Special Significance (Existing)

Beneficial uses identified for Los Peñasquitos Lagoon include:

- Contact Water Recreation (Existing)
- Non-Contact Water Recreation (Existing)
- Preservation of Biological Habitats of Special Significance (Existing)
- Estuarine Habitat (Existing)
- Wildlife Habitat (Existing)
- Rare, Threatened, or Endangered Species (Existing)
- Marine Habitat (Existing)
- Migration of Aquatic Organisms (Existing)
- Spawning, Reproduction, and/or Early Development (Existing)
- Shell Fish Harvesting (Existing)

Beneficial uses identified for the Pacific Ocean include:

- Industrial Service Supply (Existing)
- Navigation (Existing)
- Contact Water Recreation (Existing)
- Non-Contact Water Recreation (Existing)
- Commercial and Sport Fishing (Existing)
- Preservation of Biological Habitats of Special Significance (Existing)
- Wildlife Habitat (Existing)
- Rare, Threatened, or Endangered Species (Existing)
- Marine Habitat (Existing)
- Aquaculture (Existing)
- Migration of Aquatic Organisms (Existing)
- Spawning, Reproduction, and/or Early Development (Existing)
- Shell Fish Harvesting (Existing)

303(d) Impaired Water Bodies and Total Maximum Daily Loads

Under the CWA, states are required to identify and document any and all polluted surface water bodies. This documentation is referred to as “Clean Water Act Section 303(d) List of Water Quality Limited Segments.” This list of water bodies provides the pollutant that affects the water quality along with any total maximum daily loads (TMDLs) for those water bodies (and all pollutants or stressors). A TMDL establishes the maximum amount of an impairing substance or stressor that a water body can assimilate and still meet water quality standards, and allocates that load among pollution contributors. These TMDLs are quantitative tools for implementing the state water quality standards, based on the relationship between pollution sources and in-stream water quality conditions.

The “Clean Water Act Section 303(d) List of Water Quality Limited Segments,” more commonly referred to as the 303(d) list, is the primary source for protecting the water quality for any body of water that may be impaired and serves as a protection for beneficial uses. TMDLs have recently been studied for Los Peñasquitos Lagoon under Investigation Order R9-2006-0076 (TMDLs for Impaired Lagoons, Adjacent Beaches, and Agua Hedionda Creek) issued by the San Diego RWQCB. The dischargers to the lagoon (Caltrans, City of Poway, City of San Diego, City of Del Mar, and the County of San Diego) prepared the final report “TMDL Monitoring for Sedimentation/Siltation in Los Peñasquitos Lagoon, In Response to Investigation Order R9-2006-076,” dated January 21, 2009, for the purpose of describing the models to be used for estimating existing loading, developing TMDLs, and identifying sources of pollutants (Weston Solutions 2009a).

Los Peñasquitos Lagoon was placed on the 303(d) list of impaired water bodies in 1996 for sedimentation and siltation. A TMDL for sedimentation and siltation was not developed in 1996, but the lagoon was primarily placed on the list due to increased frequencies of lagoon mouth closures at the ocean inlet, fragmented tidal channels, and increased sedimentation associated with urban development.

The SWRCB and RWQCB produce bi-annual qualitative assessments of statewide and regional water quality conditions. These assessments are focused on CWA Section 303(d) impaired water listings and scheduling for assignment of TMDL requirements. The most current (2006) approved assessment identifies impaired waters located downstream of the Project site, as shown in Table 2.9-1. All of these water bodies currently do not have TMDLs, but are scheduled to be completed by 2019. Although the proposed year of completion for Los Peñasquitos Lagoon TMDLs is 2019, the dischargers currently are working with the RWQCB to complete TMDLs for the water body.

**Table 2.9-1
RECEIVING WATER BODIES 303(d) LIST SUMMARY**

| Water Body Name | Pollutant/Stressor | Potential Source | Estimated Size Affected | Proposed TMDL Completion |
|--|---------------------------|-------------------------|--------------------------------|---------------------------------|
| Los Peñasquitos Creek | Phosphate | Source Unknown | 19 km | 2019 |
| | Total Dissolved Solids | Source Unknown | 19 km | 2019 |
| Los Peñasquitos Lagoon | Sedimentation/Siltation | Nonpoint/Point Source | 190 ha | 2019 |
| Mission Bay (area at mouth of Rose Canyon Creek) | Eutrophic | Nonpoint/Point Source | 3.7 ha | 2019 |
| | Lead | Nonpoint/Point Source | 3.7 ha | 2019 |
| Soledad Canyon | Sediment Toxicity | Source Unknown | 2.7 km | 2019 |

Source: http://www.waterboards.ca.gov/water_issues/programs/tmdl/docs/303dlists2006/epa/r9_06_303d_reqtmdls.pdf

Existing Surface Water Quality

Surface water within the Project site and associated off-site watershed areas consist predominantly of intermittent flows from storm events and landscape irrigation, with no known local water quality data available. Storm flows are subject to variations in water quality due to local conditions such as runoff volume/velocity and land use. Current water quality information for downstream waters includes quantitative data from: (1) Mission Bay Watershed Management Area (WMA) studies; (2) state Surface Water Ambient Monitoring Program (SWAMP) monitoring along Rose Canyon Creek; and (3) bioassessment studies along Rose Canyon Creek. In addition, statewide qualitative analyses to identify Section 303(d) impaired waters and TMDL requirements are conducted bi-annually by the SWRCB and RWQCB. Upstream water quality data for nearby portions of Soledad Canyon and Los Peñasquitos Creek also are available in the form of quantitative monitoring/testing and/or bioassessment studies. All of the noted efforts are associated with requirements under regulatory standards including the CWA, NPDES, and/or RWQCB Basin Plan, with summary descriptions provided below.

Mission Bay Watershed Management Area

The San Diego County Municipal Copermittees 2007-2008 Urban Runoff Monitoring Final Report (Weston Solutions 2009a) provides historical and current water quality conclusions for Mission Bay. Impacts to the Mission Bay WMA include surface water quality degradation, beach closures, sedimentation, habitat degradation and loss, invasive species, natural sources, and eutrophication. A summary of constituents whose mean ratio was above their respective benchmark based on historical monitoring results from 2001 through 2007 are presented below:

- Total suspended solids (TSS)
- Turbidity
- Fecal coliform
- Chlorpyrifos (has not exceeded the benchmark since 2002-2003)
- Diazinon (has not exceeded the benchmark since 2002-2003)

In the Mission Bay Watershed, seven constituents were classified as wet weather constituents of concern (COCs) with a low, medium, or high frequency of occurrence. These constituents include chemical oxygen demand (COD), TSS, turbidity, orthophosphate, total coliform, fecal coliform, and enterococci.

Based on the monitoring and data analyses conducted during the 2006-2007 Monitoring Season and the 2007-2008 Monitoring Season, the conditions in the Mission Bay WMA indicate that only bacteria and turbidity were detected at levels that could potentially cause beneficial use impairments. Indicator bacteria were persistently above their respective benchmarks during both dry weather and wet weather conditions within the Mission Bay WMA. Coastal storm drain monitoring data do not indicate that coastal storm drains are impacting coastal receiving waters with any regularity.

SWAMP Monitoring in Rose Canyon Creek

A water quality monitoring report was prepared in 2007 for the Peñasquitos HA as part of the state SWAMP efforts, which included the area of Rose Canyon Creek 7.2 km (4.5 mi) downstream of the Project limits (RWQCB 2007). Sampling and data collection performed by the San Diego County NPDES permittees were used to assess the health of this area. The

described analysis included tissue (crayfish) testing, bioassessment monitoring, and conventional water chemistry testing (e.g., temperature, conductivity, dissolved oxygen). Rose Canyon Creek had severe impacts related to water chemistry, toxicity, and benthic macroinvertebrate (BMI) communities. Physical habitat was assessed as poor, based on criteria including habitat quality, pollution, and physical habitat deterioration (e.g., channel alteration).

Bioassessment Monitoring

Bioassessment monitoring has been conducted at one downstream site along Rose Canyon Creek (just downstream of SR-52) in October 2002, May and October of 2003 through 2005, and May 2006. Bioassessment testing involves evaluation of (among other criteria) the taxonomic richness (i.e., number of taxonomic groups) and diversity (i.e., species diversity within taxonomic groups) of BMI communities, with all tested sites numerically ranked for the condition of BMI communities. Test results for the Rose Canyon Creek site indicate generally poor or very poor rankings relative to other test sites, with these results attributable (at least in part) to poor water quality in surrounding urban areas.

Groundwater

No known groundwater quality data are available for the Project site or vicinity, with local groundwater quality expected to be generally moderate to poor for reasons similar to those described for surface water (refer to Subchapter 2.8, Hydrology and Floodplain, for additional discussion of local groundwater resources). Regional data indicate generally poor water quality in the San Dieguito Creek Basin located approximately 8 km (5 mi) north of the Project site, based on total dissolved solids (TDS) levels in the range of 2,000 mg/l.

2.9.3 Environmental Consequences

Project

Potential Project-related water quality impacts are associated with both short-term construction activities and long-term operation and maintenance of the proposed facilities. Both short and long term water quality impacts could potentially occur in downstream 303(d) listed receiving waters, including Los Peñasquitos Creek, Los Peñasquitos Lagoon, Mission Bay (area at mouth of Rose Canyon), and Soledad Canyon. Accordingly, potential impacts to groundwater quality would be limited to the percolation of surface runoff and associated contaminants generated within the Project site. The following assessment of potential water quality impacts is therefore applicable to both surface and groundwater resources.

Potential Short-term Construction Impacts

Potential water quality impacts related to Project construction include erosion/sedimentation, on-site use and storage of construction-related hazardous materials (e.g., fuels, etc.), proposed reuse of soil containing aerially deposited lead (ADL), potential presence and removal/disposal of materials containing asbestos and creosote, and disposal of extracted groundwater (if required), as described below.

Erosion and Sedimentation

Construction of the Project would entail disturbance of approximately 30.0 ha (74.1 ac) of disturbed soil area (DSA) from grading and construction. If the appropriate best management practices (BMPs) are not incorporated effectively, this activity could potentially result in related erosion and off-site sediment transport (sedimentation) from efforts such as removal of surface stabilizing features (e.g., vegetation), excavation of existing compacted materials from cut areas, redeposition of excavated (and/or imported) material as fill in proposed development sites, potential sediment generation from paving activities, and potential erosion from disposal of extracted groundwater (if required). Project-related erosion could result in the influx of sediment into downstream receiving waters (including 303(d) listed waters as described in Section 2.9.2, Affected Environment) with associated water quality effects such as turbidity and the transport of other contaminants that tend to adhere to sediment particles.

The Project DSAs would be subject to potential short-term erosion and sedimentation impacts, with these areas especially susceptible between the beginning of grading/construction and the installation of pavement or establishment of permanent cover in landscaped areas. Construction-related erosion and sedimentation impacts would be addressed through conformance with the Caltrans Statewide NPDES Permit and the NPDES Construction General Permit. This would include implementing a SWPPP to address (among other issues) erosion and sedimentation concerns. A number of proposed short-term erosion and sediment control measures have been identified in the Project Approval/Environmental Document (PA/ED) phase SWDR and a Conceptual Erosion Control Plan prepared for the Project (2008). These measures are summarized in Table 2.9-2 under Section 2.9.4 along with other applicable measures from Caltrans guidelines, with erosion and sediment control BMPs to be further refined during the design phase and when the contractor prepares a SWPPP for the Project based on proposed construction specifications and site-specific characteristics such as soils and slopes.

All measures targeting potential erosion and sedimentation impacts would be subject to applicable scheduling and monitoring/maintenance requirements pursuant to the Caltrans Statewide NPDES Permit and the NPDES Construction General Permit/SWPPP (for pertinent locations). Specifically, this would include efforts such as: (1) scheduling BMP installation to maximize effectiveness during construction (i.e., prior to principal grading/excavation); (2) regular inspection and documentation of BMPs to ensure proper performance; and (3) implementing regular management and maintenance efforts to maximize BMP efficiency, such as replacing dead/damaged vegetation in hydroseeded areas, and as-needed repairs/replacement of facilities including silt fence, fiber rolls, and inlet protection devices.

Construction-related Hazardous Materials

Project construction would involve the on-site use and/or storage of hazardous materials such as fuels, lubricants, solvents, concrete, paint, and portable septic system wastes. If such materials are not contained properly, the accidental discharge of such materials during Project construction could potentially result in significant impacts, if they reach downstream receiving waters (including Los Peñasquitos Creek, Los Peñasquitos Lagoon, Mission Bay [area at mouth of Rose Canyon], and Soledad Canyon, as previously described), particularly materials such as petroleum compounds that can be toxic to aquatic species in low concentrations. Implementation of a SWPPP would be required under Caltrans and NPDES guidelines as previously described, and would include detailed measures to avoid or mitigate potential impacts related to the use and potential discharge of construction-related hazardous materials.

A number of proposed hazardous material control BMPs have been identified in the PA/ED phase SWDR, with these measures summarized in Table 2.9-3 under Section 2.9.4 along with other applicable items from Caltrans guidelines. Hazardous material BMPs would be further refined during preparation of the Project SWPPP based on site-specific conditions.

Reuse/Disposal of Aerially Deposited Lead and Asbestos

Based on the dates of construction of improvements within the Project area (1950s/1960s), lead may be present in exposed soil along the medians and shoulders as a result of emissions from vehicular exhaust prior to the elimination of lead from fuels in the mid-1980s. Sampling for ADL within the Project area was conducted in December 2007 (refer to the Aerially-Deposited Lead Assessment, Interstate 5 and Genesee Avenue [2008]). Overall, the concentration of lead in exposed soil along the shoulders is non-hazardous. A Site Health and Safety Plan (Appendix A of the Aerially-Deposited Lead Assessment report) has been prepared for the Project to address site control and operations, decontamination, and emergency response with regard to ADL.

Sampling for asbestos and lead-based paint within the Project area was conducted. Results of the sampling concluded that the railing gaskets on both the Genesee Avenue and Voigt Drive overcrossings contained asbestos and that paint on the Genesee Avenue overcrossing contained lead above regulatory standards for asbestos and lead-based paint. Discharge of these contaminants could potentially affect downstream receiving waters, including Los Peñasquitos Creek, Los Peñasquitos Lagoon, Mission Bay (area at mouth of Rose Canyon), and Soledad Canyon.

Disposal of Extracted Groundwater

While shallow groundwater is not expected to be encountered during Project-related excavation and construction, unanticipated conditions (e.g., perched aquifers) could potentially result in requirements for the extraction and disposal of groundwater. Disposal of groundwater extracted during construction activities into local drainages and/or storm drain facilities could potentially result in water quality impacts through erosion/sedimentation (e.g., if discharged onto graded areas or slopes), or the possible occurrence of contaminants in local groundwater aquifers. The potential discharge of contaminants related to groundwater disposal could affect downstream receiving waters, including Los Peñasquitos Creek, Los Peñasquitos Lagoon, Mission Bay (area at mouth of Rose Canyon), and Soledad Canyon. Project construction would require conformance with Order R9-2008-0002 (General Waste Discharge Requirements for Discharges of Groundwater Extraction and Similar Discharges to Surface Waters within the San Diego Region Except for San Diego Bay) for disposal of extracted groundwater. Guidelines for managing dewatering operations on construction sites can be found in Caltrans' Field Guide to Construction Site Dewatering.

Potential Long-term Impacts

After the completion for construction, erosion and sedimentation effects would be minimal, based on the fact that disturbed soil areas would be stabilized through installation of pavement and landscaping. The Project also would incorporate long-term water quality controls pursuant to Caltrans and NPDES guidelines, including (among other efforts) measures that would avoid or reduce off-site sediment transport. Specifically, this would include the use of: (1) vegetated drainage swales; (2) hardened surfaces (e.g., concrete) or armoring in drainage channels; (3) energy dissipators; (4) irrigation controls; and (5) drainage facility maintenance (i.e., to remove accumulated sediment).

Long-term water quality impacts involve the generation of constituents related to proposed facility operation and maintenance. Specifically, this would include TSS and TDS (from natural erosion and increased runoff from the new impervious surface), nutrients (nitrogen/phosphorous from landscaping, fertilization, atmospheric deposition, and automobile exhaust), metals (combustion products of fossil fuels, wear of brake pads, corrosion of metals and paint), and trash. The potential discharge of these contaminants could affect downstream receiving waters, including Los Peñasquitos Creek, Los Peñasquitos Lagoon, Mission Bay (area at mouth of Rose Canyon), and Soledad Canyon. Project operation and maintenance would require conformance with applicable Caltrans and NPDES standards related to long-term water quality effects, as described in Section 2.9.1, Regulatory Setting.

No Build Alternative

Under this alternative, no improvements or modifications would be implemented in the study area. No short- or long-term impacts would occur to downstream 303(d) listed receiving waters or groundwater quality. Accordingly, no associated impacts related to water quality or storm water runoff would occur.

2.9.4 Avoidance, Minimization, and/or Mitigation Measures

Avoidance and minimization measures are proposed with regard to water quality and storm water runoff to prevent or minimize the potential short- and long-term impacts of the Project. Avoidance and minimization measures related to water quality concerns include the use of construction site BMPs to prevent or minimize the potential short-term impacts of construction operations, as well as design pollution prevention BMPs and treatment and maintenance BMPs for the long-term potential impacts. The use of such measures would avoid or minimize all potential impacts related to water quality to the maximum extent practicable (MEP). Asbestos-containing material and lead-based paint are present on site, and may affect water quality if not properly handled. Avoidance and minimization measures are listed in Subchapter 2.12, Hazardous Waste/Materials that would reduce potential effects. These measures include abatement of these materials.

All applicable long-term BMPs identified below for the proposed Project would be subject to related monitoring and maintenance requirements, pursuant to the Caltrans Storm Water Quality Handbook Maintenance Staff Guide (2003d). Such monitoring/maintenance would typically include efforts such as: (1) regular inspection, documentation and as-needed repairs; (2) biannual vegetation management (e.g., removal of woody or excess vegetation); (3) trash and debris removal; (4) erosion/sedimentation remediation; (5) removal of excess sediment; and (6) removal of ponded water or other vector-related problems.

Design Pollution Prevention BMPs

Design pollution prevention BMPs consist of permanent measures intended to reduce post-construction pollutant generation and discharge to the MEP. Specifically, this involves measures to mimic the natural hydrologic regime, as well as efforts to avoid or minimize the introduction of contaminants into storm drains and natural drainages. The ultimate goal of pollution prevention BMPs is to minimize runoff/contaminant discharge and reduce associated treatment requirements with the following measures identified in the PA/ED phase SWDR:

- Existing vegetation would be preserved wherever feasible and the installation of new impervious surfaces would be limited to the minimum amount necessary to achieve the Project objectives and conform to applicable design standards.
- The majority of the off-site flows from the tributary watersheds would be maintained at pre-construction levels. A proposed minor diversion of flow (0.16 ha [0.39 ac]) from the southern watershed to the northern watershed is due to the proposed retaining walls and bridge abutments.
- On-site flows from the northern watershed would increase by approximately six percent as a result of the Project. This increase is minimized to the MEP through the proposed use of unlined drainage channels and vegetated swales (which provide infiltration capacity and reduction of velocity). The southern watershed has slightly smaller flows from existing conditions due to the minor diversion of flow. Detention facilities are not proposed as part of the Project design due to space limitation and feasibility considerations. This increase in on-site flows would not have an incremental effect on the largest downstream discharged flow (off site) because the on-site flows are discharged to the downstream conveyance channels significantly quicker than the larger off-site flows.
- The erosive velocities of post-development runoff in all unlined channels would be evaluated during the Plans, Specifications, and Estimate (PS&E) phase of the Project to ensure that long-term erosion/sedimentation effects are minimized to the MEP. Specific measures that may be used to address this potential concern include relocation/resizing of drainage facilities, and replacing/upgrading riprap armoring and splash pads in applicable locations.
- All transitions from channels to culverts would be designed to encompass smooth surfaces to reduce turbulence and scour.
- All drainage outlets would include energy dissipation structures, such as riprap aprons or concrete pads, to reduce flow velocities and associated erosion potential.
- Applicable slopes would include flow and erosion control measures, such as brow ditches, slope drains and appropriate landscaping (e.g., native and/or drought-tolerant varieties).

Construction BMPs

During the construction of this project, the Contractor will be required to implement all requirements imposed under the Construction General Permit (Order No. 2009-009-DWQ) for the Project's specific risk level based on sediment risk and receiving water. At a minimum, the contractor will be required to comply with the following:

- Effluent Standards
- Good Site Management "Housekeeping" BMPs.
- Non-Storm Water Management
- Erosion Control
- Sediment Controls
- Run-on and Runoff Controls
- Inspection, Maintenance, and Repair

The Contractor will be required to conduct quarterly non-storm water inspections, pre-storm event visual inspections, during storms the frequency will be daily during storm and also post-storm. The contractor must prepare a site-specific Construction Site Monitoring program to address whether the non-visible pollutants are present at the construction site and are causing or contributing to exceedances of water quality objectives; to determine whether immediate corrective actions, additional BMP implementation, or SWPPP revisions are necessary to reduce pollutants in storm water discharges and authorized non-storm water discharges; and to determine whether BMPs included in the SWPPP are effective in preventing or reducing pollutants in storm water discharges and authorized non-storm water discharges.

Treatment BMPs

Treatment BMPs involve volume- or flow-based devices used to remove pollutants from post-construction runoff prior to discharge to surface waters. Preliminary review of the Project area has been completed and potential locations and types of treatment BMPs have been assessed for feasibility (based on such factors as climate, water volume, soil conditions, physical limitations, other environmental considerations, etc.). The preliminary review determined that the characteristics of the Project site make bioswales the feasible treatment BMP. Two existing bioswales are present within the Project site, one on the East side of the Sorrento Valley Road southbound on-ramp at the northern end of the ramp (to be replaced by proposed facilities) and the other on the west side of the Sorrento Valley Road northbound off-ramp (to remain in place).

Bioswales are flow-based facilities that provide filtration and infiltration as flows pass through and (to a lesser extent) percolate into the vegetated channel. They typically include design criteria such as shallow depths and grades to avoid erosion/scour, a high length-to-width ratio to increase treatment time and efficiency, and use of appropriate plant species such as non-invasive grasses that are tolerant of local climate/hydrologic conditions. Bioswales are effective at removing TSS, particulate metals, dissolved metals, and litter. The proposed bioswales would be designed to treat the "first flush" (i.e., initial) discharge from design storm events (i.e., the water quality flow), with this runoff typically containing the majority of the associated urban contaminants (which tend to accumulate in areas such as roadways and storm drains in between storm events).

Based on a preliminary analysis of the site, 15 vegetated swales (bioswales) encompassing approximately 0.73 ha (1.80 ac) have been identified. These bioswales would treat approximately 4.75 ha (11.74 ac) of impervious area. This is equivalent to the new impervious area of 4.76 ha (11.76 ha) that would be added by the Proposed Project. Hence, these bioswales provide a total net treatment equivalent to 99.70 percent of the proposed new impervious area. Functionally, the proposed bioswales would treat a portion of the actual new impervious surfaces with the remainder being treatment of existing impervious surfaces that are not currently being treated. The proposed bioswales would provide treatment to the MEP pursuant to the previously described regulatory standards.

When the Project proceeds to the design phase, the locations of these treatment BMPs would be further evaluated to determine feasibility in relation to R/W limitations, environmental constraints, and/or hydraulic capacity. In addition, in areas where treatment BMPs cannot be incorporated due to above mentioned reasons, vegetation would be maximized and every effort would be made to ensure the successful establishment of landscaping and erosion control throughout the Project limits. The Project also would consider any future treatment BMPs that might be approved by Caltrans from the ongoing research and monitoring program.

The proposed swales would be subject to applicable maintenance requirements, pursuant to Section C.23 of the Caltrans Storm Water Quality Handbook Maintenance Staff Guide (Caltrans 2003c). Specifically, maintenance activities for vegetated swales typically involve biannual inspections for vegetation management (e.g., removal of woody or excess vegetation), trash and debris removal, erosion/sedimentation remediation, and removal of ponded water or other vectors problems.

Maintenance BMPs

Maintenance BMPs are water quality controls used to reduce pollutant discharges during highway maintenance and activities conducted at maintenance facilities. Specific maintenance BMPs proposed in the PA/ED phase SWDR include the use of storm drain inlet stenciling along local surface streets to assist in educating the public about storm water runoff pollution. Such stencils typically include “no dumping” text and/or icons to discourage the illegal discharge of contaminants into the storm drain system. Additional maintenance BMPs that may be applicable to the Project include vegetation/irrigation management (e.g., weed control, plant replacement, runoff prevention, and inspection/maintenance), slope stabilization inspection and repair (e.g., drainage facility repair), regular inspection/maintenance of drainage facilities (e.g., sediment removal), and street sweeping.

**Table 2.9-2
PROPOSED MEASURES TO AVOID OR MINIMIZE SHORT-TERM IMPACTS
RELATED TO EROSION AND SEDIMENTATION**

- Comply with seasonal grading restrictions during the rainy season (October 1 to April 30) for applicable locations/conditions. Disturbed soil areas would be limited during the rainy season to ensure BMP implementation and limit potential for discharges.
- Use phased grading schedules to limit the area subject to erosion at any given time.
- Preserve existing vegetation and slopes wherever feasible.
- Minimize work and associated construction-related impacts in live streams and environmentally sensitive areas.
- Minimize impacts and erosion potential on slopes through measures such as using retaining walls; rounding and shaping slopes to reduce concentrated flows; reusing native soils and/or soil amendments to enhance revegetation success and slope stability; minimizing slope grades to foster revegetation; and using benches, terraces, and/or slope drains to control runoff.
- Install permanent BMPs as early as feasible to provide additional protection during construction.
- Use erosion control/stabilizing measures, such as temporary fiber rolls and temporary hydroseeding (or other plantings), in appropriate areas (e.g., along slope faces/bottoms).
- Use sediment controls to protect the construction site perimeter and prevent off-site sediment transport. Implement other BMPs, such as temporary drainage inlet protection, silt fences, temporary fiber rolls, temporary gravel bag berms, street sweeping/vacuuming, energy dissipators, temporary construction entrance, protect sediment stockpiles, and temporary concrete washouts.

Table 2.9-2 (cont.)
**PROPOSED MEASURES TO AVOID OR MINIMIZE SHORT-TERM IMPACTS
RELATED TO EROSION AND SEDIMENTATION**

- Implement sampling/analysis and monitoring/reporting programs per applicable requirements in the NPDES General Construction Permit, Caltrans Statewide NPDES Permit, and Section 8.4.1 of the Caltrans Statewide Stormwater Management Plan (SWMP; Caltrans 2003a). Specifically, the SWMP includes protocols for inspection, reporting, and remediation of potential construction-related water quality concerns, including erosion and sedimentation.
- Provide appropriate training for personnel responsible for BMP installation and maintenance.
- Comply with local dust control requirements.
- Install permanent landscaping as soon as feasible during or after construction.
- Implement additional BMPs as necessary to ensure adequate erosion and sediment control. Restrict grading operations during wet weather and use sediment control devices downstream of grading activities.

Table 2.9-3
**PROPOSED MEASURES TO AVOID OR MINIMIZE IMPACTS RELATED TO THE
USE AND DISCHARGE OF CONSTRUCTION-RELATED HAZARDOUS MATERIALS**

- Use properly spaced, labeled, and sealed containers; raised (e.g., on pallets), covered, and/or enclosed facilities; and appropriate containment structures for all hazardous materials storage (including temporary storage).
- Provide adequate separation for storage of incompatible materials (e.g., chlorine and ammonia). Maintain accurate and up-to-date written inventories and labels for all stored hazardous materials.
- Designate specific hazardous material storage, vehicle/equipment maintenance, and vehicle/equipment fueling areas, and use berms, ditches, and/or impervious liners (or other applicable methods) to provide a containment volume of 1.5 times the volume of stored/used materials and prevent discharge in the event of a spill in such areas.
- Avoid storage of hazardous materials near drains, and place warning signs in areas of hazardous material use or storage and along drainages and storm drains (or other appropriate locations) to avoid inadvertent hazardous material disposal.
- Properly maintain all construction equipment and vehicles.
- Implement solid waste management efforts, such as proper containment and disposal of construction debris (e.g., use of watertight dumpsters and daily trash collection/removal) and street sweeping.
- Provide training for applicable employees in the proper use, handling, and disposal of hazardous materials, as well as appropriate action to take in the event of a spill.
- Store absorbent and clean-up materials in appropriate on-site locations where they are readily accessible.
- Properly locate and maintain portable wastewater facilities.
- Use recycled or less hazardous materials wherever feasible.
- Post regulatory agency telephone numbers and a summary guide of clean-up procedures in a conspicuous location at or near the job site trailer.

Table 2.9-3 (cont.)
**PROPOSED MEASURES TO AVOID OR MINIMIZE IMPACTS RELATED TO THE
USE AND DISCHARGE OF CONSTRUCTION-RELATED HAZARDOUS MATERIALS**

- Regularly (at least weekly) monitor and maintain hazardous material use/storage facilities and operations to ensure proper working order.
- Implement a Storm Water Sampling and Analysis Strategy program pursuant to Caltrans and NPDES requirements. Specifically, this would include applicable requirements in the NPDES General Construction Permit and Caltrans Statewide NPDES Permit.

2.10 GEOLOGY/SOILS/SEISMIC/TOPOGRAPHY

This subchapter discusses geology, soils, and seismic concerns as they relate to public safety and Project design. Earthquakes are prime considerations in the design and retrofit of structures. Caltrans' Office of Earthquake Engineering is responsible for assessing the seismic hazard for Caltrans projects. The current policy is to use the anticipated Maximum Credible Earthquake (MCE) from young faults in and near California. The MCE is defined as the largest earthquake that can be expected to occur on a fault over a particular period of time. The Project geology, soils, and seismic concerns are analyzed below along with other applicable data.

2.10.1 Regulatory Setting

The Project is subject to a number of federal and state regulatory requirements and industry standards related to potential geologic hazards. These guidelines typically involve measures to evaluate risk and mitigate potential hazards through design and construction techniques. These regulatory requirements and standards are summarized below. It is noted that since Caltrans is a state agency, this Project is not subject to the City's thresholds.

Federal Historic Sites Act

For geologic and topographic features, the key federal law is the Historic Sites Act of 1935, which establishes a national registry of natural landmarks and protects "outstanding examples of major geological features." Topographic and geologic features also are protected under the California Environmental Quality Act (CEQA).

Caltrans Standards

Caltrans standards related to geologic issues include the Department of Transportation Standard Specifications (2003), Standard Test Methods (1991), Highway Design Manual (2007a), Caltrans Guidelines for Foundation Investigations and Reports (2002), Storm Water Management Plan (SWMP; 2003), and Storm Water Quality Handbooks (2007b). The Standard Specifications, Test Methods, Highway Design Manual, and Foundation Investigation/Report Guidelines identify geologic requirements, including issues such as proper site preparation (e.g., clearing, grubbing, and grading); use of engineered and approved fill; use of appropriate concrete materials and reinforcing; seismicity parameters; and appropriate design of structures such as utilities, retaining walls, noise barriers, footings, foundations, piles, and backfill. Geologic issues addressed in the SWMP and Storm Water Quality Handbooks include measures to prevent and/or control erosion and sedimentation both during and after construction pursuant to applicable National Pollutant Discharge Elimination System (NPDES) requirements (as outlined below). Additional discussion of the SWMP and Storm Water Quality Handbooks is provided in Subchapters 2.8, Hydrology and Floodplain, and 2.9, Water Quality and Storm Water Runoff.

NPDES Standards

NPDES requirements related to geologic issues (e.g., erosion and sedimentation) include applicable elements of the Caltrans Statewide Storm Water Permit, General Construction Activity Permit, and General Groundwater Extraction Permit, with associated legal and regulatory parameters described in Subchapters 2.8, Hydrology and Floodplain, and 2.9, Water Quality and Storm Water Runoff. Specific conformance requirements for the Caltrans Statewide Storm Water Permit and the General Construction Permit related to erosion and sedimentation

include implementing appropriate BMPs as part of a project SWPPP. Conformance requirements for the Groundwater Permit related to erosion and sedimentation include implementing appropriate BMPs during discharge of groundwater extracted during construction dewatering activities.

International Building Code and Greenbook Committee Standard Specifications for Public Works Projects

The International Code Council produces the International Building Code (IBC), and the American Public Works Association produces the Greenbook Committee of Standard Specifications for Public Works Projects (Greenbook). These standards encompass a variety of engineering and construction specifications, including measures to address geologic issues such as seismic loading parameters (e.g., classifying seismic zones and faults), engineered fill specifications (e.g., compaction and moisture content), expansive soil characteristics, and pavement design. The referenced standards, while not comprising formal regulatory requirements per se, are widely accepted by regulatory authorities and are routinely included in associated requirements such as municipal grading codes. The IBC and Greenbook standards are regularly updated to reflect current industry guidelines and practices, including criteria generated by ASTM International (ASTM; formerly the American Society for Testing and Materials).

2.10.2 Affected Environment

Geotechnical investigations have been conducted for the Project and are presented in the Updated Geotechnical Evaluation – Interstate 5/Genesee Avenue Interchange Reconstruction Project (2008).

Geologic Setting

The Project site is situated in the coastal subprovince of the Peninsular Ranges geomorphic province of southern California. Northwest-trending structural blocks and intervening, generally parallel, fault zones generally characterize the Peninsular Ranges province. The coastal subprovince in San Diego County encompasses a thick sequence of marine and non-marine sediments deposited during numerous sea level advances and retreats over approximately the last 65 million years. Relatively recent uplift and erosion in the San Diego region has resulted in the characteristic canyon and mesa topography present today. Geologic and surficial units present within the study area include Holocene-age (less than approximately 10,000 years old) fill, topsoil, alluvium and landslide deposits; Pleistocene-age (approximately 2 million to 10,000 years ago) Very Old Paralic Deposits (formerly known as the Lindavista Formation); and Eocene-age (approximately 55 to 38 million years ago) Scripps Formation and Ardath Shale. Additional description of study area geologic and surficial materials is provided below under Stratigraphy.

Potential geologic hazards identified for the Project study area in the City of San Diego Seismic Safety Study include Hazard Categories 21, 25, 26, 51, 52, and 53. Category 21 is assigned to areas with confirmed, known, or highly suspected landslides. Categories 25 and 26 relate to the presence of Ardath Shale, considered to be a slide-prone formation, with Category 25 representing neutral or favorable geologic structure and Category 26 representing unfavorable geologic structure. Category 51 represents level mesas underlain by terrace deposits and bedrock, therefore presenting a nominal risk. Category 52 is considered to have a low risk due to the presence of level areas or gently sloping to steep terrain with favorable geologic structure.

Category 53 includes areas with low to moderate geologic hazard risk based on the occurrence of level or sloping terrain with unfavorable geologic structure. While the City Seismic Safety Study provides information on the Project area geologic conditions, it should be noted that Caltrans is not subject to the City's thresholds.

Topographically, the study area includes moderate and steep grades along adjacent canyon/mesa landforms and manufactured slopes. Elevations within the vicinity range from a high of approximately 116 m (380 ft) above mean sea level (AMSL) on the west side of the Voigt Drive overcrossing to a low of approximately 46 m (150 ft) AMSL near the beginning of the off-ramp from I-5 to Sorrento Valley Road. Existing slopes include cut slopes up to roughly 27 m (90 ft) in height that descend to the east and west sides of the I-5 roadway at the Voigt Drive overcrossing and along the eastern side of I-5 north of Genesee Avenue. Fill slopes up to approximately 25 m (82 ft) in height descend from I-5 to the east and west, north of the interchange.

Stratigraphy

Four surficial deposits and three formational geologic units are present within the study area. Surficial deposits include artificial fill, native topsoils, alluvium, and Holocene-age to recent landslides. Formational geologic units include the Pleistocene-age Very Old Paralic Deposits and the Eocene-age Scripps Formation and Ardath Shale. A brief description of these units is presented below.

Fill

Fill deposits are present within the Project study area in association with previous development such as roadways. Fill soils were generally observed to underlie the embankment of Genesee Avenue west of I-5, portions of Genesee Avenue adjacent to and east of I-5, and I-5 north of Genesee Avenue. The fill soils may locally range in thickness up to roughly 25 m (82 ft). Lesser thicknesses of fill soils are also locally present along bridge abutments, beneath roadways, and within utility trenches. The fill soils are composed of reworked formational, topsoil, and alluvial materials and are expected to range in composition from stiff to hard sandy silt and clay to loose to medium dense silty sand.

Topsoil

The U.S. Natural Resources Conservation Service (NRCS, formerly the U.S. Soil Conservation Service [SCS] 1973) conducted topsoil mapping in the study area and vicinity. Five distinct soil series represented by eight individual soil types are mapped within the study area, with a summary description of soil characteristics provided in Table 2.10-1, Description of On-site Soil Characteristics. Much of the Project study area has been previously developed or disturbed through activities such as road construction. Native soils in these areas have largely been removed or altered (e.g., by mixing with fill). In undisturbed areas, there is a relatively thin mantle of topsoil of approximately 0.5 to 1.0 m (1.6 to 3.3 ft) in thickness. These soils generally consist of dark brown, soft to firm sandy clay and loose to medium dense silty and clayey sand.

| Soil Type | Physical Description/Mapped Location | Expansion Potential | Erosion Potential |
|--|--|---------------------|--|
| Altamont Clay, 30 to 50 percent slopes (AtF) | Well-drained clays derived from calcareous shale. Occur in the northern portion of the study area and west of I-5. Soils have been altered by development. | High | High |
| Chesterton Fine Sandy Loam, 2 to 5 percent slopes (CfB) | Moderately well-drained fine sandy loams with a sandy clay subsoil derived from sandstone. Occur in the south portion of the study area and west of I-5. Soils have been altered by development. | Moderate | Low |
| Chesterton Fine Sandy Loam, 5 to 9 percent slopes (CfC) | Moderately well-drained fine sandy loams with a sandy clay subsoil derived from sandstone. Occur east of I-5 and north of Genesee Avenue. Soils have been altered by development. | Moderate | Low to Moderate |
| Chesterton Urban Land Complex, 2 to 9 percent slopes (CgC) | Moderately well-drained fine sandy loams with a sandy clay subsoil derived from sandstone. Occur east of I-5 and south of Genesee Avenue. Soils have been altered by development. | Moderate | Moderate to high, depending on post-development slopes |
| Chino Silt Loam, 0 to 2 percent slopes (CkA) | Moderately well drained fine sandy loams derived from granitic alluvium. Occur at the northern tip of the study area. Soils have been altered by development. | Moderate | Moderate |
| Corralitos Loamy Sand, 0 to 5 percent slopes (CsB) | Excessively drained, very deep loamy sands that formed in alluvium derived from marine sandstone. Originally occurred in the northern portion of the study area, directly under I-5, but have been extensively altered by development. | Low | Low |
| Corralitos Loamy Sand, 5 to 9 percent slopes (CsC) | Excessively drained, very deep loamy sands that formed in alluvium derived from marine sandstone. Occur at the northern tip of the study area. Soils have been altered by development. | Low | Low to Moderate |
| Huerhuero Loam, 5 to 9 percent slopes (HrC2) | Moderately well drained loams with a clay subsoil derived from sandy marine sediments. Occur in the northern part of the study area, west of I-5. Soils have been altered by development. | High | Moderate |

Source: SCS (1973)

Alluvium

Alluvial soils are present along the drainages at the base of the embankments west of I-5, north and south of Genesee Avenue, and south of Sorrento Valley Road. As observed, the alluvial soils generally consist of damp to saturated, soft to very stiff, clayey silt, silty clay, and medium dense to dense, clayey sand.

Landslide Deposits

Numerous Holocene-age to recent landslides have been mapped in the steep canyon slopes north and south of Genesee Avenue, west of I-5. The landslides are derived from the underlying Scripps Formation and Ardath Shale. Geomorphic expression of the landslides typically consists of linear to arcuate back and side scarps with hummocky slide mass topography. Several landslides west of I-5 and north of Genesee Avenue were reportedly

removed or stabilized in 1991 during construction of the science park development located west of I-5.

Caltrans identified an additional ancient landslide underlying the fill embankment west of the southbound Genesee Avenue off-ramp from I-5. The approximate location of the landslide is shown in Figure 2.10-1. The landslide was partially covered by fill material during construction of the embankment for the freeway/interchange in 1964. The addition of freeway/interchange fill on top of the landslide led to downslope creep for several years and resultant damage to the embankment slope and the overlying pavement. A fill buttress was designed and constructed over the embankment on the west side of the southbound Genesee off-ramp circa 1986 to stabilize the slide material and to restrict any further movement of the embankment. Due to budget constraints at the time, however, it was not possible to construct the buttress to the full extent to which it was designed. The partial buttress that was constructed apparently slowed much of the landslide movement.

Additional cracking of the pavement at the top of the slope along the southbound off-ramp has been observed since 1986 and has been attributed to additional movement of the landslide and/or to fill settlement. Continual erosion of the embankment material since 1986 also may be contributing to a reduction in the effectiveness of the buttress. Additional evaluations of the landslide area were performed by Caltrans in 1997 and 2005 and recommendations were made to repair existing embankment erosion, reduce the potential for future erosion, and increase the size of the buttress to provide the required design factor of safety for stabilization of the landslide.

Very Old Paralic Deposits

The early Pleistocene-age Very Old Paralic Deposits (formerly designated as the Lindavista Formation) forms the relatively flat tops of the mesas east and west of I-5, south of Genesee Avenue above elevations of approximately 105 m (344 ft). This formation is predominantly composed of reddish-brown interbedded sandstone and conglomerate. It is relatively flat lying, very resistant to weathering, and exhibits massive to indistinct stratification.

Scripps Formation

The Eocene-age Scripps Formation has been mapped underlying the native slopes east and west of I-5 in the area of Genesee Avenue. It consists primarily of yellowish brown, silty fine- to medium- grained sandstone with interbeds of siltstone and claystone and occasional cobble-conglomerate. Strongly cemented sandstone concretions up to 3 m (10 ft) in diameter are common in this unit.

Ardath Shale

The Eocene-age Ardath Shale occurs underlying the Scripps Formation and is partially interbedded with the Scripps Formation. The Ardath Shale consists predominantly of weakly fissile, olive-gray to light brown shale. Concretionary beds containing molluscan fossils are common. In the study area, both the Scripps Formation and Ardath Shale contain clay beds and weak clay seams, and landslides occurring along these clay seams have been identified as originating within each unit.

Groundwater

Groundwater was not encountered in borings conducted for the Project. Two on-site borings were drilled approximately 267 and 668 m (875 and 2,190 ft, respectively) north of Genesee Avenue as part of the Project Geotechnical Investigation (2005). These borings extended to depths of 18.2 and 24 m (59.7 and 78.7 ft, respectively). Groundwater is expected to occur at relatively shallow depths along the bottoms of the canyons and drainages west of I-5 and north and south of Genesee Avenue. The closest major aquifer is the San Dieguito Creek Basin, located approximately 8 km (5 mi) to the north (California Department of Water Resources 2003). The geotechnical investigation concludes that "it is not likely that static groundwater [would] be encountered in the upper elevations of the Project area," but notes that "groundwater levels and perched seepage may be expected to fluctuate due to seasonal variations, irrigation, rainfall, and other factors." The Project Hazardous Waste Initial Site Assessment (2005) notes that groundwater is expected to be present at depths of approximately 2.1 to 3 meters (7 to 10 ft) below the surface at the northern end of the site (along Roselle Street) and at depths of more than 30 m (100 ft) in the central portion of the site. Based on these conditions and conclusions, shallow groundwater is generally not anticipated within the Project site, although perched groundwater could potentially be present. Perched groundwater is generally defined to include one or more shallow, unconfined aquifers supported by impermeable or semi-permeable strata, and is typically limited in volume and extent (but can vary with seasonal precipitation or other factors as noted). Therefore, groundwater levels and perched seepage may be expected to fluctuate due to seasonal variations, irrigation, rainfall and other factors.

Tectonic Setting

The study area is located in a broad, seismically active region of southern California and is subject to potentially significant hazards associated with moderate to large earthquake events. Much of southern California, including San Diego County, is characterized by a series of Quaternary-age fault zones that typically include several en echelon (offset and generally parallel) faults trending generally north to northwest (Figure 2.10-2).

Active faults are defined as those exhibiting historic seismicity or displacement of Holocene (less than approximately 11,000 years old) deposits, while potentially active faults have no historic seismicity and displace Pleistocene (between approximately 11,000 and 1.6 million years old) but not Holocene strata. The fault most likely to generate notable seismic effects within the study area is the active Rose Canyon fault zone, located approximately 4.7 km (3 mi) west of the site. This fault is capable of producing a 7.2 magnitude earthquake, with a corresponding peak ground acceleration value of approximately 0.60g (where g equals the acceleration due to gravity) in the study area. Portions of the Rose Canyon fault zone in the Mount Soledad, La Jolla, Rose Canyon, Mission Bay, and downtown areas of San Diego have been recognized by the state as Earthquake Fault Special Studies Zones (California Geological Survey [CGS] 2001). The Coronado Bank fault zone, located approximately 26 km (16 mi) southwest of the Project site, also is considered to be active.

Numerous, generally east-west trending, high angle faults have been mapped in the study area (Figure 2.10-3). The "Powers" fault (not formally named) trends in a southwesterly direction from the I-5/Genesee Avenue intersection. Two east-west trending, high angle normal faults cross the Project site: the Salk fault crosses I-5 approximately 450 m (1,467 ft) north of Genesee Avenue and the Torrey Pines fault has been mapped as roughly crossing beneath the intersection of I-5 and Genesee Avenue. An unnamed east-west trending fault also has been mapped approximately 1,100 m (3,609 ft) north of the current I-5/Genesee Avenue interchange.

Several other shorter unnamed fault strands also have been mapped as crossing the study area. In general, these faults are mapped as offsetting the Eocene-aged Scripps Formation and Ardath Shale, but not offsetting the Pleistocene-aged Very Old Paralic Deposits. Based on current understanding, the faults mapped as crossing the study area are considered inactive except for the Powers fault, which is considered potentially active. Based on available information, the Project site is not underlain by known active fault splays.

2.10.3 Environmental Consequences

Project

Potential geology, seismicity, and soils impacts associated with the Project involve both short-term (construction) and long-term (operation) issues. Because a number of the identified geologic hazards may involve both short- and/or long-term issues, the following discussion is formatted by technical concerns rather than short- and long-term impact categories.

The Project geotechnical investigations did not identify any conditions that would preclude development or require major design changes. A number of potential geologic hazards may occur or be encountered during Project implementation, however, and several general and issue-specific recommendations are provided to address these conditions. Specifically, these recommendations include additional geotechnical engineering studies, including subsurface exploration for retaining wall foundation, slope stability, and roadway design during the final design phase of the Project.

Seismic Hazards

Ground Rupture

Ground rupture and related effects such as lurching (i.e., the rolling motion of surficial materials associated with passing seismic waves) can negatively affect surface and subsurface structures. Because no known active faults have been mapped within or adjacent to the study area, the potential for Project development to be subject to short- or long-term impacts related to seismic ground rupture is considered low. Lurching or cracking of the ground surface as a result of nearby seismic events is, however, possible. Based on conformance with pertinent regulatory standards and geotechnical recommendations, no short- or long-term impacts related to ground rupture are anticipated from implementation of the Project.

Ground Acceleration

The peak ground acceleration level identified for the study area is approximately 0.60g in association with a magnitude 7.2 earthquake event along the Rose Canyon Fault. The Caltrans California Seismic Hazard Map indicates that the general site area has the potential for a 0.60g-peak acceleration. This level of peak ground acceleration is generally representative of similar areas in southern California and potentially could result in long-term impacts to the proposed facilities such as foundations, structures, pavement, and/or utilities.

The detailed Project design would incorporate appropriate measures to accommodate projected seismic loading pursuant to recommendations in the Project geotechnical investigations and pending site-specific geotechnical analysis, as well as applicable seismic elements of the previously described Caltrans, IBC, and Greenbook. Such measures would include the noted peak ground acceleration levels, as well as consideration of parameters related to subsurface

profile type, acceleration and velocity coefficients, seismic zone, and seismic source (including type and distance). The following types of requirements from applicable regulatory sources would be implemented as part of the Project design:

- Proper site preparation, including efforts such as clearing and grubbing, removal of unsuitable surface deposits, use of properly engineered fill, and appropriate aggregate base/subbase and pavement design;
- Appropriate design and construction of structures such as overcrossings and retaining walls, including foundations, footings, piles, and backfill; and
- Use of seismic loading measures such as concrete reinforcing for applicable structures.

Site-specific geotechnical analyses also would be conducted as part of the ongoing Project design and implementation process, and would include: (1) review of foundation and earthwork plans (as well as appropriate revisions); (2) observation of activities including removal of unsuitable materials and fill placement/compaction; and (3) completion of appropriate field tests to provide quality control/assurance for structural fills and related earthwork. Implementation of, and conformance with, the described standards and geotechnical recommendations would effectively avoid or reduce seismic ground acceleration impacts.

Liquefaction

Liquefaction is the phenomenon whereby soils lose shear strength and exhibit fluid-like flow behavior, with settlement from liquefaction potentially manifested at the ground surface when soils within the upper 9 to 10 m (30 to 33 ft) liquefy. The following conditions are generally necessary for liquefaction to occur: (1) soils are saturated (i.e., below the groundwater table); (2) soils are composed predominantly of poorly graded sands; (3) soils are loose to medium dense; and (4) soils are subject to a sufficient magnitude and duration of ground acceleration. Effects from liquefaction such as loss of support, and/or related phenomena including lateral spreading and dynamic settlement, potentially can result in long-term impacts to surface and subsurface facilities including foundations, pavement and underground utilities. Due to the generally fine-grained nature of the alluvial soils present in the Project area, the density of the underlying formational materials, and the lack of shallow groundwater within the fill embankments adjacent to I-5, the potential for liquefaction is considered low. If conditions subject to liquefaction are observed during geotechnical observations/testing (as noted above) or Project construction, however, standard measures would be implemented to address potential liquefaction hazards, pursuant to the previously referenced regulatory and industry standards. Specifically, this could include efforts such as the removal and recompaction or replacement (with fill) of unsuitable materials and/or the use of subdrains.

Landsliding

The occurrence of landslides and other types of slope failures is influenced by slope grade, geologic and soil characteristics, moisture levels, and vegetation cover. Landsliding can be triggered by one or more specific or combination of events, such as seismic activity, gravity, fires, and precipitation. Portions of the study area are identified as Category 21, indicating confirmed, known, or highly suspected landslides. Additionally, the Ardath Shale and (to a lesser extent) the Scripps Formation are considered slide-prone formations. Other portions of the study area are considered to have low to moderate risk due to unfavorable geologic structure. As described previously, an ancient landslide formation is located along the western side of the southbound off-ramp from I-5 to Genesee Avenue from approximately 100 m (328 ft)

to 300 m (984 ft) north of Genesee Avenue. Caltrans has identified and documented this slide area over the last several years. The slide appears to affect the pavement on the southbound mainlines and southbound off-ramp at Genesee Avenue. The pavement in this area exhibits cracking and some differential settlement. The toe of the slide was partially buttressed in approximately 1986. The partial buttress has apparently not eliminated movement of the slope and the pavement in this area.

The proposed improvements to the Genesee Avenue interchange would require the widening and realignment (to the west) of the southbound off-ramp. This work would require large amounts of fill and grading on top of the existing embankment on top of the landslide. This additional fill and revised embankment grading also would require a redesign of the buttress needed to stabilize the ancient landslide. The fill required for these improvements and a revised buttress would extend beyond the toe of the existing embankment and part way across the bottom of the canyon into a designated wetland area.

The only methods of avoiding these wetland impacts would be to replace the proposed embankment fill and buttress with a shear pin wall or retaining wall. Using landslide data available from Caltrans, the Project development team investigated a range of different shear pin and retaining wall types and construction methods for possible use along the west side of I-5 and the Genesee Avenue southbound off-ramp. Based on the available data, the Project development team was not able to identify a retaining wall alternative that would provide the required factor of safety for supporting the roadway and stabilizing the landslide. Additionally, given the previously observed movement in the landslide, it is possible that the construction of a retaining wall at this location could cause additional movement or failure of the landslide embankment. Therefore, under these circumstances, the project development team determined that a retaining wall to stabilize and control the landslide was not practically feasible.

In the absence of a feasible design for shear pins or a retaining wall to stabilize the landslide, Caltrans geotechnical engineers prepared a preliminary concept design for a modified buttress that would accommodate the proposed Genesee Avenue interchange and proposed I-5 North Coast Corridor improvements with the required factor of safety for controlling the landslide. This concept design buttress was then used by the engineering team to establish the overall project footprint and identify the extent of impacts to the wetland areas.

Due to the presence of known landslides on the Project site and in the vicinity, and the presence of geologic formations known to be prone to landslides, the potential for slope instability would be further evaluated by site-specific subsurface and laboratory evaluation after the designs of the proposed improvements are finalized. Based on the inclusion of applicable design measures and conformance with pertinent regulatory standards and geotechnical recommendations, short- or long-term impacts related to landsliding from implementation of the Project are anticipated to be minimal.

Non-seismic Hazards

Erosion and Sedimentation

The study area includes several surficial deposits with moderate to high erosion potential (refer to Table 2.10-1). Proposed grading activities would increase the potential for erosion and transport of eroded material (sedimentation) both within and downstream of the study area. Specifically, Project activities would involve: (1) removal of surface stabilizing features (e.g., vegetation); (2) creation of manufactured slopes; (3) excavation of existing compacted materials

from cut areas; (4) redeposition of excavated (and/or imported) material as fill in proposed development sites; (5) potential sediment/particulate generation from paving and demolition activities; and (6) potential erosion from disposal of extracted groundwater (if required). The influx of sediment into downstream receiving waters could result in direct effects such as increased turbidity, and would also provide a transport mechanism for other contaminants such as hydrocarbons that tend to adhere onto sediment particles (as further described in Subchapter 2.9, Water Quality and Storm Water Runoff).

Erosion and sedimentation generally are not considered to be major long-term Project concerns, as all developed areas would be stabilized through the installation of hardscape or landscaping. The Project also would incorporate long-term water quality controls to address erosion and sedimentation concerns, pursuant to the previously referenced Caltrans Statewide Storm Water Permit and SWMP, as detailed in Subchapter 2.9, Water Quality and Storm Water Runoff.

Short-term erosion and sedimentation impacts would be addressed through conformance with applicable regulatory requirements including the Caltrans Statewide Storm Water Permit and SWMP, and the NPDES General Construction and Groundwater Extraction permits. Specifically, the described conformance would include developing and implementing an authorized SWPPP for proposed construction, including erosion and sedimentation BMPs. While specific BMPs would be determined during the permitting process based on the Project site and study area characteristics (soils, slopes, etc.), they generally would include the types of standard industry measures and guidelines identified in the NPDES permit text(s), Caltrans standards, Preliminary Geotechnical Evaluation, and the following additional sources: National Menu of Best Management Practices for Storm Water Phase II (USEPA 2003), and Stormwater Best Management Practices Handbooks (California Stormwater Quality Association 2003).

Based on the implementation of appropriate erosion and sediment control BMPs as part of, and in conformance with, applicable regulatory requirements (including a SWPPP), erosion and sedimentation impacts from Project construction would be effectively avoided or addressed. As noted, erosion and sedimentation BMPs implemented for the Project would be defined during the appropriate permit and SWPPP review process.

Manufactured Slope Stability

Several cracks were observed in the pavement section along the western edge of the freeway north of Genesee Avenue. The cracks were observed to extend parallel to the crest of the slope and be on the order of one-half to several meters in length. This distress is considered to be primarily due to soil creep of the surficial soil material on the existing embankment fill as a result of the fine-grained and plastic nature of the fill soils. Soil creep is anticipated to continue to occur at a slow rate and is not anticipated to be a design consideration.

Weak clay zones and clay seams are commonly found in the Scripps Formation and especially in the Ardath Shale in the study area. Adversely oriented clay seams exposed in cut slopes may result in slope instability. At the recommendation of the Project Preliminary Geotechnical Evaluation, potential cut-slope areas would be evaluated by additional subsurface evaluation prior to construction for the presence, extent, and orientation of weak clay beds and seams. Based on that evaluation, additional slope stability measures, such stability buttresses, may be recommended. In addition, temporary slope stability measures may be recommended for use during construction in these areas.

Additional fill and/or retaining walls may be proposed on the existing embankment slopes as part of roadway widening. The stability of the embankment slopes would be evaluated based on the designed finished configuration under long-term static and short-term pseudostatic conditions.

Implementation of the recommendations in the Project Preliminary Geotechnical Evaluation and more detailed follow-up studies, as well as conformance with applicable regulatory standards/industry guidelines, would effectively avoid or address long-term impacts from the Project related to manufactured slope stability.

Groundwater

While shallow groundwater is not expected to be encountered during Project implementation, perched groundwater requiring extraction and disposal could potentially be present. Such dewatering operations would not result in adverse impacts to groundwater reservoirs (e.g., through drawdown) due to their minor and short-term nature. Construction dewatering also would be subject to applicable NPDES requirements, as detailed in Subchapter 2.9, Water Quality and Storm Water Runoff. These requirements are intended to ensure compliance with associated water quality standards, with additional discussion of water quality concerns related to potential construction dewatering provided in Subchapter 2.9, Water Quality and Storm Water Runoff.

Retaining Walls

Proposed improvements would include the construction of 16 retaining walls at various locations within the study area (refer to Figure 1-4). The proposed walls would range in length from approximately 17 m (56 ft) to 695 m (2,280 ft) and from a maximum of 1.0 m (3.3 ft) to 15.8 m (51.8 ft) in height. The Project geotechnical report concluded that construction of the proposed retaining walls is feasible for preliminary design purposes; however, site-specific subsurface evaluations should be performed at each proposed wall location to provide additional recommendations. Implementation of, and conformance with, geotechnical recommendations would effectively avoid or reduce geologic impacts associated with proposed retaining walls.

Landslide Buttress

As discussed under Chapter 1.0, Proposed Project, the Project would include a modified buttress to stabilize the ancient landslide embankment. The buttress would be placed just northwest of the I-5/Genesee Avenue interchange. The size and weight of the buttress would counteract the driving force along the potential slip plane of the ancient landslide. With the inclusion of the buttress as a part of the Project, geologic impacts associated with the ancient landslide embankment would be avoided.

Corrosive Soils

Based on Caltrans criteria and the results of soils testing, the on-site soils are considered corrosive to ferrous metals and may have a severe potential for sulfate attack on concrete. As a result, the Preliminary Geotechnical Evaluation recommends that Type V Portland cement be used for concrete structures exposed to earth materials associated with the Project, and that a corrosion engineer should be consulted if corrosion-sensitive improvements are planned. Based on implementation of the noted recommendations and conformance with applicable

regulatory standards/industry guidelines, long-term effects related to corrosive soils would be effectively avoided or addressed.

Settlement

Subsurface exploration and laboratory testing performed for the Project indicate that, in general, the existing fill and alluvial materials have relatively low potential for settlement in their present configuration. These materials would be subject to some potential settlement under the load of additional fill or retaining walls that would result from Project implementation. The settlement would primarily be short-term and is anticipated to be substantially complete at the end of construction. The Preliminary Geotechnical Evaluation recommends that the settlement and horizontal displacement of the existing roadway should be monitored during construction, and that a further evaluation of settlement be performed if settlement-sensitive improvements are planned. Implementation of the recommendations in the Project Preliminary Geotechnical Evaluation and more detailed follow-up studies, as well as conformance with applicable regulatory standards/industry guidelines, would effectively avoid or address long-term impacts from the Project related to soil settlement.

Unique Geologic Features

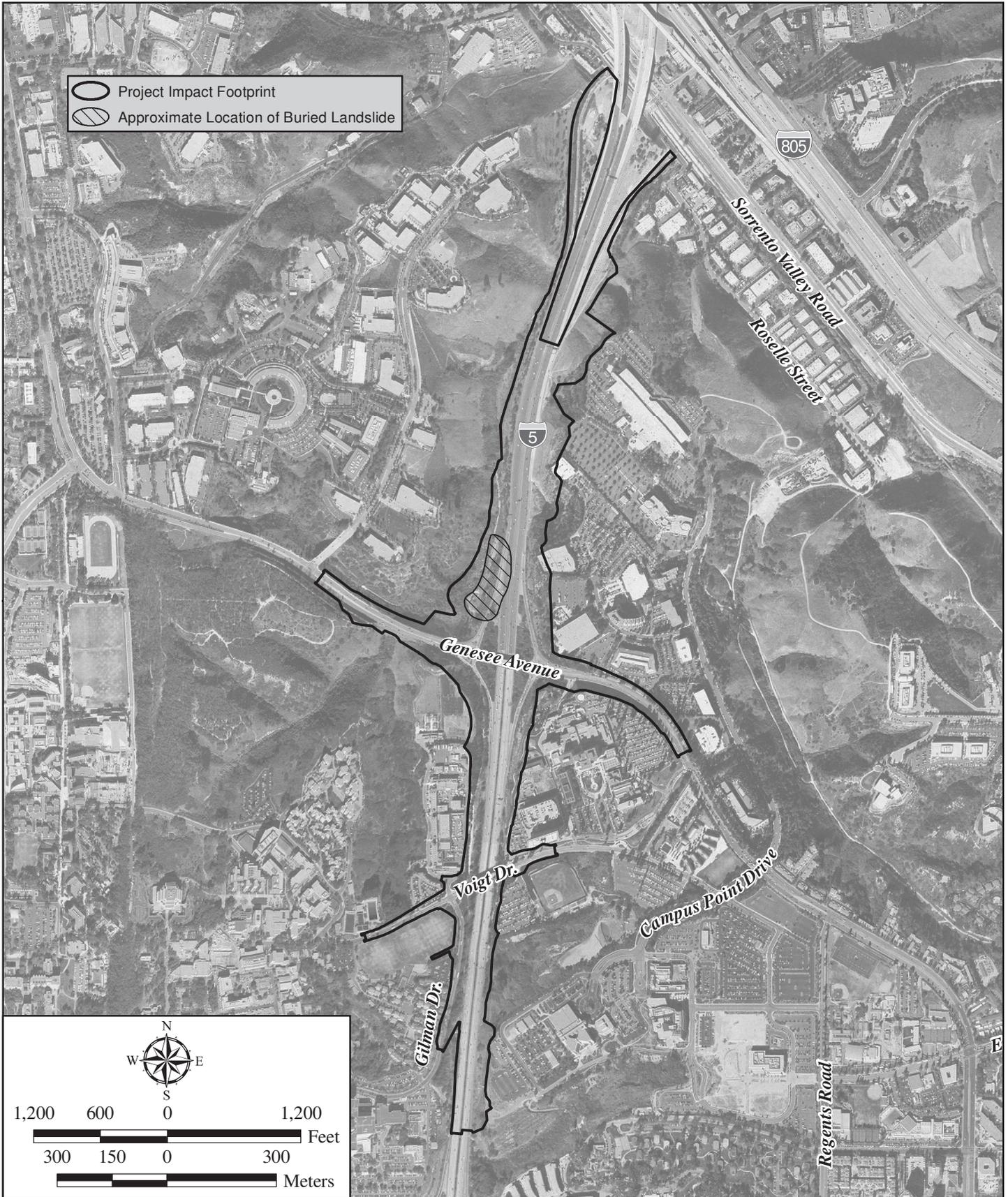
The study area is located in an urban setting and consists primarily of areas that have been previously developed or disturbed. The study area is not within or adjacent to any areas designated as natural landmarks on the National Registry of Natural Landmarks (U.S. Department of Interior, National Park Service 2004). Based on these conditions, no short- or long-term impacts related to unique geologic features would result from the Project.

No Build Alternative

Under this alternative, no improvements or modifications would be implemented in the study area. The existing facilities are, and would continue to be, subject to potential seismic hazards such as ground shaking and landsliding, as well as non-seismic hazards including soil creep and soil corrosivity. Because implementation of the No Build Alternative would not entail any development or disturbance, however, no associated impacts related to geologic hazards would occur.

2.10.4 Avoidance, Minimization and/or Mitigation Measures

Implementation of the Project would entail a number of measures to avoid or minimize potential short- and long-term impacts. Specifically, these measures would involve implementing recommendations from the Project geotechnical analysis such as design criteria, construction methodologies, field observations/testing, and site-specific geotechnical analysis, as well as conforming to applicable regulatory requirements and industry standards. Such conformance would include appropriate Caltrans and NPDES requirements, as well as industry standards from sources including the IBC, Greenbook, and ASTM. In addition, construction-related erosion and sediment control measures would be implemented as part of required water quality conformance (refer to Subchapter 2.9, Water Quality and Storm Water Runoff). Implementation of the geotechnical recommendations and conformance with applicable regulatory/industry standards would effectively avoid or address short- and long-term impacts related to geology/seismicity/soils. No mitigation measures are proposed with regard to geology/seismicity/soils.



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Landslide Area

INTERSTATE 5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION

Figure 2.10-1



Source:
 U.S. Geological Survey and California Geological Survey, 2006.
 Quaternary fault and fold database for the United States,
 accessed April 30, 2007, from USGS web site:
<http://earthquake.usgs.gov/regional/qfaults/>.

F:\ArcGIS\KIKHA-101\5-Genesee-Interchange\Map\SEA\Fig 2.10-2_Regional\FaultMap.mxd JP

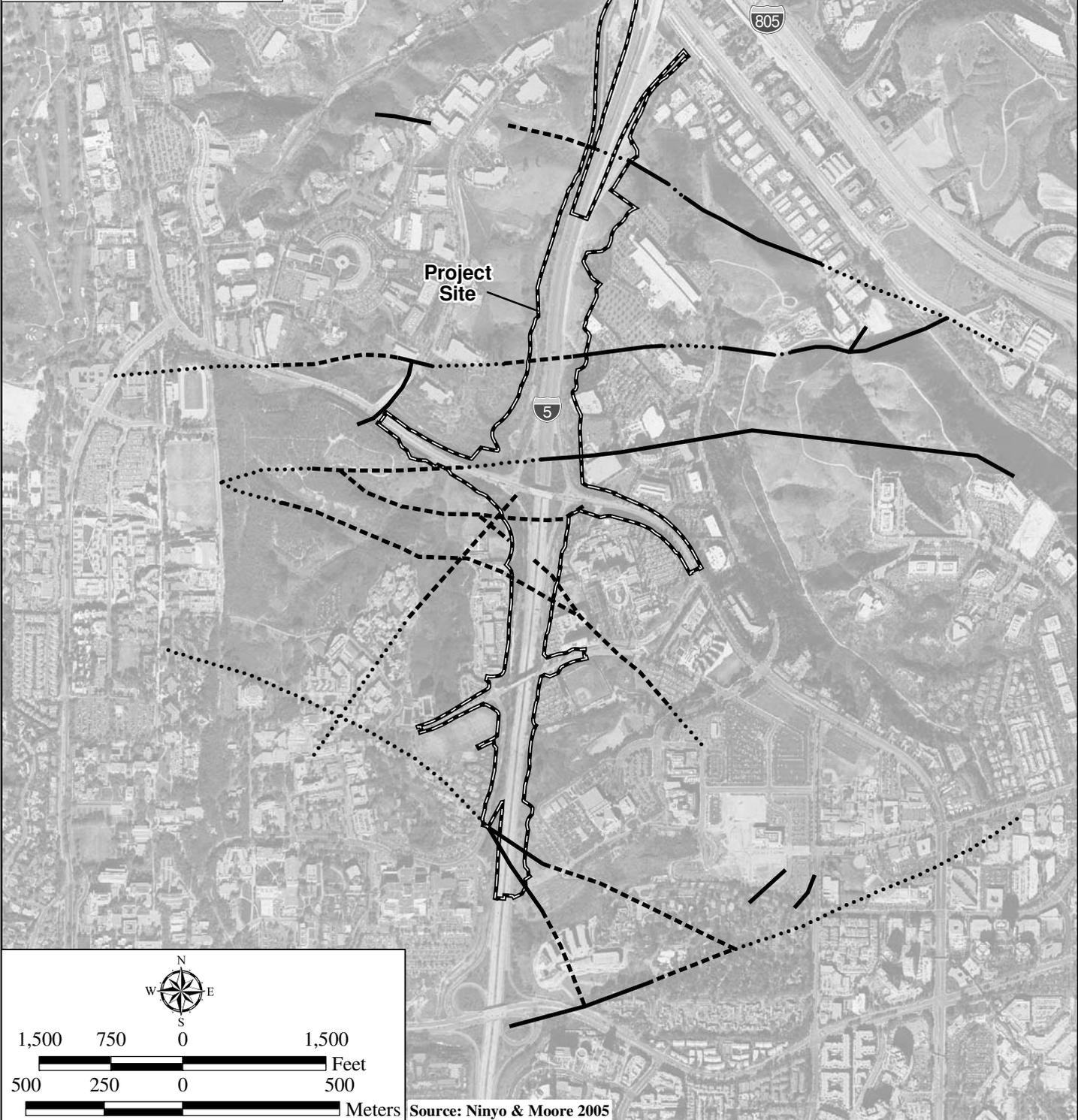
Regional Fault Map

INTERSTATE 5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION

Figure 2.10-2

LEGEND

-  Fault
-  Inferred Fault
-  Concealed Fault
-  Project Impact Footprint



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Local Fault Map

INTERSTATE 5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION

Figure 2.10-3

2.11 PALEONTOLOGY

The following analysis describes existing paleontological resource conditions within the Project study area, identifies associated regulatory requirements, and evaluates potential impacts and mitigation measures related to implementation of the Project.

2.11.1 Regulatory Setting

Paleontology is the study of life in past geologic time based on fossil plants and animals. A number of federal statutes specifically address paleontological resources, their treatment, and funding for mitigation as a part of federally authorized or funded projects (e.g., Antiquities Act of 1906 [16 USC 431-433] and Federal-Aid Highway Act of 1935 [20 USC 78]). Under California law, paleontological resources are protected by CEQA.

2.11.2 Affected Environment

A Paleontological Resource Assessment (2009) was prepared for the Project, and contains a Paleontological Identification Report, Paleontological Evaluation Report, and Preliminary Paleontological Mitigation Plan to provide an assessment of the paleontological resource potential within the Project study area and potential impacts, and propose mitigation measures.

Paleontology is the science dealing with prehistoric plant and non-human animal life. Paleontological resources (or fossils) typically encompass the remains or traces of hard and resistant materials such as bones, teeth, or shells, although plant materials and occasionally less resistant remains (e.g., tissue or feathers) can also be preserved. The formation of fossils typically involves the rapid burial of plant or animal remains and the formation of casts, molds, or impressions in the associated sediment (which subsequently becomes sedimentary rock). Because of this, the potential for fossil remains in a given geologic formation can be predicted based on known fossil occurrences from similar (or correlated) geologic formations in other locations.

Stratigraphic Rock Units

Based on the geologic information provided in the Paleontological Resource Assessment (and discussed in detail in Subchapter 2.10, Geology/Soils/Seismic/Topography), surficial materials and geologic units observed or expected to occur within the study area include fill, topsoil, and landslide deposits; younger Quaternary alluvium; early Pleistocene-age (approximately 2 million to 10,000 years ago) and Very Old Paralic Deposits (formerly known as the Lindavista Formation); and Eocene-age (approximately 55 to 38 million years ago) Scripps Formation and Ardath Shale. The paleontological resource sensitivity of all these units is summarized below, with sensitivity categories generally defined as follows:

- High Sensitivity - These formations contain a large number of known fossil localities. Generally speaking, highly sensitive formations produce vertebrate fossil remains or are considered to have the potential to produce such remains.
- Moderate Sensitivity - These formations have a moderate number of known fossil localities. Generally speaking, moderately sensitive formations produce invertebrate fossil remains in high abundance or vertebrate fossil remains in low abundance.

- **Low Sensitivity** - Low sensitivity is assigned to those formations that contain only a small number of known fossil localities and typically produce invertebrate fossil remains in low abundance.
- **Zero Sensitivity** - Zero sensitivity is assigned to geologic formations that, based on their relatively young age, high-energy depositional history, or igneous origin (i.e., plutonic and/or volcanic), are judged unlikely to produce any fossil remains.

Artificial fill deposits exhibit no potential for the occurrence of important paleontological resources due to their recent age and the destructive nature of their origin (i.e., mechanically processed through methods such as crushing and screening). Similarly, native topsoil deposits do not exhibit any potential for important paleontological resource values due to their relatively recent age and methods of formation and deposition (i.e., physical and chemical weathering producing soil that is transported and deposited by methods such as water, wind, and gravity).

Younger Quaternary alluvial deposits are assigned a low paleontological resource sensitivity due to their relatively recent age, high-energy formation/deposition environments, and the fact that, with rare exceptions, important fossil occurrences are unknown from such deposits in San Diego County (Deméré and Walsh 1993). No fossils are reported from younger alluvial deposits that occur within the Project study area.

The Very Old Paralic Deposits are assigned a moderate paleontological resource sensitivity in the study area vicinity and have locally produced fossil remains of nearshore marine invertebrates including clams, scallops, snails, barnacles, and sand dollars, as well as infrequent vertebrates such as sharks and whales. No fossils are reported from this formation as exposed within the Project study area.

The Scripps Formation is assigned a high paleontological sensitivity, due to the joint occurrence of marine invertebrate and terrestrial vertebrate fossils. While most of the fossils known from this formation consist of remains of marine organisms such as clams, snails, crabs, sharks, rays, and bony fish, remains of fossil reptiles and land mammals along with fossil wood have also been recovered.

Ardath Shale is assigned a high paleontological resource sensitivity because it has produced diverse and well-preserved assemblages of fossil marine invertebrates, including marine microfossils, and macroinvertebrates, as well as vertebrates such as sharks, rays, and bony fish (Deméré and Walsh 1993).

Landslide deposits in the study area are derived from the Scripps Formation and Ardath Shale, which, as described above, are considered to have high paleontological resource sensitivity. As a result, the landslide deposits also have a relatively high likelihood of producing fossils, although the potential for meaningful material may be somewhat reduced through the landslide process.

Paleontological Records Search

A review of paleontological site records housed in the Department of Paleontology at the San Diego Natural History Museum and the Museum of Paleontology at the University of California, Berkeley found 16 recorded localities within 0.8 km (0.5 mi) of the Project study area. Nine of these localities were discovered in strata of the Ardath Shale and produced a diverse fossil assemblage dominated by species of marine mollusks. Also recovered from these localities

were shells of foraminifers, bryozoans, brachiopods, crustaceans, and echinoderms, as well as teeth and/or bones of sharks, rays and bony fish. Five localities were discovered in strata of the Scripps Formation and produced a lower diversity fossil assemblage also dominated by species of marine mollusks, tests of bryozoans and crustaceans, and teeth of sharks and rays.

2.11.3 Environmental Consequences

Project

Potential paleontological resource impacts from the Project would be associated with short-term (construction) activities such as excavation and grading, although such impacts would be considered long term because the associated loss of resource values would be permanent.

As noted above, the study area for the Project crosses geologic deposits assigned zero to high paleontological resource sensitivity. Deposits of zero sensitivity (artificial fill and other previously disturbed sediments) occur along existing roadways and structures. Deposits of low sensitivity (younger Quaternary alluvium) parallel the western side of the I-5 north of Genesee Avenue. Deposits of moderate sensitivity (the Very Old Paralic Deposits) underlie the southbound side of the Genesee Avenue and Voigt Drive interchanges. Deposits of high sensitivity (the Scripps Formation and Ardath Shale) occur throughout the Project alignment. Grading for this alternative would entail approximately 638,874 cubic meters (m³; 835,616 cubic yards [yd³]) of cut, including cut in previously undisturbed areas of the Very Old Paralic Deposits, Scripps Formation, and Ardath Shale. Project improvements would require maximum cut slopes of approximately 16 m (53 ft). Based on the described conditions, implementation of this alternative could result in impacts to paleontological resources.

No Build Alternative

Under this alternative, no improvements or modifications would be implemented in the study area. Accordingly, no impacts to paleontological resources would be associated with this alternative.

2.11.4 Avoidance, Minimization and/or Mitigation Measures

The following mitigation measures would effectively avoid or address potential impacts to paleontological resources from the Project.

- A qualified principal paleontologist (Master of Science [M.S.] or Doctor of Philosophy [Ph.D.] in paleontology or geology familiar with paleontological procedures and techniques) would be retained to be present at pre-grading meetings to consult with grading and excavation contractors.
- A paleontological monitor, under the direction of the qualified principal paleontologist, would be on site to inspect cuts for fossils at all times during original grading involving sensitive geologic formations. As grading progresses, the qualified paleontologist and paleontological monitor would have the authority to reduce the scope of the monitoring program to an appropriate level if it is determined that the potential for impacts to paleontological resources are lower than anticipated.
- When fossils are discovered, the paleontologist (or paleontological monitor) would recover them. Construction work in these areas would be halted or diverted to allow recovery of fossil remains in a timely manner.

- During the monitoring and recovery phases, the paleontologist (or paleontological monitor) would routinely collect stratigraphic data to provide a stratigraphic context for any recovered fossils.
- Fossil remains collected during the monitoring and salvage portion of the mitigation program would be cleaned, repaired, sorted and cataloged.
- Prepared fossils, along with copies of all pertinent field notes, photos and maps, would then be deposited in a scientific institution with paleontological collections.
- A final report would be completed that outlines the results of the mitigation program.

2.12 HAZARDOUS WASTE/MATERIALS

2.12.1 Regulatory Setting

Hazardous materials and hazardous wastes are regulated by many state and federal laws. These include not only specific statutes governing hazardous waste, but also a variety of laws regulating air and water quality, human health, and land use.

The primary federal laws regulating hazardous wastes/materials are the Resource Conservation and Recovery Act of 1976 (RCRA) and the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA). The purpose of CERCLA, often referred to as Superfund, is to clean up contaminated sites so that public health and welfare are not compromised. RCRA provides for “cradle to grave” regulation of hazardous wastes. Other federal laws include:

- Community Environmental Response Facilitation Act of 1992 (CERFA)
- Clean Water Act
- Clean Air Act
- Safe Drinking Water Act
- Occupational Safety & Health Act (OSHA)
- Atomic Energy Act
- Toxic Substances Control Act (TSCA)
- Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)
- Solid Waste Disposal Act

In addition to the acts listed above, Executive Order 12088, Federal Compliance with Pollution Control, mandates that necessary actions be taken to prevent and control environmental pollution when federal activities or federal facilities are involved.

Hazardous waste in California is regulated primarily under the authority of RCRA and the California Health and Safety Code. Other California laws that affect hazardous waste are specific to handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning.

Worker health and safety and public safety are key issues when dealing with hazardous materials that may affect human health and the environment. Proper disposal of hazardous material is vital if it is disturbed during project construction.

2.12.2 Affected Environment

A Hazardous Waste Initial Site Assessment (ISA) was prepared for the Project (2005). The purpose of the assessment was to identify existing hazardous waste conditions that could affect the environmental integrity of the Project study area. In addition, an aerially deposited lead (ADL) analysis (2008) and an asbestos-containing material and lead-based paint survey (2008) were conducted for the Project site. The following sections summarize the findings of the ISA and ADL reports.

Methodology

Initial Site Assessment

The ISA addressed potential sources of hazardous waste and hazardous material in the Project area. To determine the location and type of hazardous wastes/materials within the Project study area, the following information was reviewed for the completion of the ISA:

- Topographic maps, geologic data, aerial photographs, and available government agency data concerning properties with documented environmental impacts located within 1,000 feet of the site.
- Government agency data obtained from a government agency database search.
- Files at the County of San Diego Department of Environmental Health (DEH) for properties of potential environmental concern located in the vicinity of the site.
- Field reconnaissance on August 6, 2004.

Aerially Deposited Lead Assessment

In December 2007, an aerially deposited lead assessment was performed. The assessment concluded that lead was present in the exposed soil adjacent to the edge of existing shoulders.

Existing Study Area Conditions

Aerially Deposited Lead

Sampling for ADL within the Project area was conducted in December 2007 (2008). A total of 30 boring samples were taken at different distances from the travel lanes. Total lead concentrations found within the samples ranged from 6.89 to 81.5 milligrams per kilogram (mg/kg) of soil. The UCL₉₀ for total lead was calculated to be 30.19 mg/kg, which is below the Title 22 total threshold limit concentration (TTLC) threshold of 1,000 mg/kg. The upper confidence level (UCL)₉₀ for soluble lead by the waste extraction test (WET) was calculated to be 1.13 mg/kg, which is below the Title 22 soluble threshold limit concentration (STLC) threshold of 5 mg/kg. The soil is therefore considered non-hazardous, is suitable for reuse as fill material, and should be handled in accordance with Caltrans specifications for reuse of soil containing lead at non-hazardous levels.

Because this material is considered non-hazardous waste containing elevated concentrations of lead, it should be handled, managed, transported, and disposed as such. The soil is considered non-hazardous, is suitable for reuse as fill material, and should be handled, managed, and disposed of in accordance with the requirements of the receiving facility.

As expected, soil samples collected at 0.90 m (3 ft) below ground surface level or deeper revealed that lead concentrations at these depths are lower to a point that excludes this material from classification as a hazardous waste.

Asbestos-containing Material and Lead-based Paint

Based on the dates of construction of improvements within the Project area (1950s/1960s), it was determined that asbestos-containing material and lead-based paint may be present on surfaces, such as roadway striping and metal guardrails, at the site. Sampling for asbestos and

lead-based paint within the Project area was conducted. Results of the sampling concluded that the railing gaskets on both the Genesee Avenue and Voigt Drive overcrossings contained asbestos and that paint on the Genesee Avenue overcrossing contained lead (2008). Two of the paint chip samples were analyzed in a laboratory, where it was determined that both samples contained concentrations of lead above regulatory standards.

Treated Wood

Treated wood, such as guardrail posts and sign posts that have been treated with a chemical preservative, must be managed as a non-hazardous designated waste, which can be reused by the Project or disposed in a RWQCB approved Class 2 landfill.

2.12.3 Environmental Consequences

Project

Prior to 1966, when the site was developed as a highway, the site was undeveloped except for an unpaved road. During the site reconnaissance, no potential hazardous waste materials were observed on or off site that could impact the Project site. While many sites within 0.25 mile of the Project site are listed on federal, state, and regional environmental regulatory agency databases, none of them pose an environmental risk to the Project site due to their distance from the site, status, direction of groundwater flow, nature of release, time that has passed since a release, medium affected (soil), and/or completed remediation. No landfills are located in the vicinity of the Project site.

According to the ADL site investigation, exposed soil is not a hazardous waste with regard to ADL. The soil may be reused as fill material on site, placed under one foot or more of non-hazardous soil, and five feet or more above the highest water table. A portion of the excess soil would be used as an earthen buttress to stabilize an ancient landslide. The remainder of the excess soil would be disposed of off site in accordance with Caltrans' standard specifications.

Lead-based paint, treated wood, and asbestos-containing materials exist on site. An impact could potentially result from construction activities that disturb surfaces with lead-based paint, treated wood, and/or asbestos-containing materials.

| No other known hazardous wastes or materials in the vicinity or on site pose a risk.

No Build Alternative

| Under the No Build Alternative, no impacts from hazardous wastes or materials would occur because no construction is proposed.

2.12.4 Avoidance, Minimization and/or Mitigation Measures

The following measures would avoid, minimize, and/or mitigate for the presence of lead-contaminated soil, asbestos-containing material, treated wood, and lead-based paint hazards on site:

- Contract specifications would include a line item for loading, transportation, and disposal of any contaminated soil and/or groundwater generated/encountered during Project

construction. Bridge railing gaskets and any other materials found during construction containing asbestos-containing materials shall be handled using proper Health and Safety precautions, and the materials shall be properly disposed as hazardous waste according to Federal, State, and Local regulations. Asbestos-containing materials would be removed by a licensed asbestos abatement contractor. The certified asbestos consultant also would conduct abatement Project planning, monitoring (including air monitoring), oversight, and reporting.

- Yellow paint striping on the Genesee Avenue overcrossing and portions of the roadway contain lead-based paint. If yellow paint striping or yellow thermoplastic paint stripe of pavement marking is removed by itself, it shall be contained and collected immediately so that it is not emitted into ambient air and disposed of at a Class I Landfill facility. A licensed abatement contractor would remove lead-based paint under the oversight of a qualified contractor prior to removal and demolition of the painted materials.
- Treated wood waste must be managed as a non-hazardous designated waste by being disposed of at a landfill facility permitted to accept such wastes.
- Because of the potential hazard from exposure of workers and the public to lead-contaminated soil and other potential hazards, a Certified Industrial Hygienist would prepare a site-specific Lead, Asbestos, and Treated Wood Compliance Plan prior to grading. In addition, site workers who may potentially be exposed to chemical hazards during the Project would have completed a training program meeting the requirements of 29 CFR 1910.120 and 8 CCR 1532.1. The plans developed by the Certified Industrial Hygienist would include a hazard analysis, and would describe dust-control measures, air monitoring, signage, work practices, emergency response plans, personal protective equipment, decontamination and documentation.

2.13 AIR QUALITY

2.13.1 Regulatory Setting

The Clean Air Act (CAA) as amended in 1990 is the federal law that governs air quality. Its counterpart in California is the California Clean Air Act of 1988. These laws set standards (called California Ambient Air Quality Standards [CAAQS]) 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; the criteria pollutants are: carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), particulate matter, lead (Pb), and sulfur dioxide (SO₂).

Under the 1990 CAA Amendments, the U.S. Department of Transportation cannot fund, authorize, or approve federal actions to support programs or projects that are not first found to conform to the State Implementation Plan (SIP; San Diego Air Pollution Control District [APCD] 2007) 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, NO₂, O₃, and particulate matter. California is in attainment for the other criteria pollutants (Pb and SO₂). At the regional level, RTPs are developed that include all of the transportation projects planned for a region over a period of years, usually at least 20. 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 San Diego Association of Governments (SANDAG) for San Diego County, 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 transportation project are the same as that 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 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.

2.13.2 Affected Environment

| An Air Quality Impact Assessment (2011) was prepared for the Project and is summarized in the following sections.

Climate and Meteorology

The climate of the Project site, and all of San Diego, is dominated by a semi-permanent high-pressure cell over the Pacific Ocean. This cell influences the direction of prevailing winds (westerly to northwesterly) and maintains clear skies for much of the year. The high-pressure cell also creates two types of temperature inversions that may act to degrade local air quality: subsidence and radiation.

Subsidence inversions occur during the warmer months as descending air associated with the Pacific high-pressure cell comes into contact with cool marine air. The boundary between the two layers of air creates a temperature inversion that traps pollutants. The other type of inversion, a radiation inversion, develops on winter nights when air near the ground cools by heat radiation, and air aloft remains warm. The shallow inversion layer formed between these two air masses can also trap pollutants. As the pollutants become more concentrated in the atmosphere, photochemical reactions occur that produce O₃, commonly known as smog.

Sensitive Receptors

With regard to evaluating whether a project such as the one proposed would have a significant impact on sensitive receptors, air quality regulators typically define sensitive receptors as schools (preschool through 12th grade), hospitals, resident-care facilities, day-care centers, or other facilities that may house individuals with health conditions that would be adversely impacted by changes in air quality. Any project that has the potential to directly impact a sensitive receptor located within one mile and would result in a health risk greater than 10 in 1 million would be deemed to have a potentially significant impact. The following sensitive receptors are located within one mile of the I-5/Genesee Interchange:

- University of California, San Diego, 0.1 mile west;
- La Jolla Country Day School, 1.0 mile southeast;
- Scripps Memorial Hospital, 0.3 mile southeast; and
- UCSD Thornton Hospital, 0.6 mile southeast.

2.13.3 Environmental Consequences

Project

Regional Air Quality Conformity

The Proposed Project is fully funded and is in the 2030 San Diego Regional Transportation Plan (RTP): Pathways for the Future (Table A.5-Phased Arterial Projects – Revenue Constrained Plan, page A-17), 2007 Update, which was found to conform by SANDAG on November 30, 2007. FHWA and Federal Transit Administration (FTA) adopted the air quality conformity finding November 17, 2008. The Project is also included in the SANDAG Financially Constrained 2010 Regional Transportation Improvement Program (RTIP), page 132. The SANDAG 2010 RTIP was found to conform by FHWA and FTA on December 14, 2010. The design concept and scope of the Proposed Project are consistent with the project description in the 2030 RTP, the 2010 RTIP, and the assumptions in SANDAG's regional emissions analysis. Therefore, the Project would conform to the SIP and no adverse regional air quality impact would occur as a result of project implementation.

The Proposed Project is included in the Final 2010 RTIP on Page 132, as MPO ID SD103 (I-5/Genesee Avenue Interchange) (SANDAG 2010). The Project Capacity Status is "CI" (Capacity Increasing). The Project conforms to the SIP and no adverse regional air quality impact would occur as a result of Project implementation.

Project Level Conformity

The CAAQS and NAAQS for each of the regulated pollutants are shown in Table 2.13-1, Ambient Air Quality Standards.

| Table 2.13-1 AMBIENT AIR QUALITY STANDARDS | | | | | | |
|--|---------------------------------------|---|--------------------------|--|--------------------------------------|--------------------------|
| Pollutant | Averaging Time | CAAQS¹ | | NAAQS² | | |
| | | Concentration³ | Attainment Status | Primary⁴ | Secondary⁵ | Attainment Status |
| Ozone (O ₃) | 1-Hour | 0.09 ppm (180 µg/m ³) | Nonattainment | -- | Same as Primary Standard | -- |
| | 8-Hour | 0.070 ppm (137 µg/m ³) | Nonattainment | 0.075 ppm (147 µg/m ³) | | Nonattainment |
| Carbon Monoxide (CO) | 8-Hour | 9.0 ppm (10 mg/m ³) | Attainment | 9 ppm (10 mg/m ³) | None | Maintenance |
| | 1-Hour | 20 ppm (23 mg/m ³) | Attainment | 35 ppm (40 mg/m ³) | | Maintenance |
| Nitrogen Dioxide (NO ₂) | Annual Average | 0.030 ppm (57 µg/m ³) ⁶ | Attainment | 0.053 ppm (100 µg/m ³) | Same as Primary Standard | Attainment |
| | 1-Hour | 0.18 ppm (339 µg/m ³) ⁶ | Attainment | 0.100 ppm (188 µg/m ³) ⁷ | | Attainment |
| Sulfur Dioxide (SO ₂) | 24-Hour | 0.04 ppm (105 µg/m ³) | Attainment | -- | -- | Attainment |
| | 3-Hour | -- | Attainment | -- | 0.5 ppm (1300 µg/m ³) | Attainment |
| | 1-Hour | 0.25 ppm (655 µg/m ³) | Attainment | 0.075 ppm (196 µg/m ³) | -- | Attainment |
| Respirable Particulate Matter (PM ₁₀) ⁸ | 24-Hour | 50 µg/m ³ | Nonattainment | 150 µg/m ³ | Same as Primary Standard | Attainment |
| | Annual Arithmetic Mean | 20 µg/m ³ ; ⁸ | Nonattainment | -- | | Unclassified |
| Fine Particulate Matter (PM _{2.5}) ⁹ | 24-Hour | -- | Nonattainment | 35 µg/m ³ | Same as Primary Standard | Attainment |
| | Annual Arithmetic Mean | 12 µg/m ³ | Nonattainment | 15 µg/m ³ | | Attainment |
| Lead (Pb) ¹⁰ | 30-Day Average | 1.5 µg/m ³ | Attainment | -- | -- | -- |
| | Calendar Quarter | -- | -- | 1.5 µg/m ³ | Same as Primary Standard | Attainment |
| | Rolling 3-Month Average ¹¹ | -- | -- | 0.15 µg/m ³ | Same as Primary Standard | Attainment |

**Table 2.13-1 (cont.)
AMBIENT AIR QUALITY STANDARDS**

| Pollutant | Averaging Time | CAAQS ¹ | | NAAQS ² | | |
|-------------------------------------|----------------|-------------------------------------|-------------------|----------------------|------------------------|-------------------|
| | | Concentration ³ | Attainment Status | Primary ⁴ | Secondary ⁵ | Attainment Status |
| Sulfates (SO ₄) | 24-Hour | 25 µg/m ³ | Attainment | -- | -- | -- |
| Hydrogen Sulfide (H ₂ S) | 1-Hour | 0.03 ppm (42 µg/m ³) | Unclassified | -- | -- | -- |
| Vinyl chloride ¹⁰ | 24-Hour | 0.01 ppm (26 µg/m ³) | Unclassified | -- | -- | -- |

¹ CAAQS for O₃, CO (except Lake Tahoe), SO₂ (1- and 24-hour), NO₂, PM₁₀, PM_{2.5}, and visibility reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded.

² NAAQS (other than O₃, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The O₃ standard is attained when the fourth highest 8-hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM₁₀, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m³ is equal to or less than one. For PM_{2.5}, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact USEPA for further clarification and current federal policies.

³ Concentration expressed first in units in which it was promulgated. Ppm in this table refers to ppm by volume or micromoles of pollutant per mole of gas.

⁴ National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.

⁵ National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

⁶ The nitrogen dioxide ambient air quality standard was amended to lower the 1-hour standard to 0.18 ppm and establish a new annual standard of 0.030 ppm. These changes became effective March 20, 2008.

⁷ To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 0.100 ppm (effective January 22, 2010).

⁸ Due to a lack of evidence linking health problems to long-term exposure to coarse particle pollution, USEPA revoked the annual PM₁₀ standard on December 17, 2006.

⁹ Effective December 17, 2006, USEPA lowered the PM_{2.5} 24-hour standard from 65 µg/m³ to 35 µg/m³.

¹⁰ The California Air Resources Board (ARB) has identified lead and vinyl chloride as "toxic air contaminants" with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

¹¹ National lead standard, rolling 3-month average: final rule signed October 15, 2008.

km = kilometers; mg/m³ = milligrams per cubic meter; ppm = parts per million; µg/m³ = micrograms per cubic meter

Source: ARB 2011

To determine whether a project would be consistent with local air quality plans and programs, an affirmative regional conformity determination must be made before a project may proceed. The purpose of the regional conformity determination is to demonstrate that the projects included in the conformity determination would not cause or contribute to a violation of an ambient air quality standard. The San Diego Air Basin (SDAB) is currently considered to be a basic nonattainment area for the NAAQS and CAAQS for O₃, with three exceedances of the 8-hour federal standard and one exceedance of the 1-hour state standard in 2007; three exceedances of the 8-hour federal standard and two exceedances of the 1-hour state standard in 2008; and one exceedance of both the 8-hour federal standard and 1-hour state standard in 2009. The SDAB is also classified as a nonattainment area for the CAAQS for PM_{2.5}, and PM₁₀; no exceedances of the state or federal standards were recorded between 2007 and 2009. The SDAB is classified as an attainment or unclassified area for all other pollutants. The conformity determination must address regional transportation projects and include the projects in the assessment conducted for the SIP, which includes emissions budgets for the air basin and strategies to attain and maintain the ozone standard.

Carbon Monoxide (CO)

The Transportation Project-Level Carbon Monoxide Protocol (1997) provides guidance for determining whether a project would have the potential to cause or contribute to a violation of an air quality standard on a localized basis. The Protocol provides for various levels for the local CO analysis to make the determination of the potential for air quality impacts.

In addition, all projects, except those that are exempt from analysis, are subject to a local CO impact review. This involves an evaluation of the potential for CO “hot spots” to result due to traffic congestion. CO “hot spots” are typically evaluated when: (1) the level of service (LOS) of an intersection or roadway decreases to an LOS D or worse; and (2) sensitive receptors, such as residences, commercial developments, schools, hospitals, etc., are located in the vicinity of the affected intersection or roadway segment.

The Protocol contains a local CO analysis flow chart that is designed to assist in the evaluation of the requirements for demonstrating if a project would cause an air quality impact. The flow chart contained in the Protocol was followed to determine the analysis required for the Project. Based on the evaluation, a further local CO impact analysis or regional conformity determination is not required for the Project, and the Project would not cause or contribute to a violation of the air quality standards for CO.

The Transportation Conformity Rules require a statement that “Federal projects must not cause or contribute to any new localized CO violations or increase the frequency or severity of any existing CO violations in CO nonattainment and maintenance areas.”

The CO portion of the requirement applies to the Proposed Project because the SDAB is a federal CO maintenance area. The air quality analysis of projects included in the RTP and RTIP do not include the analysis of local CO impacts; these must be addressed on a project level.

Based on this evaluation, as shown in the flow chart, a further local CO impact analysis or regional conformity determination is not required for the Project, and the Project would not cause or contribute to a violation of the air quality standards for CO.

The Project does not considerably increase cold start percentage, does not considerably increase traffic volumes, improves traffic flow, and does not move traffic closer to a receptor site. According to the CO Protocol, the Proposed Project would be considered satisfactory and no further CO analysis is required. Therefore, no localized CO impacts would occur.

Particulate Matter (PM₁₀ and PM_{2.5})

On March 10, 2006, the U.S. Environmental Protection Agency (USEPA) published a final rule that establishes the transportation conformity criteria and procedures for determining which transportation projects must be analyzed from local air quality impacts in PM₁₀ and PM_{2.5} nonattainment and maintenance areas. Based on that rule, the USEPA and FHWA published Transportation Conformity Guidance for Qualitative Hot-spot Analysis in PM₁₀ and PM_{2.5} Nonattainment and Maintenance Areas (also known as the PM Guidance). While the SDAB is not a federally designated PM₁₀ and PM_{2.5} nonattainment or maintenance area, it is designated as a state nonattainment area for both pollutants. Thus, to meet state requirements, the Project is assessed using the procedure outlined in the PM Guidance.

The PM Guidance document describes a qualitative hot spot analysis method that does not involve dispersion modeling. This qualitative PM₁₀ and PM_{2.5} hot spot analysis method involves a

more streamlined review of local factors such as local monitoring data near a proposed project location.

The PM₁₀ and PM_{2.5} hot spot analysis method in the March 2006 Guidance involves two steps: (1) determining whether or not a project is a "project of concern" and (2) if it is a "project of concern," preparation of a qualitative (emission analysis only), but more detailed, analysis of the project.

The PM Guidance defines the following types of projects as projects of air quality concern:

- New or expanded highway projects that have a significant number of or significant increase in diesel vehicles;
- Projects affecting intersections that are at LOS D, E, or F with a significant number of diesel vehicles, or those that would change to LOS D, E, or F, because of increased traffic volumes from a significant number of diesel vehicles related to the project;
- New or expanded bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location; or
- Projects in or affecting locations, areas, or categories of sites that are identified in the PM_{2.5} applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.

A significant volume for a new highway or expressway is defined as an annual average daily traffic (AADT) volume of 125,000 or more, and a significant number of diesel vehicles is defined as 8 percent or more of that total AADT, or more than 10,000 truck AADT. A significant increase in diesel truck traffic is normally considered to be approximately 10 percent.

The proposed improvements to the I-5 corridor in the vicinity of the Genesee Avenue interchange would maintain or improve projected future traffic operations. The existing 2009 AADT volume is 92,470. The horizon year (2030) AADT volume without the Project would be 130,200 vehicles. However, the existing diesel-fueled truck percentage within the Project limits is 6.5 percent of AADT, which is below the threshold of 8 percent. The Proposed Project would not result in an increase in the ratio of trucks to the volumes and the estimated horizon year (2030) truck AADT would remain at 6.5 percent.

As indicated in this guidance, pursuant to 40 CFR 93.123(b)(i) and (ii), any new and expanded highway project that does not involve a significant (greater than 8 percent) number or increase in the number of diesel vehicles is a project that is not of air quality concern and consequently does not require a respirable particulate matter with a diameter of 10 microns or less (PM₁₀) or fine particulate matter with a diameter of 2.5 microns or less (PM_{2.5}) hotspot analysis. Thus, implementation of the Proposed Project is likely to improve traffic conditions and would not contribute to particulate matter exceedances.

The Project is located in an attainment area for federal PM_{2.5} and PM₁₀ standards, and in a nonattainment area of state PM_{2.5} and PM₁₀ standards. Based on screening using USEPA PM Guidance, the Project is not a Project of Air Quality Concern because it does not meet the criteria due to relatively low total/truck AADT, truck percentage, and increase in truck volumes comparing the Build and No Build Alternatives. The Project is improving traffic operations by smoothing traffic flow. The Project is therefore in conformance for federal PM_{2.5} and PM₁₀ standards and is unlikely to increase the frequency or severity of any existing exceedances regarding the non-attainment of state PM_{2.5} and PM₁₀ standards.

Construction Impacts

Construction is expected to take place from January 2014 to January 2016 for a total projected time length of 24 months. Construction equipment and activities would result in emissions of criteria pollutants and fugitive dust. Due to the anticipated time period of construction (less than five years), no quantitative estimates of construction emissions are necessary. Below is a qualitative analysis of potential construction impacts.

During construction, short-term degradation of air quality may occur due to the release of particulate emissions (airborne dust) generated by excavation, grading, hauling, and other activities related to construction. Emissions from construction equipment also are anticipated and would include CO, nitrogen oxides (NO_x), volatile organic compounds (VOCs), directly emitted particulate matter (PM₁₀ and PM_{2.5}), and TACs, such as diesel exhaust particulate matter.

Site preparation and roadway construction would involve clearing, cut-and-fill activities, grading, removing or improving existing roadways, and paving roadway surfaces. Construction-related effects on air quality from most highway projects would be greatest during the site preparation phase because most engine emissions are associated with the excavation, handling, and transport of soils to and from the site. If not properly controlled, these activities would temporarily generate PM₁₀, PM_{2.5}, and small amounts of CO, SO₂, NO_x, and VOCs. Sources of fugitive dust would include disturbed soils at the construction site and trucks carrying uncovered loads of soils. Unless properly controlled, vehicles leaving the site would deposit mud on local streets, which could be an additional source of airborne dust after it dries. PM₁₀ emissions would vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. PM₁₀ emissions would depend on soil moisture, silt content of soil, wind speed, and the amount of equipment operating. Larger dust particles would settle near the source, while fine particles would be dispersed over greater distances from the construction site.

Construction activities for large development projects are estimated by the USEPA to add 1.09 tonne (1.2 tons) of fugitive dust per acre of soil disturbed per month of activity. If water or other soil stabilizers are used to control dust, the emissions can be reduced by up to 50 percent. Caltrans' Standard Specifications (Section 10) pertaining to dust minimization requirements requires use of water or dust palliative compounds and would reduce potential fugitive dust emissions during construction.

In addition to dust-related PM₁₀ emissions, heavy trucks and construction equipment powered by gasoline and diesel engines would generate CO, SO₂, NO_x, VOCs, and some soot particulate (PM₁₀ and PM_{2.5}) in exhaust emissions. If construction activities were to increase traffic congestion in the area, CO and other emissions from traffic would increase slightly while those vehicles are delayed. These emissions would be temporary and limited to the immediate area surrounding the construction site.

SO₂ is generated by oxidation during combustion of organic sulfur compounds contained in diesel fuel. Off-road diesel fuel meeting federal standards can contain up to 5,000 parts per million (ppm) of sulfur, whereas on-road diesel is restricted to less than 15 ppm of sulfur. However, under California law and California Air Resources Board (ARB) regulations, off-road diesel fuel used in California must meet the same sulfur and other standards as on-road diesel fuel, so SO₂-related issues due to diesel exhaust would be minimal. Some phases of construction, particularly asphalt paving, would result in short-term odors in the immediate area

of each paving sites. Such odors would be quickly dispersed below detectable thresholds as distance from the sites increases.

Refer to the Avoidance, Minimization and/or Mitigation Measures section below for measures to avoid or minimize short-term air quality effects resulting from construction activities.

Naturally Occurring Asbestos and Structural Asbestos

Exposure and disturbance of rock and soil that contains asbestos can result in the release of fibers to the air and consequent exposure to the public. Asbestos most commonly occurs in ultramafic rock that has undergone partial or complete alteration to serpentine rock (proper rock name serpentinite) and often contains chrysotile asbestos. In addition, another form of asbestos, tremolite, can be found associated with ultramafic rock, particularly near faults. Sources of asbestos emissions include unpaved roads or driveways surfaced with ultramafic rock, construction activities in ultramafic rock deposits, or rock quarrying activities where ultramafic rock is present. Based on the map of naturally occurring asbestos locations contained in A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos (California Department of Conservation, Divisions of Mines and Geology 2000), major ultramafic rock formations are not found in San Diego County. Therefore, construction and grading would not occur in an area with ultramafic rock that could be a source of emissions of naturally occurring asbestos. No operational impacts would occur from naturally occurring asbestos. (Refer to Subchapter 2.12, Hazardous Waste/Materials, for a discussion on structural asbestos-containing materials.)

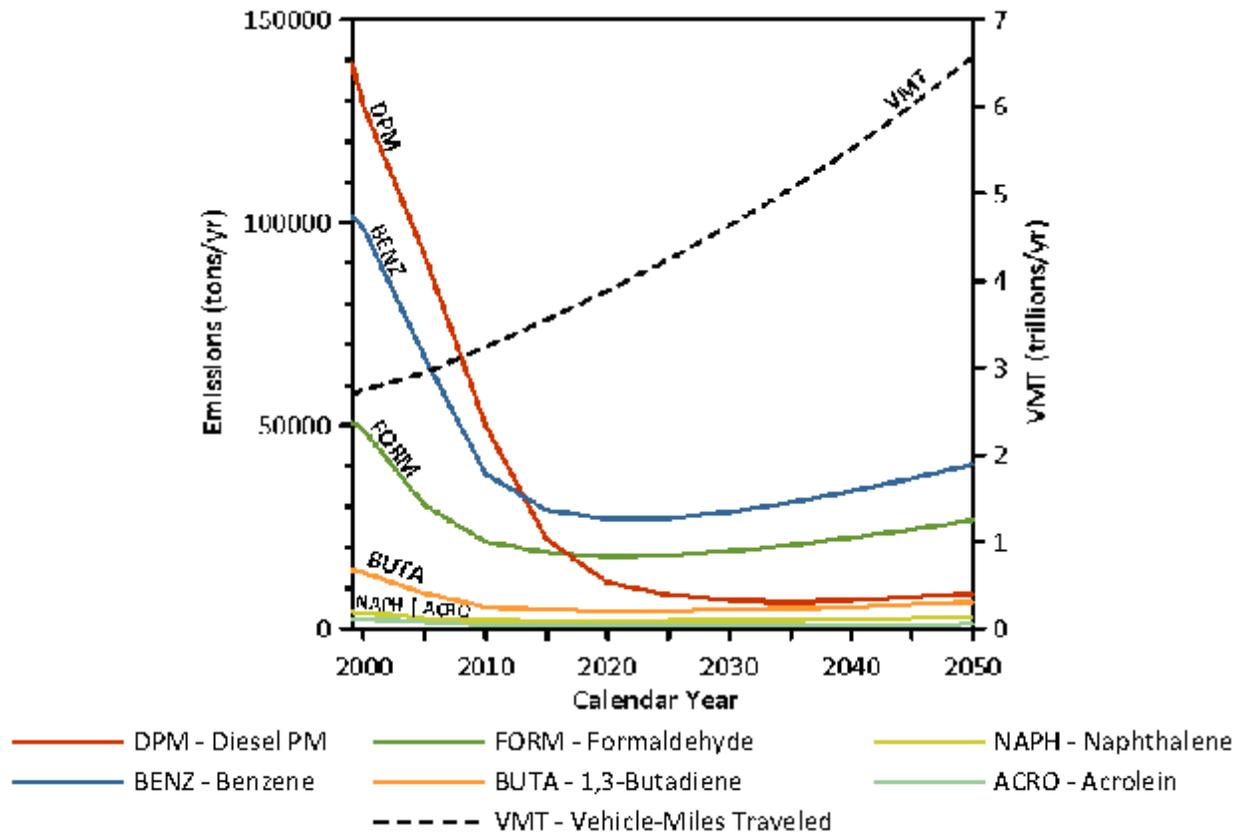
Mobile Source Air Toxics

The following discussion is based on the FHWA Memorandum, Subject: INFORMATION: Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA Documents, dated September 30, 2009 (FHWA 2009), which provides an update to the Interim Guidance on Air Toxic Analysis in NEPA Documents, dated February 3, 2006 (FHWA 2006a). The purpose of the guidance is to advise when and how to analyze Mobile Source Air Toxics (MSAT) in the NEPA process for highways. This guidance is interim because MSAT science is still evolving. As the science progresses, FHWA will update the guidance.

USEPA is the lead federal agency for administering the CAA and has certain responsibilities regarding the health effects of MSATs. USEPA regulates 188 air toxics, known as hazardous air pollutants, under the CAA. USEPA has assessed this expansive list in their latest rule on the Control of Hazardous Air Pollutants from Mobile Sources (Federal Register, Vol. 72, No. 37, Page 8430, February 20, 2007) and identified a group of 93 compounds emitted from mobile sources that are listed in their Integrated Risk Information System (IRIS) (<http://cfcpub.epa.gov/ncea/iris/index.cfm>). In addition, USEPA identified seven compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers from their 1999 National Air Toxics Assessment (NATA) (<http://www.epa.gov/ttn/atw/nata1999/>). These are acrolein, benzene, 1,3-butadiene, diesel particulate matter plus diesel exhaust organic gases (diesel particulate matter), formaldehyde, naphthalene, and polycyclic organic matter. While FHWA considers these the priority MSATs, the list is subject to change and may be adjusted in consideration of future USEPA rules.

The 2007 USEPA rule mentioned above requires controls that will dramatically decrease MSAT emissions through cleaner fuels and cleaner engines. According to an FHWA analysis using USEPA's MOBILE6.2 model, even if vehicle activity (vehicle miles traveled [VMT]) increases by

145 percent as assumed, a combined reduction of 72 percent in the total annual emission rate for the priority MSAT is projected from 1999 to 2050, as shown in Figure 2.13-1.



Notes

- (1) Annual emissions of polycyclic organic matter are projected to be 561 tons per year for 1999, decreasing to 373 tons per year for 2050.
 - (2) Trends for specific locations may be different, depending on locally derived information representing vehicle-miles travelled, vehicle speeds, vehicle mix, fuels, emission control programs, meteorology, and other factors.
- Source: USEPA. MOBILE6.2 Model run August 20, 2009.

MSAT Emission Trends 1999-2050 for Vehicles Operating on Roadways Using USEPA'S MOBILE6.2 Model
Figure 2.13-1

Air toxics analysis is a continuing area of research. While much work has been done to assess the overall health risk of air toxics, many questions remain unanswered. In particular the tools and techniques for assessing project-specific health outcomes as a result of lifetime MSAT exposure remain limited. Air toxics analysis is a continuing area of research. While much work has been done to assess the overall health risk of air toxics, many questions remain unanswered. In particular, the tools and techniques for assessing project-specific health outcomes as a result of lifetime MSAT exposure remain limited. These limitations impede the ability to evaluate how the potential health risks posed by MSAT exposure should be factored into project-level decision-making within the context of NEPA. Nonetheless, air toxics concerns

continue to be raised on highway projects during the NEPA process. Even as the science emerges, the FHWA is expected by the public and other agencies to address MSAT impacts in environmental documents. The FHWA, USEPA, Health Effects Institute (HEI), and others have funded and conducted research studies to try to more clearly define potential risks from MSAT emissions and associated with highway projects. The FHWA will continue to monitor the developing research in this emerging field.

Incomplete or Unavailable Information for Project Specific MSAT Impact Analysis

This air quality analysis includes a basic analysis of the likely MSAT emission impacts of this project. However, available technical tools do not enable us to predict the Project-specific health impacts of the emission changes associated with implementation of the proposed Project. Due to these limitations, the following discussion is included in accordance with the Code of Federal Regulations, Title 40, Protection of the Environment, Section 1502.22(b) (40 CFR §1502.22(b)) regarding incomplete or unavailable information:

Information that is Unavailable or Incomplete. In FHWA's view, information is incomplete or unavailable to credibly predict the project-specific health impacts due to changes in MSAT emissions associated with a proposed set of highway alternatives. The outcome of such an assessment, adverse or not, would be influenced more by the uncertainty introduced into the process through assumption and speculation rather than any genuine insight into the actual health impacts directly attributable to MSAT exposure associated with a proposed action.

USEPA is responsible for protecting the public health and welfare from any known or anticipated effect of an air pollutant. They are the lead authority for administering the CAA and its amendments and have specific statutory obligations with respect to hazardous air pollutants and MSAT. USEPA is in the continual process of assessing human health effects, exposures, and risks posed by air pollutants. They maintain the IRIS, which is "a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effects" (USEPA, <http://www.epa.gov/ncea/iris/index.html>). Each report contains assessments of non-cancerous and cancerous effects for individual compounds and quantitative estimates of risk levels from lifetime oral and inhalation exposures with uncertainty spanning perhaps an order of magnitude.

Other organizations are also active in the research and analyses of the human health effects of MSAT, including the HEI. Two HEI studies are summarized in Appendix D of FHWA's Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA Documents. Among the adverse health effects linked to MSAT compounds at high exposures are cancer in humans in occupational settings; cancer in animals; and irritation to the respiratory tract, including the exacerbation of asthma. Less obvious is the adverse human health effects of MSAT compounds at current environmental concentrations (HEI, <http://pubs.healtheffects.org/view.php?id=282>) or in the future as vehicle emissions substantially decrease (HEI, <http://pubs.healtheffects.org/view.php?id=306>).

The methodologies for forecasting health impacts include emissions modeling; dispersion modeling; exposure modeling; and then final determination of health impacts - each step in the process building on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70 year) assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects

emissions rates) over that time frame, since such information is unavailable. The results produced by USEPA's MOBILE6.2 model, California EPA's EMFAC2007 model, and USEPA's DraftMOVES2009 model in forecasting MSAT emissions are highly inconsistent. Indications from the development of the MOVES model are that MOBILE6.2 significantly underestimates diesel particulate matter emissions and significantly overestimates benzene emissions.

Regarding air dispersion modeling, an extensive evaluation of USEPA's guideline CAL3QHC model was conducted in a National Cooperative Highway Research Program study (http://www.epa.gov/scram001/dispersion_alt.htm#hyroad), which documents poor model performance at 10 sites across the country - 3 where intensive monitoring was conducted plus an additional 7 with less intensive monitoring. The study indicates a bias of the CAL3QHC model to overestimate concentrations near highly congested intersections and underestimate concentrations near uncongested intersections. The consequence of this is a tendency to overstate the air quality benefits of mitigating congestion at intersections. Such poor model performance is less difficult to manage for demonstrating compliance with NAAQS for relatively short time frames than it is for forecasting individual exposure over an entire lifetime, especially given that some information needed for estimating 70-year lifetime exposure is unavailable. It is particularly difficult to reliably forecast MSAT exposure near roadways, and to determine the portion of time that people are actually exposed at a specific location.

There are considerable uncertainties associated with the existing estimates of toxicity of the various MSAT, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population, a concern expressed by HEI (<http://pubs.healtheffects.org/view.php?id=282>). As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds, and in particular for diesel particulate matter. USEPA (<http://www.epa.gov/risk/basicinformation.htm#g>) and HEI (<http://pubs.healtheffects.org/getfile.php?u=395>) have not established a basis for quantitative risk assessment of diesel particulate matter in ambient settings.

There is also the lack of a national consensus on an acceptable level of risk. The current context is the process used by USEPA as provided by the CAA to determine whether more stringent controls are required in order to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect for industrial sources subject to the maximum achievable control technology standards, such as benzene emissions from refineries. The decision framework is a two-step process. The first step requires USEPA to determine a "safe" or "acceptable" level of risk due to emissions from a source, which is generally no greater than approximately 100 in 1 million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks less than 1 in 1 million due to emissions from a source. The results of this statutory two-step process do not guarantee that cancer risks from exposure to air toxics are less than 1 in 1 million; in some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 in 1 million. In a June 2008 decision, the U.S. Court of Appeals for the District of Columbia Circuit upheld USEPA's approach to addressing risk in its two-step decision framework. Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than safe or acceptable.

Because of the limitations in the methodologies for forecasting health impacts described, any predicted difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with predicting the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information

against project benefits, such as reducing traffic congestion, accident rates, and fatalities plus improved access for emergency response, that are better suited for quantitative analysis.

The proposed Project would improve the I-5/Genesee Avenue interchange and make related improvements to Voigt Drive overcrossing and Gilman Drive. The Project is not expected to facilitate significant additional capacity on I-5. Therefore, the proposed Project would not be included in Category three (3). By default, the proposed Project would be included in Category two (2) and would have a low potential for MSAT effects.

Climate Change

Climate change is analyzed in Subchapter 2.22, Climate Change (CEQA). Neither the USEPA nor FHWA has promulgated explicit guidance or methodology to conduct project-level GHG analysis. As stated on FHWA's climate change website (<http://www.fhwa.dot.gov/hep/climate/index.htm>), climate change considerations should be integrated throughout the transportation decision-making process—from planning through project development and delivery. Addressing climate change mitigation and adaptation up front in the planning process will facilitate decision-making and improve efficiency at the program level, and will inform the analysis and stewardship needs of project level decision-making. Climate change considerations can easily be integrated into many planning factors, such as supporting economic vitality and global efficiency, increasing safety and mobility, enhancing the environment, promoting energy conservation, and improving the quality of life.

Because there have been more requirements set forth in California legislation and executive orders regarding climate change, the issue is addressed in the CEQA chapter of this environmental document and may be used to inform the NEPA decision. The four strategies set forth by FHWA to lessen climate change impacts do correlate with efforts that the state has undertaken and is undertaking to deal with transportation and climate change; these strategies include improved transportation system efficiency, cleaner fuels, cleaner vehicles, and reduction in the growth of vehicle hours travelled.

No Build Alternative

Under the No Build Alternative, no Project construction would occur. Consequently, there would be no emissions associated with construction activities. The I-5/Genesee Avenue interchange would not be improved, and existing and future traffic congestion would therefore not be eased. Since operational traffic impacts would not be reduced, air quality impacts also would not be reduced.

2.13.4 Avoidance, Minimization and/or Mitigation Measures

Compliance with the Department's Standard Specifications (Sections 7 and 10) and implementation of the following avoidance and minimization measures would avoid or minimize short-term air quality effects resulting from construction activities:

- Apply water or dust palliative to exposed soil surfaces at the Project site as frequently as necessary to control fugitive dust emissions.
- Spread soil binder on any unpaved roads used for construction purposes, and all construction parking areas.

- Wash off trucks as they leave the Project site as necessary to control fugitive dust emissions.
- Use track-out reduction measures, such as gravel pads, at access points to minimize dust and mud deposits on roads affected by construction traffic.
- Remove dust and mud that are deposited on paved, public roads due to construction activity and traffic to decrease particulate matter.
- Cover transported loads of soils and wet materials prior to transport, or provide adequate freeboard (space from the top of the material to the top of the truck) to reduce PM₁₀ and deposition of particulate matter during transportation.
- Install mulch or plant vegetation as soon as practical after grading to reduce windblown particulate in the area.
- Locate construction equipment and truck staging and maintenance areas as far as feasible and nominally downwind of schools, active recreation areas, and other areas of high population density.
- Locate equipment and materials storage areas as far away from residential and park uses as practical.

The Project would be consistent with applicable air quality plans. The Project would not cause or contribute to new localized exceedances of ambient air quality standards, nor would it increase the frequency or severity of any existing exceedances. No mitigation measures are proposed with regard to air quality.

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2.14 NOISE

Background

Fundamentals of Traffic Noise

Noise is defined as excessive or undesired sound. Human sensitivity to sound depends on the sound's intensity, frequency composition, and duration. Noise intensity is measured on a scale with units termed as decibels (dB). This scale is logarithmic and represents the wide range of sounds audible to the human ear. With this scale, an increase of 10 dB is perceived as a doubling of the apparent loudness. Under ideal listening conditions, people generally cannot detect differences of 1 dB, while people with normal hearing can usually detect differences of 2 or 3 dB. In an outside, relatively noisy environment, such as near roadways, most people would not notice changes of 2 or 3 dB.

When addressing how noise affects people, it is necessary to consider the sound frequency response of the human ear. The increased sensitivity of the human ear to certain frequencies is approximated by weighing the dB scale toward those frequencies. The weighted decibel scale that best approximates the response of the human ear is known as the A-weighted scale (dBA). All sound levels in the Noise Study Report are reported in dBA.

Average sound levels are characterized by a noise descriptor known as the equivalent sound level (L_{eq}). The L_{eq} is the dB level of a constant sound with the same energy as the actual fluctuating sound levels, which are measured over a given period of time. The noise descriptor used most commonly in the Noise Study Report is the one-hour average A-weighted sound level (L_{eq} [h]).

Noise Characteristics of Vehicles and Roadways

Roadway noise is dependent on many factors, including vehicle type, speed, number of vehicles; roadway surface and gradient; distance from the roadway to the receptor; ground surface type; and shielding due to structures, noise barriers, hills, roadway edges, or earthen berms between a receptor and the road. Generally, if vehicle speed and/or traffic volume increases, the noise level also increases. However, it should be noted that heavy trucks typically operate at a more constant noise output than automobiles regardless of speed, because they retain a nearly constant engine revolutions per minute (rpm) level.

The noisiest component of cars is typically the tire/road interface, while for most heavy trucks, the majority of the noise emanates from the exhaust stack. Roadway surface and gradient also affect noise. Different surfaces can lead to an approximate difference of up to 3 to 4 dBA in generated noise levels. Atmospheric conditions also can have a significant effect on noise levels when noise receptors are located more than 61 m (200 ft) from a roadway. Wind is the most important meteorological factor within approximately 152 m (500 ft) of the source, whereas vertical air temperature gradients are more important at greater distances. Other factors such as air temperature, humidity, and turbulence also can have significant effects.

2.14.1 Regulatory Setting

The National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) provide the broad basis for analyzing and abating highway traffic noise effects. The intent of these laws is to promote the general welfare and to foster a healthy environment. The

requirements for noise analysis and consideration of noise abatement and/or mitigation, however, differ between NEPA and CEQA.

National Environmental Policy Act and 23 CFR 772

For highway transportation projects with FHWA (and Caltrans, as assigned) involvement, the Federal-aid Highway Act of 1970 and the associated implementing regulations (23 CFR 772) govern the analysis and abatement of traffic noise impacts. The regulations require that potential noise impacts in areas of frequent human use be identified during the planning and design of a highway project. The regulations contain noise abatement criteria (NAC) that are used to determine when a noise impact would occur. The NAC differ depending on the type of land use under analysis. For example, the NAC for residences (67 dBA) is lower than the NAC for commercial areas (72 dBA). Table 2.14-1 lists the NAC for use in the NEPA-23 CFR 772 analysis.

| Table 2.14-1 NOISE ABATEMENT CRITERIA | | |
|--|---|--|
| Activity Category | NAC, Hourly A-weighted Noise Level, dBA L_{eq} | <i>Description of Activities</i> |
| A | 57 Exterior | Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose |
| B | 67 Exterior | Picnic areas, recreation areas, playgrounds, active sport areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals |
| C | 72 Exterior | Developed lands, properties, or activities not included in Categories A or B above |
| D | -- | Undeveloped lands |
| E | 52 Interior | Residence, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums |

Table 2.14-2, Noise Levels of Common Activities, lists the noise levels of common activities to enable readers to compare the actual and predicted highway noise levels discussed in this subchapter with common activities.

In accordance with Caltrans' Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects (2006b), a noise impact occurs when the future noise level with the project results in a substantial increase in noise level (defined as a 12 dBA or more increase) or when the future noise level with the project approaches or exceeds the NAC. Approaching the NAC is defined as coming within 1 dBA of the NAC.

**Table 2.14-2
NOISE LEVELS OF COMMON ACTIVITIES**

| Common Outdoor Activities | Noise Level (dBA) | Common Indoor Activities |
|--|-------------------|--|
| Jet Fly-over at 300m (1000 ft) | 110 | Rock Band |
| Gas Lawn Mower at 1 m (3 ft) | 100 | |
| Diesel Truck at 15 m (50 ft), at 80 km (50 mph) | 90 | Food Blender at 1 m (3 ft) |
| Noisy Urban Area, Daytime | 80 | Garbage Disposal at 1 m (3 ft) |
| Gas Lawn Mower, 30 m (100 ft) | 70 | Vacuum Cleaner at 3 m (10 ft) |
| Commercial Area | | Normal Speech at 1 m (3 ft) |
| Heavy Traffic at 90 m (300 ft) | 60 | Large Business Office |
| Quiet Urban Daytime | 50 | Dishwasher Next Room |
| Quiet Urban Nighttime | 40 | Theater, Large Conference Room (Background) |
| Quiet Suburban Nighttime | | Library |
| Quiet Rural Nighttime | 30 | Bedroom at Night, Concert Hall (Background) |
| | 20 | Broadcast/Recording Studio |
| | 10 | |
| Lowest Threshold of Human Hearing | 0 | Lowest Threshold of Human Hearing |

If it is determined that the project would have noise impacts, then potential abatement measures must be considered. Noise abatement measures that are determined to be reasonable and feasible at the time of final design are incorporated into the project plans and specifications. This document discusses noise abatement measures that would likely be incorporated into the Proposed Project.

Caltrans' Traffic Noise Analysis Protocol sets forth the criteria for determining when an abatement measure is reasonable and feasible. Feasibility of noise abatement is basically an engineering concern. A minimum 5-dBA reduction in the future noise level must be achieved for an abatement measure to be considered feasible. Other considerations include topography, access requirements, other noise sources, and safety considerations. The reasonableness determination is basically a cost-benefit analysis. Factors used in determining whether a proposed noise abatement measure is reasonable include residents acceptance, the absolute noise level, build versus existing noise, environmental impacts of abatement, public and local

agencies' input, newly constructed development versus development pre-dating 1978, and the cost per benefited residence.

California Environmental Quality Act

CEQA requires a strictly baseline versus build analysis to assess whether a proposed project would have a noise impact. If a proposed project is determined to have a significant noise impact under CEQA, then CEQA dictates that mitigation measures must be incorporated into the project unless such measures are not feasible.

2.14.2 Affected Environment

A Noise Study Report (2009) and Noise Abatement Decision Report (2009) were prepared, which assess potential noise impacts due to implementation of the Project. As a result of the Noise Abatement Decision Report it was concluded that abatement was not reasonable at this time. The results and conclusions of the reports are summarized in the following sections.

Land uses near the Project site to the west of I-5, from north to south, include commercial buildings to the north of Genesee Avenue, University of California, San Diego (UCSD) Facility Management to the north of Voigt Drive, Warren Field to the south of Voigt Drive, the Sixth College Apartments to the south of Warren Field, and the VA Medical Center to the north of La Jolla Village Drive. Land uses to the east include commercial buildings to the north of Genesee Avenue, the Scripps Memorial Hospital to the north of Voigt Drive, the UCSD baseball field to the south of Voigt Drive, the UCSD Medical Center La Jolla between Voigt Drive and La Jolla Village Drive, and the UCSD East Campus Housing to the north of La Jolla Village Drive.

Areas of frequent outdoor human use in the Project area include Warren Field, the UCSD baseball field, patio dining areas on Science Center Drive, a basketball court on Science Center Drive, and a contemplative space at Scripps Memorial Hospital. The patios on the East Campus Housing buildings (constructed 2005 to 2007) are not considered to be noise sensitive due to their size and observed use; these spaces are not designated as outdoor usable space by UCSD, and protection was not a design requirement. None of the Sixth College apartments have patios or balconies facing I-5; the outdoor use areas associated with this area are located to the west, behind multiple residential structures. There are no outdoor use areas at the multi-story commercial office buildings along Campus Point Drive or the UCSD Campus Services Complex. Access to the commercial area northeast of the I-5/Genesee Avenue interchange was not available, due to security access restrictions.

Noise Measurement Procedures

Noise measurements were conducted in conformance with the Caltrans and FHWA guidelines. Long-term measurements were performed using a Larson Davis Model 720 American National Standards Institute Type 2 Integrating Sound Level Meter. The meter was placed in a watertight container and the microphone was covered with a windscreen and mounted securely on a tree, so that the microphone was approximately 1.5 m (5 ft) above ground level and at least 3 m (10 ft) from any wall or building to prevent reflections or unrepresentative shielding of noise.

The meters were set to slow time response on the A-weighted scale (dBA) and were calibrated before and after the measurement period. Meteorological conditions (e.g., ambient temperature, wind speed, etc.) were measured during each short-term noise measurement.

Personnel with a direct view of I-5, Voigt Drive, and Genesee Avenue conducted traffic counts concurrently with the short-term noise measurements.

The results of the long-term noise measurements were used to determine the peak noise hour period(s) for I-5 in the Project area. Subsequent short-term measurements were conducted during these periods.

Long-term Measurement

One long-term (24-hour) sound level measurement (LT1) was conducted from 7:00 AM on June 19, 2007, to 7:00 AM on June 20, 2007. The purpose of this measurement was to obtain an hourly record of the traffic noise associated with I-5 and to determine the peak noise hour(s) for the subsequent short-term measurement. The measurement was taken at the top of the slope between I-5 and Warren Field, which has a direct line-of-sight to I-5. Noise sources consisted of vehicular traffic on I-5 and Gilman Drive. The one-hour L_{eq} ranged from 64.3 dBA to 76.4 dBA, with an average of 73.0 dBA. The peak noise hours were determined to occur between 6:00 AM and 9:00 AM.

Short-term Measurements

Seven short-term (0.5-hour) measurements were conducted at areas of frequent outdoor human use between June 2007 and November 2007 during the peak noise hours. The measurement locations are described below and shown on Figure 2.14-1:

- ST1: Patio area on east side of building at 10777 Science Center Drive. Dominant noise source is vehicular traffic on I-5.
- ST2: Patio area on southeast side of building at 10555 Science Center Drive. Dominant noise source is vehicular traffic on I-5.
- ST3: Basketball court on north side of building at 10255 Science Center Drive. Dominant noise sources are vehicular traffic on I-5 and Genesee Avenue.
- ST4: Southeast corner of Warren Field. Dominant noise sources are vehicular traffic on I-5 and Gilman Drive.
- ST5: Western edge of UCSD East Campus Housing. Dominant noise source is vehicular traffic on I-5.
- ST6: Southwest side of UCSD baseball field. Dominant noise source is vehicular traffic on I-5.
- ST7: North side of Warren Field. Dominant noise sources are vehicular traffic on Voigt Drive and I-5.

The locations and results of all peak-noise hour measurements are shown in Table 2.14-3. As shown in the table, the noise level ranged from 56.8 to 76.4 dBA L_{eq} .

**Table 2.14-3
SOUND LEVEL MEASUREMENT RESULTS**

| Measurement Location | Location | Land Use | Meter Location | Date | Time | Noise Level (dBA L _{eq}) |
|----------------------|----------------------------|---------------|--------------------------------|----------|-------------|------------------------------------|
| LT1 | East of Warren Field | N/A | Between Gilman Drive and I-5 | 6-19-07 | 0700 - 0800 | 76.4 |
| ST1 | 10777 Science Center Drive | Commercial | Patio on east side | 6-26-07 | 0600 - 0700 | 60.0 |
| ST2 | 10555 Science Center Drive | Commercial | Patio on southeast side | 6-26-07 | 0635 - 0735 | 65.0 |
| ST3 | 10255 Science Center Drive | Commercial | Basketball court on north side | 6-26-07 | 0715 - 0745 | 57.0 |
| ST4 | Warren Field | Institutional | Southeast corner of field | 11-13-07 | 0645 - 0715 | 69.6 |
| ST5 | East Campus Housing | Residential | Western side of west building | 6-28-07 | 0740 - 0840 | 69.2 |
| ST6 | UCSD Baseball Field | Institutional | West side of field | 6-28-07 | 0625 - 0725 | 56.8 |
| ST7 | Warren Field | Institutional | North side, near pool | 7-10-07 | 0730 - 0830 | 60.1 |

Notes:

Measured noise level at LT1 is highest hourly L_{eq}.Measured noise level at STx is 30-minute L_{eq} during peak noise hours.

2.14.3 Environmental Consequences

Traffic Data Assumptions

The NAC is in terms of the peak-noise-hour L_{eq}. The peak-noise-hour condition is the hourly traffic condition expected to result in the highest hourly noise level. This condition generally occurs when traffic is heavy but remains in a free-flow condition, or level of service (LOS) C. The peak-noise-hour traffic volume for the I-5 mainline was assumed to be equivalent to LOS C (1,800 vehicles per lane per hour) for each of the four lanes in each direction, or 7,200 vehicles per hour in each direction. Based on roadway characteristics, future traffic volumes were assumed to be 1,200 vehicles per lane per hour on Genesee Avenue, 1,000 vehicles per lane per hour on Gilman Drive and auxiliary lanes, and 500 vehicles per lane per hour on Voigt Drive.

Traffic speeds used for peak-noise-hour modeling of the travel lanes for I-5 were 104.6 km/h (65 mph), 72.4 km/h (45 mph) for Genesee Avenue; and 40.2 km/h (25 mph) for Gilman Drive and Voigt Drive based on posted, measured, and monitored speeds during the field survey.

The vehicle mix percentages used for I-5 were obtained from the Caltrans' Traffic and Vehicle Data Systems Unit 2005 Truck Traffic. The vehicle mixes for Genesee Avenue, Voigt Drive, and Gilman Drive were estimated based on the field survey conducted during the sound level measurement.

Project

NEPA Noise Analysis

Short-term Construction Noise Levels

Noise produced by construction equipment required to build the Proposed Project would occur with varying intensity and duration during the different phases of construction. Construction is

expected to occur over an estimated 458 working days. Typically, construction activities would occur on weekdays between the hours of 7:00 AM and 7:00 PM; however, there would be nighttime construction for up to 20 nights at the Genesee and Voigt overcrossings. There is no property zoned residential that has residences within the City limits adjacent to the Project site, except for within the UCSD boundary, which has its own noise thresholds.

Long-term Noise Levels

The noise sensitive locations in the Project area were evaluated for noise impacts. A receptor was evaluated for abatement when future predicted noise levels approach (within 1 dBA) or exceed the NAC (67 dBA for activity category B) or substantially increase (by 12 dBA) existing noise levels.

Table 2.14-4 shows the noise levels for 18 receptor locations and Figure 2.14-1 shows the location of the receptors. As seen in the table, the peak hour noise levels at all of the receptors would not exceed the NAC with implementation of the Proposed Project, with the exception of R15A and R15B (Warren Field) and R18 (East Campus Housing). Noise levels at these three receptors would exceed the NAC (67 dBA) without abatement. Noise levels at R15A and R15B would be 71 and 74 dBA, respectively. It was estimated from the results at R15A, R15B, and R15C that approximately 17 percent of Warren Field would be impacted by exceeding the NAC.

| Receptor | Land Use | Existing Noise Level | Peak Hour Noise Level | | | |
|----------|----------|----------------------|-----------------------|------------------|---------------------------|----------------|
| | | | No Build Alternative | Proposed Project | Activity Category/ NAC | Impact Type |
| R1 | COM | 60 (ST1) | 59 | 60 | B / 67 | N |
| R2 | COM | 65 (ST2) | 63 | 63 | B / 67 | N |
| R3 | REC | 57 (ST3) | 62 | 61 | B / 67 | N |
| R4 | COM | 60 | 60 | 60 | B / 67 | N |
| R5 | COM | 52 | 52 | 53 | B / 67 | N |
| R6 | COM | 51 | 51 | 52 | B / 67 | N |
| R7 | COM | 50 | 50 | 51 | B / 67 | N |
| R8 | COM | 55 | 55 | 55 | B / 67 | N |
| R9 | COM | 58 | 58 | 59 | B / 67 | N |
| R10 | COM | 60 | 60 | 63 | B / 67 | N |
| R11 | INST | 65 | 65 | 64 | B / 67 | N |
| R12 | INST | 57 (ST6) | 60 | 62 | B / 67 | N |
| R13 | REC | 60 (ST7) | 63 | 63 | B / 67 | N |
| R14 | REC | 64 | 64 | 62 | B / 67 | N |
| R15A | REC | 69 | 69 | 71 | B / 67 | E |
| R15B | REC | 70 (ST4) | 72 | 74 | B / 67 | E |
| R15C | REC | 60 | 60 | 63 | B / 67 | N |
| R16 | REC | 59 | 59 | 61 | B / 67 | N |
| R17 | REC | 54 | 54 | 53 | B / 67 | N |
| R18 | RES | 69 (ST5) | 73 | 73 | B / 67 | N ¹ |

Notes:

Land Use: COM = Commercial, REC = Recreation, INST = Institutional, RES = Residential

Impact Type: E = Exceed NAC, N = None

NAC = Noise Abatement Criteria

¹ There are no areas of frequent outdoor human use.

Although the sound level at R18 (73 dBA) would exceed the NAC without abatement, the balconies on the East Campus Housing buildings are not considered to be noise sensitive due to their size and observed use. These spaces are not designated as outdoor usable space by UCSD, and protection was not a design requirement.

CEQA Noise Analysis

When determining whether a noise impact is significant under CEQA, a comparison is made between the baseline noise level and the buildout noise level. The CEQA noise analysis is completely independent of the NEPA analysis discussed previously, which is centered on noise abatement criteria. Under CEQA, the assessment entails looking at the setting of the noise impact and then how large or perceptible any noise increase would be in the given area. Key considerations include the uniqueness of the setting, sensitive nature of the noise receptors, magnitude of the noise increase, and number of residents affected. The following CEQA noise analysis is based on the Noise Study Report (2007) prepared for the Project.

The noise sensitive locations in the Project area were evaluated based on future predicted noise levels. Generally, an increase of 3 dBA or less is not a perceptible change to the human ear. The Project site, however, is located in an existing noise environment next to a major freeway and close to other major roadways. Given the existing noise environment of the Project setting, increases in noise levels slightly greater than 3 dBA may not be perceptible.

Construction Noise Impacts

Refer to the NEPA noise analysis for the Project construction noise conditions. Noise thresholds used for construction impacts under CEQA are identical to those used previously for NEPA. Therefore, the impact conclusions are identical; noise from construction would not exceed the sound level limits.

Operational Noise Impacts

Table 2.14-4 shows the measured peak hour noise levels for 18 receptor locations associated with the Project. As seen in the table, no noise levels would increase more than 3 dBA from the No Build Alternative to the Proposed Project conditions. Therefore, noise level changes would not be perceptible.

No Build Alternative

As can be seen in Table 2.14-4, the three receptors that would experience noise levels above the NAC under the Proposed Project (R15A, R15B, and R18) also would be above such criteria under the No Build Alternative.

2.14.4 Avoidance, Minimization, and/or Mitigation Measures

To avoid unnecessary annoyances from construction noise, the following construction noise control measures would be implemented:

- Compliance with Caltrans' Standard Specifications 7-1.011 (2006d) Sound Control Requirements. "The contractor would comply with all local sound control and noise level rules, regulations and ordinances which apply to any work performed pursuant to the contract. Each internal combustion engine, used for any purpose on the job or related to

the job, would be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine would be operated on the project without said muffler.”

- Idling equipment would be turned off.
- Noise-control monitoring program would be implemented to limit the impacts.
- Noisier operations would be performed during the times least sensitive to receptors.

The Noise Abatement Decision Report states that calculations based on preliminary design data indicate that a sound wall would reduce noise levels by 5 dBA at R15A and R15B, which would reduce the sound level at those locations to below the NAC. The sound wall at Warren Field would need to be 204 m (669 ft) long with a maximum height of 2.4 m (8 ft). The Noise Abatement Decision Report deems the wall to be feasible; however, a wall in this location would not be reasonable due to cost. A cost estimate shows that the wall would cost \$424,788. While the wall would provide a reduction in noise, the cost per residence is higher than the cost per residence allowance, thus rendering the wall unreasonable to construct. If during final design, conditions have substantially changed, noise abatement may not be necessary. The final decision of the noise abatement would be made upon completion of the Project design and the public involvement processes.

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Legend

- Long Term Measurement LT1
- Short Term Measurement STx
- Receptor Rx



\AVG\BKS\KUC\1015 Genessee Interchange Map\ISVA\Fig. 2-14-1_SoundLevel.ppt - 2/14/15

Sound Level Measurement and Receiver Locations
 INTERSTATE 5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION
 Figure 2.14-1

BIOLOGICAL ENVIRONMENT

2.15 NATURAL COMMUNITIES

This subchapter of the document discusses natural communities of concern. The focus of this section is on biological communities, not individual plant or animal species. This subchapter also includes information on wildlife corridors and habitat fragmentation. Wildlife corridors are areas of habitat used by wildlife for seasonal or daily migration. Habitat fragmentation involves the potential for dividing sensitive habitat and thereby lessening its biological value.

Habitat areas that have been designated as critical habitat under the federal Endangered Species Act (ESA) are discussed in Subchapter 2.19, Threatened and Endangered Species. Wetlands and other waters are discussed in Subchapter 2.16, Wetlands and Other Waters.

2.15.1 Regulatory Setting

Federal

National Environmental Policy Act (NEPA) Guidelines

The FHWA has published technical guidance for assessment of environmental impacts, including impacts to biological resources, in compliance with NEPA, the federal ESA and Clean Water Act (CWA), and other federal environmental regulations.

State of California

California Environmental Quality Act (CEQA) Guidelines

The State CEQA Guidelines consist of a set of mandatory and/or advisory regulations intended to provide guidance and interpretation for implementing CEQA statutes. The Environmental Checklist in Appendix G of the 2007 State CEQA Guidelines includes the following potential CEQA issues: substantial adverse effects to sensitive natural communities; substantial interference with the movement of any resident or migratory wildlife species; and conflict with local policies or ordinances or the provisions of an adopted habitat conservation plan.

2.15.2 Affected Environment

A Natural Environment Study (NES; 2008) was prepared to evaluate the biological resources and potential impacts (permanent and temporary) to such resources within the Biological Study Area (BSA) identified for the Project. Information presented in the following sections is summarized from the NES.

The BSA encompasses approximately 192.9 ha (476.3 ac) within the I-5 corridor, from Sorrento Valley Road to La Jolla Village Drive and includes a 152.4-m- (500-ft-) wide buffer around the Project limits. The BSA is characterized by undeveloped land or urban development, including residential, commercial, office, industrial, and institutional uses abutting I-5. Portions of the UCSD campus occur on both sides of I-5. The Qualcomm office park is located north of Genesee Avenue and east of I-5. Undeveloped land within the MHPA is located north of Genesee Avenue and west of I-5.

The BSA lies within the coastal plains and experiences warm dry summers and mild winters, with an annual precipitation of approximately 33 cm (13 in). Elevations range between 7.9 m (26 ft) and 109.7 m (360 ft) AMSL.

Eleven sensitive natural communities occur within the BSA, including five upland communities and six wetland/riparian communities. Upland habitats include native grassland, Diegan coastal sage scrub (including disturbed), coyote brush scrub, poison oak chaparral, and non-native grassland. Wetland/riparian habitats include freshwater marsh (including disturbed), southern cottonwood-willow riparian forest, southern willow scrub (including disturbed), emergent wetland, disturbed wetland, and open water (Figures 2.15-1a and 2.15-1b). In addition, eucalyptus woodland, ornamental, disturbed habitat, and developed land, which are not considered sensitive communities, occur within the BSA.

The existing conditions and analysis of impacts to the wetland habitats within the BSA are included in Subchapter 2.16, Wetlands and Other Waters, and are not discussed further in this subchapter. A brief discussion of native grassland, Diegan coastal sage scrub (including disturbed), coyote brush scrub, poison oak chaparral, non-native grassland, eucalyptus woodland, ornamental, disturbed habitat, and developed land is provided below.

Natural Communities

Native Grassland

Native grassland is a community dominated by perennial bunchgrasses such as purple needle grass (*Nassella pulchra*) with annual and perennial forbs such as common golden stars (*Bloomeria crocea* ssp. *crocea*) and blue-eyed grass (*Sisyrinchium bellum*). Native grasslands generally occur on fine-textured soils that generally exclude annual, exotic grasses. Almost all of the native grasslands in California have been displaced by non-native grassland dominated by introduced annual species. Native grasslands occur throughout California as small isolated islands.

Approximately 0.3 ha (0.6 ac) of native grassland occurs within the BSA north of Genesee Avenue and west of I-5 (Figure 2.15-1a). Species in this vegetation community within the BSA include blue-eyed grass, foothill needlegrass (*Nassella lepida*), saltgrass (*Distichlis spicata*), three-awn (*Aristida adscensionis*), and fascicled tarplant (*Deinandra fasciculata*).

Diegan Coastal Sage Scrub and Disturbed Diegan Coastal Sage Scrub

Coastal sage scrub is one of the two major shrub types that occur in California. This vegetation community occupies xeric sites (i.e., requiring only a small amount of water) characterized by shallow soils.

Typical coastal sage scrub species include California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), California encelia (*Encelia californica*), laurel sumac (*Malosma laurina*), black sage (*Salvia mellifera*), and lemonadeberry (*Rhus integrifolia*). Disturbed Diegan coastal sage scrub contains many similar shrub species as undisturbed Diegan coastal sage scrub but is sparser and has a higher proportion of non-native annual species. In addition to California sagebrush and California buckwheat, disturbed Diegan coastal sage scrub supports non-native species such as mustard (*Brassica* sp.), foxtail chess (*Bromus madritensis* ssp. *rubens*), common ripgut grass (*Bromus diandrus*), and red-stem filaree (*Erodium cicutarium*).

Approximately 25.3 ha (62.6 ac) of Diegan coastal sage scrub and 2.7 ha (6.7 ac) of disturbed Diegan coastal sage scrub occur throughout the BSA (Figures 2.15-1a and 2.15-1b). Species in this vegetation community within the BSA include laurel sumac, lemonadeberry, broom baccharis (*Baccharis sarothroides*), California encelia, and coyote brush.

Coyote Brush Scrub

Coyote brush scrub, which is a subset of coastal sage scrub, is dominated by coyote brush (*Baccharis pilularis*) and typically occurs in low-lying areas.

Approximately 1.8 ha (4.5 ac) of coyote brush scrub occur within the BSA west of I-5 and north of Genesee Avenue (Figures 2.15-1a and 2.15-1b) and is made up almost entirely of coyote brush.

Poison Oak Chaparral

Poison oak chaparral is a chaparral dominated by poison oak (*Toxicodendron diversilobum*).

Approximately 0.1 ha (0.3 ac) of poison oak chaparral occurs north of Genesee Avenue and west of I-5 within the BSA (Figures 2.15-1a and 2.15-1b) and is made up of poison oak.

Non-native Grassland

Non-native grassland is a dense to sparse cover of annual grasses, often associated with numerous species of showy-flowered native annual forbs. This association occurs on gradual slopes with deep, fine-textured, usually clay soils. Characteristic species include oats (*Avena* sp.), red brome (*Bromus rubens*), ripgut grass, ryegrass (*Lolium* sp.), and mustard. Although much of the BSA supports a dominance of mustard, lesser components of non-native grasses such as oats and bromes also are present. The percent cover by grasses varies from year to year based on climatic conditions.

Approximately 15.1 ha (37.2 ac) of non-native grassland occur throughout the BSA (Figures 2.15-1a and 2.15-1b). Species in this vegetation community within the BSA include oats, purple falsebrome (*Brachypodium distachyon*), foxtail chess, and common ripgut grass.

Eucalyptus Woodland

Eucalyptus woodland is dominated by eucalyptus (*Eucalyptus* sp.), an introduced species that produces a large amount of leaf and bark litter. The chemical and physical characteristics of this litter limits the ability of other species to grow in the understory, leading to a decrease in floristic diversity. In most instances, eucalyptus are planted for a variety of cultural reasons. If sufficient moisture is available, eucalyptus become naturalized and are able to reproduce and expand their range, which has happened in many riparian areas.

Approximately 6.6 ha (16.2 ac) of eucalyptus woodland occur throughout the BSA (Figures 2.15-1a and 2.15-1b) and is dominated by eucalyptus species.

Ornamental

Ornamental areas are comprised of other non-native shrub and tree species not immediately associated with existing developed areas. Approximately 6.7 ha (16.5 ac) of non-native vegetation occur within the BSA.

Disturbed Habitat

Disturbed habitat includes unvegetated or sparsely vegetated areas, particularly where the soil has been heavily compacted by prior development or where agricultural lands have been abandoned. Disturbed habitat is generally dominated by non-native weedy species that adapt to frequent disturbance or consists of dirt trails and roads. Disturbed habitat within the BSA may also primarily support monocultures of mustard. Approximately 10.6 ha (26.1 ac) of disturbed habitat occur within the BSA.

Developed Land

Developed land is that where permanent structures and/or pavement have been placed, preventing the growth of vegetation. Within the BSA, developed land includes roadways and the UCSD campus and Qualcomm office park. Approximately 118.3 ha (292.2 ac) of developed land occur within the BSA.

Multiple Species Conservation Program

The BSA is located within the City of San Diego Multiple Species Conservation Program (MSCP) Subarea Plan area, which is a multi-jurisdictional planning program adopted by the City, U.S. Fish and Wildlife Service (USFWS), and California Department of Fish and Game (CDFG) in 1997. The MSCP includes development regulations for projects within the City of San Diego, and is designed to develop an ecosystem preserve within the City and surrounding incorporated and unincorporated areas. Preserve areas identified within the City under the MSCP are identified as the Multi-Habitat Planning Area (MHPA). Because of the highly developed setting, much of the BSA is not located within the MHPA. Portions of a mesa north of Genesee Avenue and west of I-5 are designated as MHPA, as well as a small area north of the Qualcomm office park and east of I-5. Although the Project is located within the MHPA, Caltrans is not an enrolled agency under the MSCP. While Caltrans strives to be consistent with the MSCP, it is not required to comply with the local plan.

Wildlife (Migration) Corridors

A portion of the BSA is within the MHPA, which is the City's biological preserve intended to link all core biological areas into a regional open space system (Figures 2.15-1a and 2.15-1b). The MHPA within the BSA is located primarily north of Genesee Avenue and west of I-5 with a smaller area located north of the Qualcomm office park and east of I-5. Because of the highly developed setting and the lack of connectivity of most habitats with large areas of habitat outside the BSA, the vast majority of the BSA is not anticipated to support viable wildlife (migration) corridors. It should be noted that mule deer scat was observed in four locations within the BSA, primarily along the western side of I-5. This species uses the western portion of the BSA. Little connectivity between the eastern and western sides of I-5 exists. The Caltrans right-of-way (R/W) on both sides of I-5 is fenced, prohibiting animals from crossing the freeway and requiring animals to travel to Los Peñasquitos Creek to cross. In addition, the existing culverts are likely too long and too dark to provide connectivity for smaller animals such as raccoon. No roadkill was observed within the BSA during surveys.

2.15.3 Environmental Consequences

Project

Natural Communities

The following section discusses potential temporary and permanent impacts to the six upland natural communities within the BSA, including native grassland, Diegan coastal sage scrub, disturbed Diegan coastal sage scrub, coyote brush scrub, poison oak chaparral, and non-native grassland. Potential impacts resulting from the Project and the No Build Alternative are summarized in Table 2.15-1, Impacts to Natural Communities, and depicted in Figures 2.15-2a and 2.15-2b.

| Natural Community | Impacts (ha [ac])* | | | |
|-------------------------------------|--------------------|---------------------|---------------------|----------------------|
| | Project | | | No Build Alternative |
| | Temporary | Permanent | Total | |
| Native grassland | 0 (0) | 0 (0) | 0 (0) | 0 (0) |
| Diegan coastal sage scrub | 0.3 (0.8) | 1.5 (3.7) | 1.8 (4.5) | 0 (0) |
| Disturbed Diegan coastal sage scrub | 0.1 (0.3) | 0.4 (1.0) | 0.5 (1.3) | 0 (0) |
| Coyote brush scrub | 0.1 (0.2) | 0.3 (0.7) | 0.4 (0.9) | 0 (0) |
| Poison oak chaparral | 0 (0) | 0 (0) | 0 (0) | 0 (0) |
| Non-native grassland | 0.9 (2.2) | 3.5 (8.7) | 4.4 (11.0) | 0 (0) |
| Eucalyptus woodland | 0.5 (1.1) | 2.7 (6.6) | 3.2 (7.7) | 0 (0) |
| Ornamental | 0.3 (0.8) | 2.6 (6.3) | 2.9 (7.1) | 0 (0) |
| Disturbed habitat | 0.4 (1.0) | 3.1 (7.5) | 3.5 (8.5) | 0 (0) |
| Developed land | 3.5 (8.7) | 28.1 (69.3) | 31.6 (78.0) | 0 (0) |
| TOTAL | 6.1 (15.1) | 42.2 (103.8) | 48.3 (119.0) | 0 (0) |

*It is noted that areas were calculated in acres and converted to hectares. Due to rounding, hectare areas converted back to acre areas would not match the original acre calculation and hectare totals may not match the addition of the hectare columns.

Native Grassland

The Project would not directly or indirectly impact native grassland within the BSA.

Diegan Coastal Sage Scrub and Disturbed Diegan Coastal Sage Scrub

Implementation of the Project would result in temporary impacts to 0.4 ha (1.1 ac) and permanent impacts to 1.9 ha (4.7 ac) of Diegan coastal sage scrub (including disturbed), for a total of 2.4 ha (5.2 ac).

Coyote Brush Scrub

Implementation of the Project would result in temporary impacts to 0.1 ha (0.2 ac) and permanent impacts to 0.3 ha (0.7 ac) of coyote brush scrub, for a total of 0.4 ha (0.9 ac).

Poison Oak Chaparral

The Project would not directly or indirectly impact poison oak chaparral within the BSA.

Non-native Grassland

Implementation of the Project would result in temporary impacts to 0.9 ha (2.2 ac) and permanent impacts to 3.5 ha (8.7 ac) of non-native grassland, for a total of 4.4 ha (11.0 ac).

Multiple Species Conservation Program

Project implementation would result in impacts to a small portion of upland habitats in the MHPA. Specifically, 0.2 ha (0.4 ac) of Diegan coastal sage scrub; less than 0.1 ha (less than 0.1 ac) of coyote brush scrub, non-native grassland, eucalyptus woodland, and disturbed habitat; and 0.1 ha (0.2 ac) of developed land within the MHPA would be temporarily impacted during Project construction, for a total of 0.3 ha (0.6 ac) of temporary impacts to the MHPA. Following construction, the temporarily impacted MHPA area would be revegetated. The developed portion of the MHPA consists of an existing roadway, which is an allowable use within the MHPA.

Permanent impacts to upland habitats include 0.4 ha (0.9 ac) of Diegan coastal sage scrub; 0.1 ha (less than 0.1 ac) of coyote brush scrub; 0.1 ha (0.2 ac) of eucalyptus woodland; and 0.1 ha (0.3 ac) of disturbed habitat and developed land, for a total of 0.7 ha (1.8 ac) of permanent impacts to the MHPA. An MHPA boundary adjustment is not required for public facilities, including roadways, since they are an allowed use in the MHPA.

In addition, because the Project is adjacent to the MHPA, it is appropriate to analyze the Project's consistency with the MHPA Adjacency Guidelines. These guidelines address potential indirect impacts to the MHPA, such as decreased water quality, fugitive dust, lighting, noise, and invasive species. The Project has been designed to minimize indirect impacts to the MHPA due to adjacency concerns by the implementation of Project design measures, and avoidance and minimization measures identified below in Section 2.15.4, Avoidance, Minimization, and/or Mitigation Measures.

Wildlife (Migration) Corridors

As previously discussed, a portion of the BSA is within the MHPA. The MHPA within the BSA is located primarily north of Genesee Avenue and west of I-5 with a smaller area located north of the Qualcomm office park and east of I-5 (Figures 2.15-1a and 2.15-1b). As stated above, the vast majority of the BSA is not anticipated to function as a viable wildlife corridor, because of the highly developed setting and the lack of connectivity of most habitats with large areas of habitat outside the BSA. Other wildlife corridors occur within the Project vicinity; however, little connectivity between the eastern and western sides of I-5 exists. The Caltrans R/W on both sides of I-5 is fenced, prohibiting animals from crossing the freeway and requiring animals to travel to Los Peñasquitos Creek to cross. In addition, the existing culverts are likely too long and too dark to provide connectivity for smaller animals such as raccoon. Because the existing I-5 corridor acts as a barrier to wildlife movement, the Project would not result in the loss of connectivity between either side of this freeway.

Habitat Fragmentation

The BSA primarily consists of patches of habitat that are surrounded by urbanization, and therefore, the habitat within the BSA is currently fragmented. Impacts to habitat would occur adjacent to existing development and therefore would not further divide existing habitat areas. In addition, sensitive habitats that would be temporarily affected during construction would be revegetated.

No Build Alternative

Under the No Build Alternative, no effects would occur with respect to natural communities, the MHPA, wildlife corridors, or habitat fragmentation.

2.15.4 Avoidance, Minimization and/or Mitigation Measures

The environmental consultant has consulted with the USFWS on biological resource issues. In May 2004, a list of candidate, proposed, threatened, and endangered species with potential to occur within the vicinity of the BSA was requested from USFWS staff, who provided that list in June 2004. USFWS staff was contacted in November 2007, to request an updated USFWS assessment for potential presence of federally listed threatened, endangered, or proposed for listing species. A letter was received from USFWS on March 11, 2008 (see Appendix A for letter). A Biological Opinion for the Project was received from USFWS on March 23, 2011 (see Appendix B).

It should be noted that final mitigation ratios and the location of off-site mitigation would be determined during the permit process. Mitigation ratios within this document are based on mitigation requirements for recent, similar Caltrans projects.

Natural Communities

This section includes a discussion of avoidance and minimization efforts, as well as mitigation requirements for impacts to sensitive upland natural communities. Table 2.15-2 summarizes the anticipated mitigation ratios and mitigation requirements for Project impacts to Diegan coastal sage scrub, disturbed Diegan coastal sage scrub, coyote brush scrub, and non-native grassland. The Project would avoid effects to native grassland and poison oak chaparral and therefore no mitigation would be required for those communities.

| Table 2.15-2 PROPOSED MITIGATION REQUIREMENTS FOR IMPACTS TO SENSITIVE UPLAND NATURAL COMMUNITIES | | | |
|--|-----------------------------|-----------------------------|--|
| Natural Community | Impact (ha[ac])* | Mitigation Ratio | Required Mitigation (ha[ac])* |
| Temporary Impacts | | | |
| Diegan coastal sage scrub | 0.3 (0.8) | 2:1 | 0.6 (1.6) |
| Disturbed Diegan coastal sage scrub | 0.1 (0.3) | 2:1 | 0.2 (0.6) |
| Coyote brush scrub | 0.1 (0.2) | 2:1 | 0.2 (0.4) |
| Non-native grassland | 0.9 (2.2) | 0:1 | 0 (0) |
| Subtotal | 0.1 (3.5) | -- | 1.0 (2.6) |

**Table 2.15-2 (cont.)
PROPOSED MITIGATION REQUIREMENTS FOR
IMPACTS TO SENSITIVE UPLAND NATURAL COMMUNITIES**

| Natural Community | Impact (ha[ac])* | Mitigation Ratio | Required Mitigation (ha[ac])* |
|-------------------------------------|-------------------|------------------|-------------------------------|
| Permanent Impacts | | | |
| Diegan coastal sage scrub | 1.5 (3.7) | 2:1 | 3.0 (7.4) |
| Disturbed Diegan coastal sage scrub | 0.4 (1.0) | 2:1 | 0.8 (2.0) |
| Coyote brush scrub | 0.3 (0.7) | 2:1 | 0.6 (1.4) |
| Non-native grassland | 3.5 (8.7) | 0.5:1 | 1.8 (4.4) |
| Subtotal | 5.7 (14.1) | -- | 6.1 (15.2) |
| TOTAL | 5.8 (17.6) | -- | 7.1 (17.8) |

*Due to rounding, hectares do not exactly match the associated acreages or totals.

Diegan Coastal Sage Scrub and Disturbed Diegan Coastal Sage Scrub

Avoidance and minimization efforts have been incorporated into the Project design. Impacts to Diegan coastal sage scrub and disturbed Diegan coastal sage scrub would be minimized through the installation of proposed retaining walls and construction of manufactured slopes with 2:1 slopes, rather than 4:1, to minimize the grading footprint. Additionally, all sensitive habitats (including both Diegan coastal sage scrub and disturbed Diegan coastal sage scrub) outside the impact areas would be designated as environmentally sensitive areas. These environmentally sensitive areas would be fenced with orange plastic snow fencing, and no personnel, debris, or equipment would be allowed in the environmentally sensitive areas. Fencing would be installed in a manner that would not impact habitats to be avoided and such that it is clearly visible to personnel on foot and operating heavy equipment. Fencing would be maintained throughout the construction period to preclude human entry into the MHPA. No construction activities, materials, or equipment would be permitted outside the fenced Project footprint. Caltrans would submit the final plans for initial clearing and grubbing of habitat and Project construction to USFWS for approval, at least five days prior to initiating Project impacts (except for impacts resulting from clearing to install temporary fencing). These final plans would include photographs that show the fenced limits of impact and all areas to be impacted or avoided. If work occurs beyond the fenced or demarcated limits of impact, all work would cease until the problem has been remedied to the satisfaction of USFWS. Any impacts that occur beyond the approved fenced area would be offset in consultation with USFWS. Temporary construction fencing would be removed upon Project completion.

Mitigation for permanent and temporary impacts to Diegan coastal sage scrub (including disturbed) is proposed at a 2:1 ratio. Temporary and permanent impacts to Diegan coastal sage scrub (including disturbed) would be minimized by implementation of the following measures:

- Mitigation for temporary impacts to 0.4 ha (1.1 ac) of Diegan coastal sage scrub (including disturbed) would include (1) temporary revegetation on site by hydroseeding with a Diegan coastal sage scrub plant palette and (2) off-site creation of Diegan coastal sage scrub (at a 2:1 ratio). The slopes would be temporarily revegetated until the proposed I-5 North Coast Corridor project is implemented, at which time the final slopes would be permanently revegetated.

- Mitigation for permanent impacts to 1.9 ha (4.7 ac) of Diegan coastal sage scrub (including disturbed) is proposed at a 2:1 ratio with off-site creation of Diegan coastal sage scrub.

Off-site Diegan coastal sage scrub creation is proposed at the Pardee (Deer Canyon) Mitigation Parcel (Figure 2.15-3).

The Pardee (Deer Canyon) Mitigation Parcel is located south of State Route 56 (SR 56) off of the Carmel Valley Road off-ramp (Figure 2.15-4). There are two successful wetland mitigation sites already created adjacent to this parcel, one in McGonigle Canyon immediately to the north and one at the western end of the parcel near where Deer Canyon meets McGonigle Canyon. The Pardee (Deer Canyon) Mitigation Parcel was used in the past for agriculture and a nursery and the majority of the property is either disturbed habitat or non-native grassland. The disturbed habitat occurs in the lower elevations on either side of Deer Canyon Creek, which is primarily a dry, cobble streambed on site. The disturbed habitat is dominated by mustards (*Brassica* spp.), fennel (*Foeniculum vulgare*), Russian thistle (*Salsola tragus*), and mugwort (*Artemisia douglasiana*). The non-native grassland along the slopes and dirt roads is dominated by ripgut grass (*Bromus diandrus*), oats (*Avena* sp.), and storksbill (*Erodium* spp.).

The Pardee (Deer Canyon) Mitigation Parcel would have the soil excavated to create the wetland mitigation areas (see Section 2.16.4) would be incorporated into the slopes outside the wetland where approximately 5.3 ha (13.4 ac) of coastal sage scrub would be created (Figure 2.15-4). In addition, at least 1.8 ha (4.4 ac) of non-native grassland would be preserved on the mitigation parcel. The entire parcel would be placed in open space and preserved in perpetuity.

The draft mitigation plan for the Pardee (Deer Canyon) Mitigation Parcel has been reviewed by the resource agencies, and the final draft has been completed and is in review.

A perpetual biological conservation easement or other conservation mechanism acceptable to USFWS would be recorded over the areas preserved, restored, and/or enhanced by the Project at the Pardee (Deer Canyon) Mitigation Parcel. The conservation mechanism would specify that no easements or activities (e.g., fuel modification zones, public trails, drainage facilities, walls, maintenance access roads) that would result in soil disturbance and/or vegetation removal would be allowed within the biological conservation easement areas. Caltrans anticipates that the mitigation parcel would be placed into a conservation easement or other conservation mechanism prior to initiating Project impacts; however, annual reports would be provided on the mitigation parcel's status until the conservation mechanism has been placed.

Caltrans would prepare a perpetual long-term management, maintenance, and monitoring plan (e.g., a Habitat Management Plan [HMP]) for the Pardee (Deer Canyon) Mitigation Parcel. The HMP would include, but not be limited to, the following: method of protecting the resources in perpetuity (e.g., conservation easement), monitoring schedule, measures to prevent human and exotic species encroachment, funding mechanism, and contingency measures if problems occur. The City has agreed to own and manage the mitigation parcel with a management endowment that would be paid by Caltrans, in accordance with the requirements of the TransNet Memorandum of Agreement. Caltrans would establish a non-wasting endowment in an amount approved by USFWS based on a Property Analysis Record or similar cost estimation method to secure the ongoing funding for the perpetual long-term management, maintenance, and monitoring of the biological conservation easement area by an entity approved by USFWS. Caltrans would submit a draft HMP including a description of perpetual management, maintenance, and monitoring actions, and the Property Analysis Record or other cost estimation

results for the non-wasting endowment to USFWS for approval. Caltrans would submit the final HMP to USFWS and transfer the funds for the non-wasting endowments to the appropriate management entities. Caltrans anticipates that preparation of the HMP and transferring of the funds for the non-wasting endowment would not occur prior to initiating Project impacts; however, annual reports would be provided on the status until the final HMP has been provided and the endowment funds have been transferred.

Coyote Brush Scrub

Avoidance and minimization efforts have been incorporated into the Project design. Impacts to coyote brush scrub would be minimized through the installation of proposed retaining walls to minimize the grading footprint. Additionally, all sensitive habitats (including coyote brush scrub) outside the impact areas would be designated as environmentally sensitive areas. These environmentally sensitive areas would be fenced with orange plastic snow fencing, and no personnel, debris, or equipment would be allowed in the environmentally sensitive areas.

Impacts to coyote brush scrub would be minimized by implementation of the following measures:

- Mitigation for temporary impacts to 0.1 ha (0.2 ac) of coyote brush scrub would include off-site creation of Diegan coastal sage scrub (at a 2:1 ratio) and temporary revegetation on site (at a 1:1 ratio) by hydroseeding with a Diegan coastal sage scrub plant palette. The slopes would be temporarily revegetated until the proposed I-5 North Coast Corridor project is implemented, at which time the final slopes would be permanently revegetated.
- Mitigation for permanent impacts to 0.3 ha (0.7 ac) of coyote brush scrub is proposed at a 2:1 ratio with off-site creation of Diegan coastal sage scrub at the Pardee (Deer Canyon) Mitigation Parcel.

Non-native Grassland

Avoidance and minimization efforts have been incorporated into the Project design. All sensitive habitats (including non-native grasslands) outside the impact areas would be designated as environmentally sensitive areas. These environmentally sensitive areas would be fenced with orange plastic snow fencing, and no personnel, debris, or equipment would be allowed in the environmentally sensitive areas. Temporary impacts to species occupying or using non-native grasslands would be minimized through the implementation of the following measure:

- Temporary impact areas would be hydroseeded with a native grassland and forb palette for erosion control measures.

Permanent impacts to non-native grassland would be minimized by implementation of the following measure:

- Mitigation for permanent impacts to 3.5 ha (8.7 ac) of non-native grassland is proposed at a 0.5:1 ratio with off-site preservation of non-native grassland at the Pardee (Deer Canyon) Mitigation Parcel.

Multiple Species Conservation Program

The Project has been designed to minimize impacts to the MHPA. Direct impacts to natural communities within the MHPA would include 0.2 ha (0.6 ac) temporary impacts and 1.1 ha

(2.8 ac) permanent impacts. The loss of these habitats would be minimized through implementation of the mitigation identified for the habitats above in this subchapter, and implementation of the mitigation under Subchapter 2.16, Wetlands and Other Waters (for impacts to southern willow scrub [including disturbed] within the MHPA).

Direct and indirect impacts due to adjacency concerns related to fugitive dust, and invasive species would be avoided or minimized to acceptable levels through Project design, and implementation of the following avoidance and minimization measures:

- All sensitive habitats outside the impact areas would be designated as environmentally sensitive areas. These environmentally sensitive areas would be fenced with orange plastic snow fencing, and no personnel, debris, or equipment would be allowed in the environmentally sensitive areas.
- Fugitive dust would be minimized through the application of water or chemical palliatives to active construction areas and unpaved surfaces.
- Areas of temporary impacts would be hydroseeded with a Diegan coastal sage scrub or native grassland and forb plant palette for temporary revegetation and would contain only native species.
- Invasive plant species would not be used in Project landscaping.
- Site design BMPs are intended to control construction and post-development runoff, erosion potential, and contaminant generation. Construction-related BMPs would include:
 - Installing erosion and sediment control devices such as silt fences, fiber rolls, bonded fiber matrix, mulching, and gravel bags in appropriate locations;
 - Placing temporary filters at storm drain inlets (e.g., gravel bags/filter fabric);
 - Stabilizing construction entrances;
 - Designating containment areas for material storage (e.g., covering/berming of soil stockpiles);
 - Providing containment areas for solid waste storage and concrete washout; and
 - Using energy dissipators in appropriate locations.

Proposed post-construction BMPs would include the use of appropriate devices/techniques such as landscaping/revegetation and vegetated swales/grass strips. Energy dissipators would reduce the velocity and downstream erosion potential of runoff leaving the Project area and would help maintain pre-development velocity rates. All site design BMPs would reduce long-term urban contaminant generation by minimizing runoff volumes and velocities, removing accumulated contaminants, and increasing infiltration.

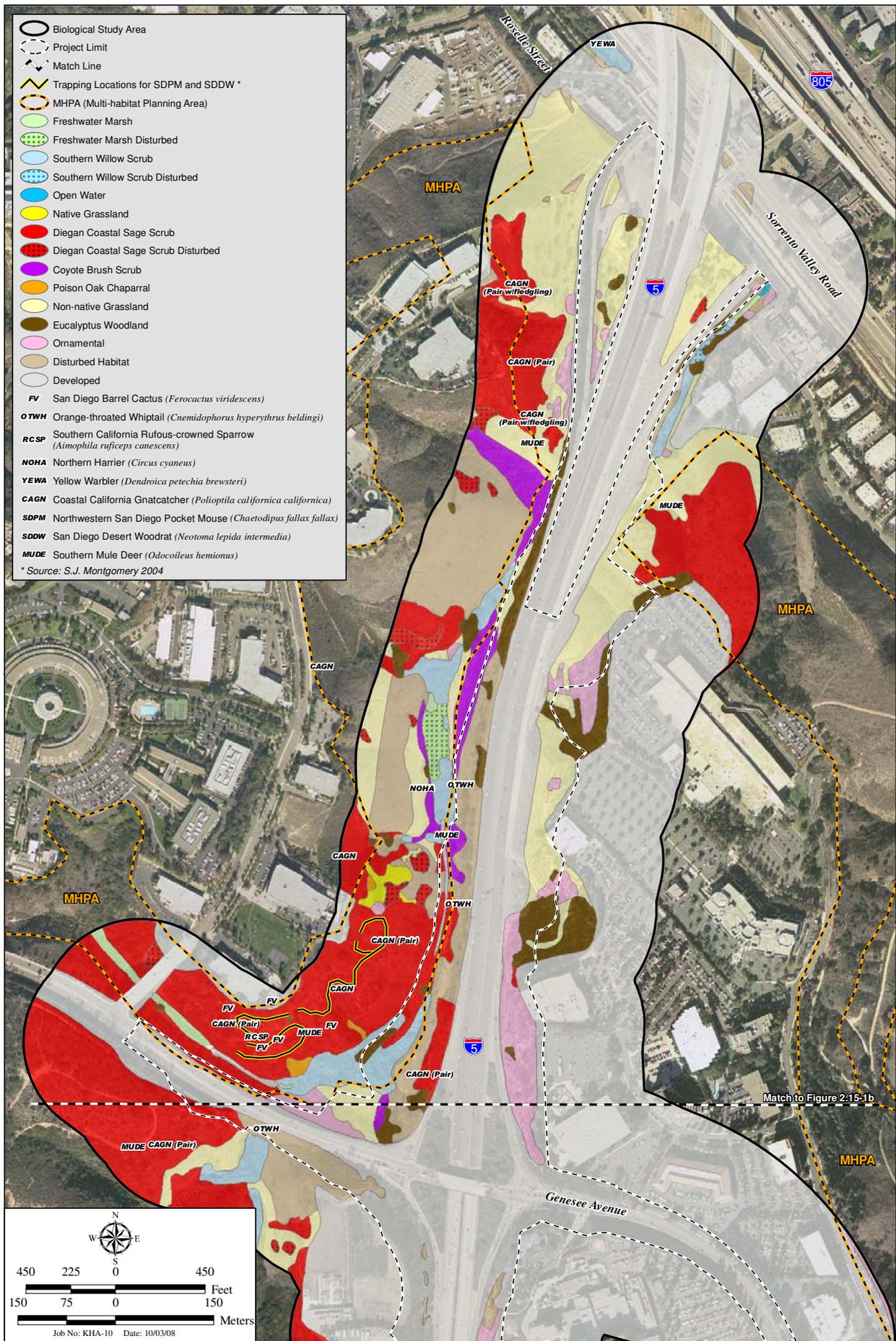
Bioswales would be planted with appropriate species. Slopes adjacent to developed urban areas would be vegetated with native and drought tolerant non-invasive species selected by the landscape architect in coordination with the biologist and others. Interchanges located in urban areas would be landscaped with native or ornamental non-invasive species.

Drainage from the construction area and new and proposed developed areas in and adjacent to the preserve would not drain directly into the MHPA. Topography of the site is such that MHPA lands directly adjacent to the project are at a higher elevation. The Project would use biofiltration to treat road runoff prior to discharge into receiving water bodies. The use of

structural and non-structural BMPs and the restriction of grading and paving activity during significant rain events would reduce potential impacts associated with construction. The project design would comply with Caltrans Municipal Stormwater Permit criteria of the State Water Resources Control Board and the Clean Water Act Section 401 Water Quality Certification issued by the Regional Water Quality Control Board for the Project. Erosion and sediment control devices used for the Project, including fiber rolls and bonded fiber matrix, would be made from biodegradable materials such as jute, with no plastic mesh, to avoid creating a wildlife entanglement hazard.

Caltrans would ensure that the following conditions would be implemented during Project construction:

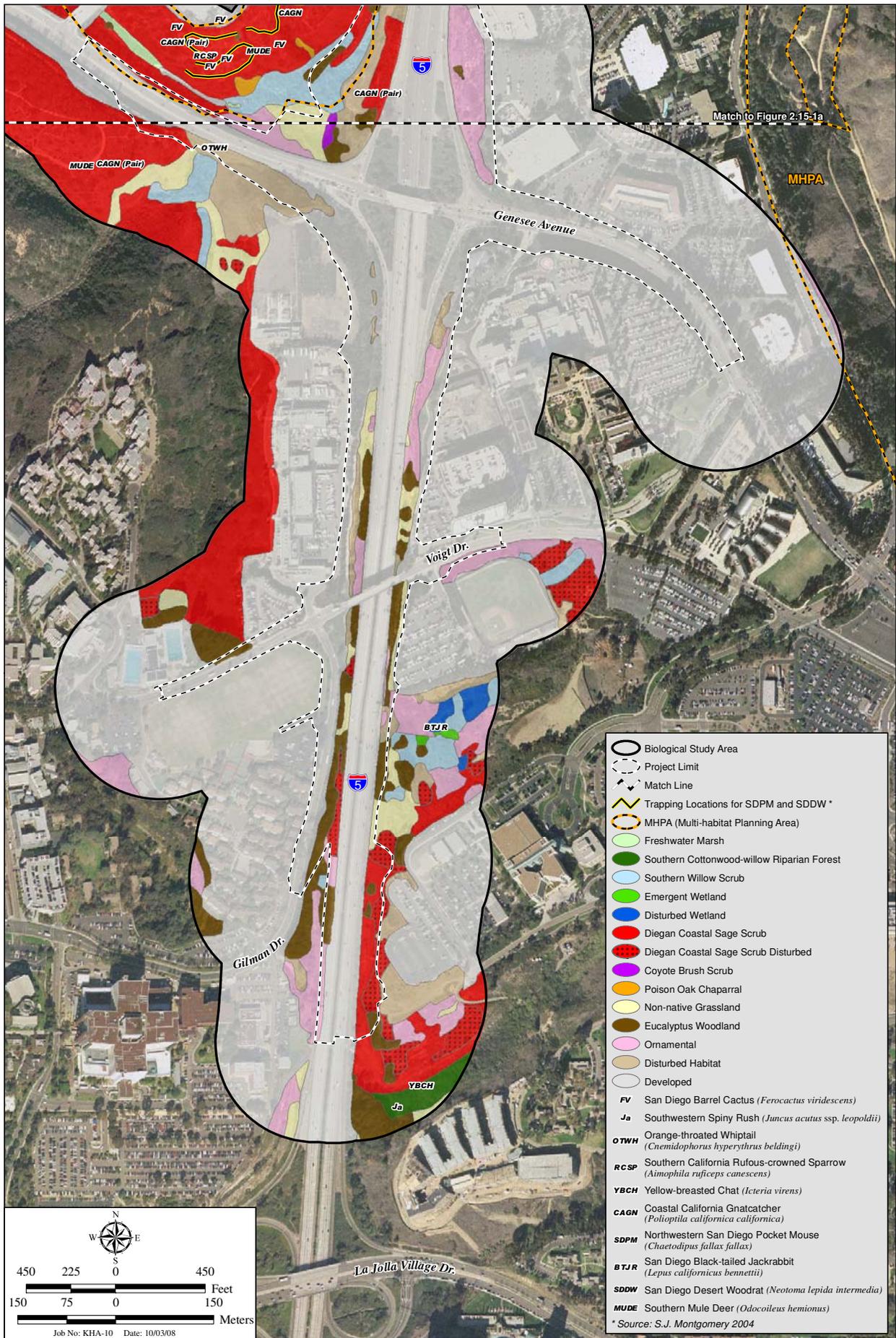
- Contractors and construction personnel would strictly limit their activities, vehicles, equipment, and construction materials to the fenced Project footprint;
- The Project site would be kept as clean of debris as possible. All food-related trash items would be enclosed in sealed containers and regularly removed from the site;
- Pets of construction personnel would not be allowed on the Project site;
- All equipment maintenance, staging, and dispensing of fuel, oil, coolant, or any other such activities would occur within the fenced Project impacts limits. The changing of oil, refueling, and other actions that could result in a release of a hazardous substance would be restricted to designated areas that are a minimum of 30.5 m (100 ft) from any drainages. Such designated areas would be surrounded with berms, sandbags, or other barriers to further prevent the accidental spill of fuel, oil, or chemicals. Any accidental spills would be immediately contained, cleaned up, and properly disposed;
- Impacts from fugitive dust would be avoided and minimized through watering and other appropriate measures; and
- Cut and fill would be balanced within the Project or the construction contractor would identify the source or disposal location. All spoils and material disposal will be disposed of properly.



Vegetation and Sensitive Resources

INTERSTATE 5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION

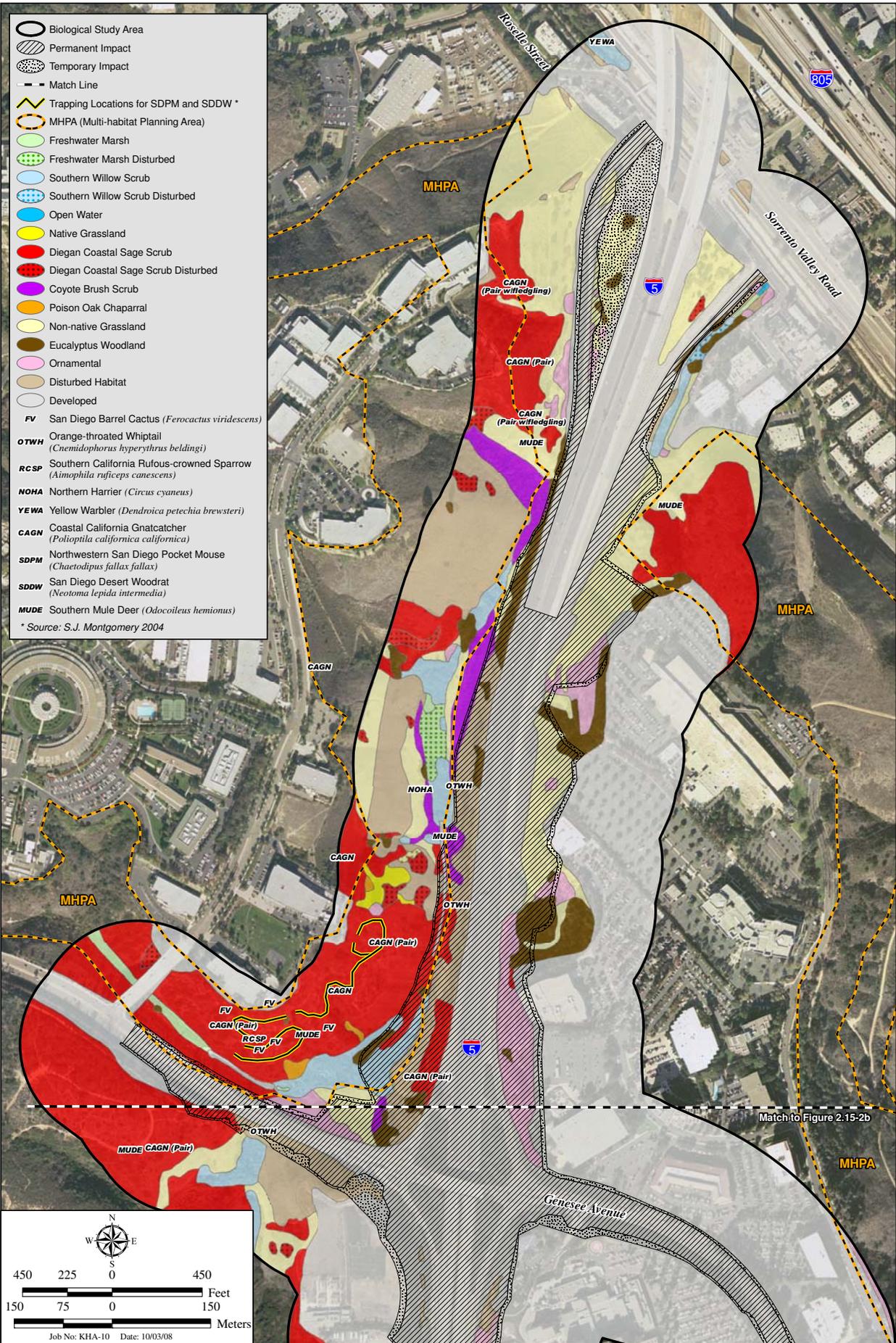
Figure 2.15-1a



Vegetation and Sensitive Resources

INTERSTATE 5/GENEESSEE AVENUE INTERCHANGE RECONSTRUCTION

Figure 2.15-1b

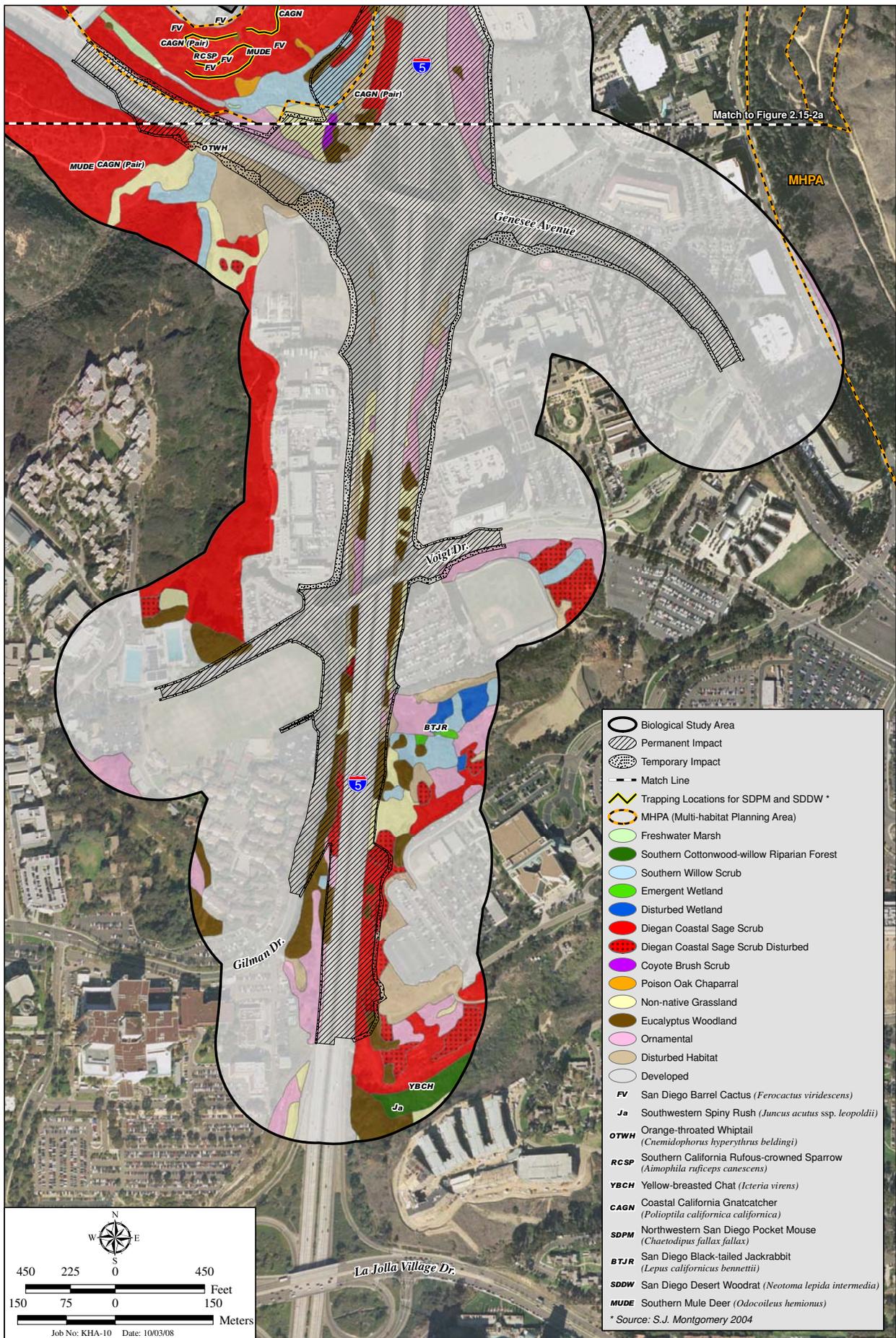


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Vegetation and Sensitive Resources/Impacts

INTERSTATE 5/GENESSEE AVENUE INTERCHANGE RECONSTRUCTION

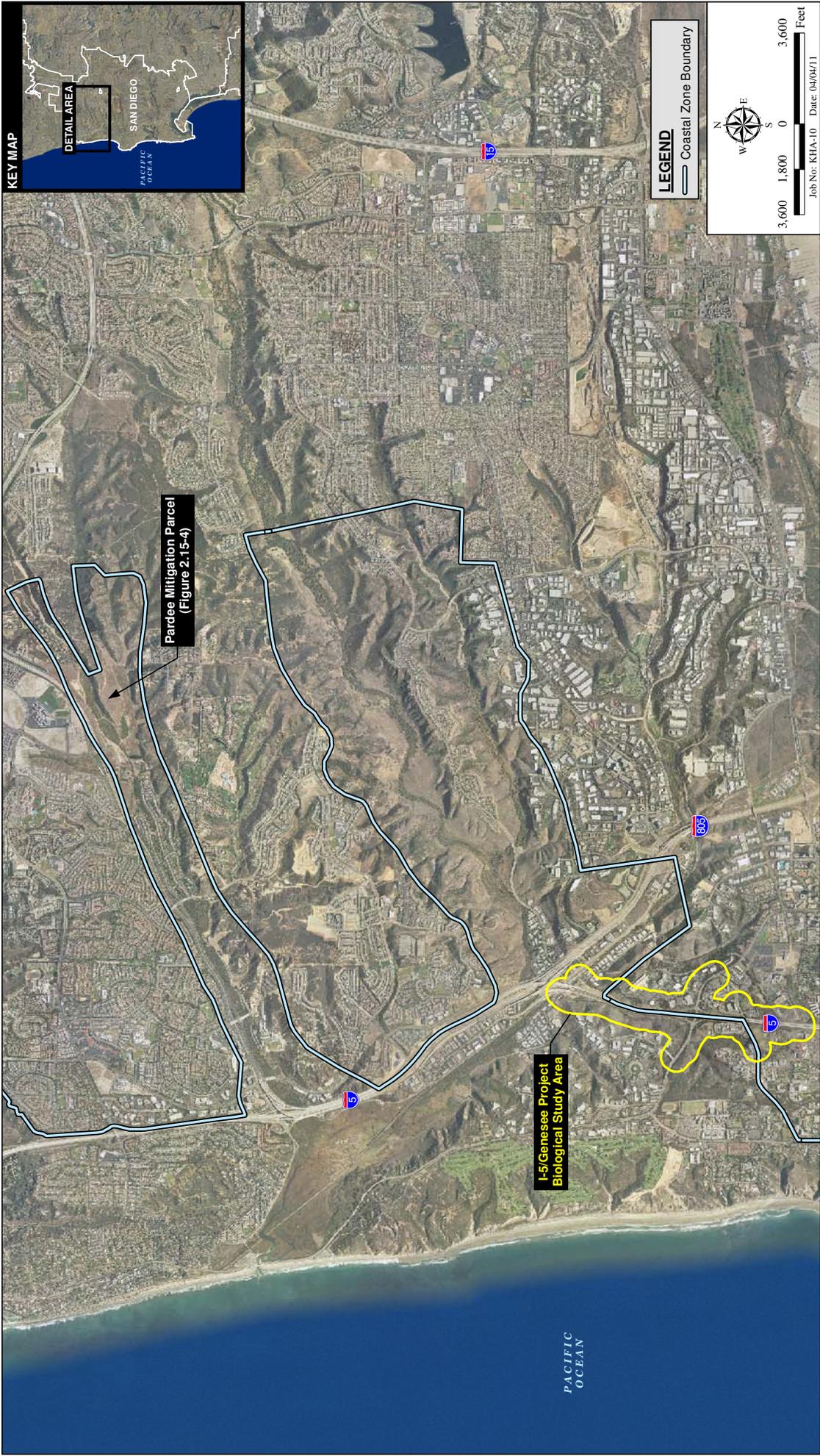
Figure 2.15-2a



Vegetation and Sensitive Resources/Impacts

INTERSTATE 5/GENESEEE AVENUE INTERCHANGE RECONSTRUCTION

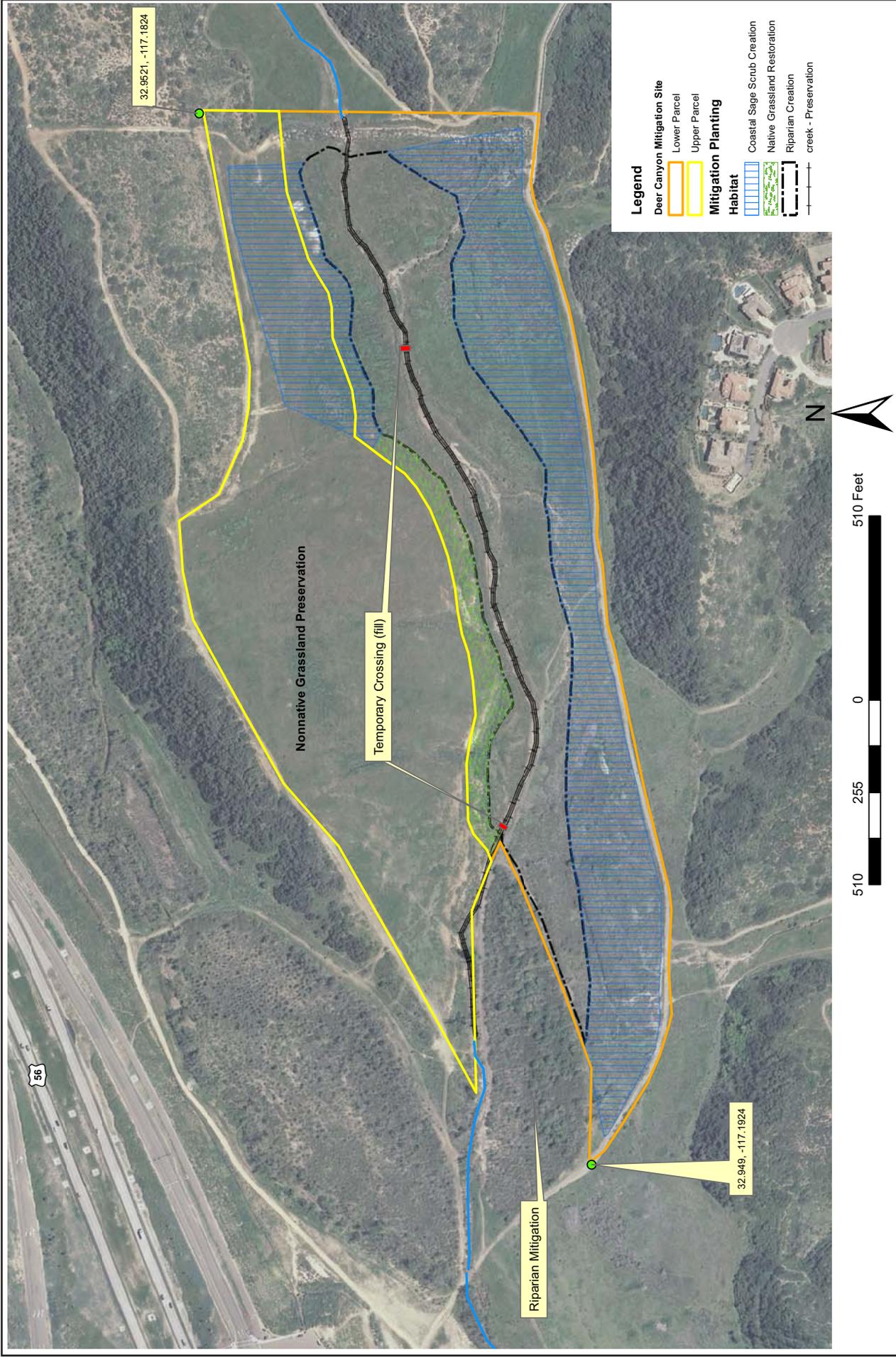
Figure 2.15-2b



Potential Mitigation Site Locations

INTERSTATE 5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION

Figure 2.15-3



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Pardee Mitigation Parcel

INTERSTATE 5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION

Figure 2.15-4

2.16 WETLANDS AND OTHER WATERS

This subchapter summarizes the wetland and riparian habitats and jurisdictional areas within the Biological Study Area (BSA), and assesses potential impacts to these areas associated with the Project and No Build Alternative.

2.16.1 Regulatory Setting

Wetlands and other waters are protected under a number of laws and regulations. At the federal level, the Clean Water Act (CWA; 33 USC 1344) is the primary law regulating wetlands and waters. The CWA regulates the discharge of dredged or fill material into Waters of the U.S. (WUS), including wetlands. WUS include navigable waters, interstate waters, territorial seas, and other waters that may be used in interstate or foreign commerce. To classify wetlands for the purposes of the CWA, a three-parameter approach is used that includes the presence of hydrophytic (water-loving) vegetation, wetland hydrology, and hydric soils (soils subject to saturation/inundation). All three parameters must be present, under normal circumstances, for an area to be designated as a jurisdictional wetland under the CWA.

Section 404 of the CWA establishes a regulatory program that provides that no discharge of dredged or fill material can be permitted if a practicable alternative exists that is less damaging to the aquatic environment or if the nation's waters would be significantly degraded. The Section 404 permit program is run by the Corps with oversight by the U.S. Environmental Protection Agency (USEPA).

The Executive Order (EO) for the Protection of Wetlands (EO 11990) also regulates the activities of federal agencies with regard to wetlands. Essentially, this executive order states that a federal agency, such as the FHWA, cannot undertake or provide assistance for new construction located in wetlands unless the head of the agency finds: (1) that there is no practicable alternative to the construction and (2) the proposed project includes all practicable measures to minimize harm.

At the state level, wetlands and waters are regulated primarily by California Department of Fish and Game (CDFG) and the Regional Water Quality Control Board (RWQCB). In certain circumstances, the Coastal Commission (or Bay Conservation and Development Commission) may also be involved. Sections 1600-1607 of the Fish and Game Code require any agency that proposes a project that would substantially divert or obstruct the natural flow of or substantially change the bed or bank of a river, stream, or lake to notify CDFG before beginning construction. If CDFG determines that the project may affect fish or wildlife resources, a Lake or Streambed Alteration Agreement would be required to complete the Project. CDFG jurisdictional limits are usually defined by the tops of the stream or lake banks, or the outer edge of riparian vegetation, whichever is wider. Wetlands under jurisdiction of the Corps may or may not be included in the area covered by a Streambed Alteration Agreement obtained from the CDFG.

The RWQCBs were established under the Porter-Cologne Water Quality Control Act to oversee water quality. The RWQCB also issues water quality certifications in compliance with Section 401 of the CWA. Please refer to Section 2.9.2 for additional details.

2.16.2 Affected Environment

A Natural Environment Study (NES; 2008) was prepared to evaluate the biological resources and potential impacts (permanent and temporary) to such resources within the BSA identified

for the Project. In addition, a Jurisdictional Delineation Report (2008) was prepared to evaluate jurisdictional areas, as well as potential impacts. Information presented in the following sections is summarized from the NES and Jurisdictional Delineation Report.

Wetland and Riparian Habitats

As defined in the Jurisdictional Delineation Report, the jurisdictional delineation study area includes the Project area and areas within 30.5 m (100 ft) of it. Wetland and riparian habitats within the BSA include freshwater marsh (including disturbed), southern cottonwood-willow riparian forest, southern willow scrub (including disturbed), emergent wetland, disturbed wetland, and open water. A brief description of these habitat types is provided below.

Freshwater Marsh (including disturbed)

Freshwater marsh is dominated by perennial, emergent monocots (plants that produce on the germination of one seed) up to 3.6 m (12 ft) in height that often form completely closed canopies. This vegetation community occurs along the coast and in coastal valleys near river mouths and around the margins of lakes and springs. These areas are permanently flooded by fresh water yet lack a significant current. Characteristic species include cattails (*Typha* sp.), spike-sedge (*Eleocharis* sp.), rush (*Juncus* sp.), and umbrella sedge (*Cyperus* sp.).

Approximately 0.71 ha (1.77 ac) of freshwater marsh (including disturbed) occurs within the jurisdictional delineation study area (see following section, Jurisdictional Areas) west of I-5 and north of Genesee Avenue (refer to Figure 2.15-1a). Species in this vegetation community within the BSA include broad-leaved cattail (*Typha latifolia*), yerba mansa (*Anemopsis californica*), bulrush (*Scirpus maritimus*), and salt-marsh fleabane (*Pluchea odorata*).

Southern Cottonwood-willow Riparian Forest

Southern cottonwood-willow riparian forest consists of tall, open, broad-leaved, winter-deciduous stands of trees dominated by Fremont cottonwood (*Populus fremontii*), black cottonwood (*Populus trichocarpa*), and several tree willows (*Salix* sp.). This vegetation community occurs along perennially wet stream reaches of the Transverse and Peninsular ranges.

Approximately 0.52 ha (1.30 ac) of southern cottonwood-willow riparian forest occurs in the southernmost portion of the BSA (refer to Figure 2.15-1b). Species in this vegetation community within the BSA include broad-leaved cattail, Fremont cottonwood (*Populus fremontii* ssp. *fremontii*), narrow-leaved willow (*Salix exigua*), southwestern spiny rush (*Juncus acutus* ssp. *leopoldii*), and pampas grass (*Cortaderia selloana*).

Southern Willow Scrub (including disturbed)

Southern willow scrub consists of dense, broadleaved, winter-deciduous stands of trees dominated by shrubby willows in association with mule fat (*Baccharis salicifolia*). This vegetation community occurs on loose, sandy, or fine gravelly alluvium deposited near stream channels during flood flows. The herbaceous understory of southern willow scrub consists of curly dock (*Rumex crispus*), cocklebur (*Xanthium strumarium* var. *canadense*), and western ragweed (*Ambrosia psilostachya*). Frequent flooding maintains this early seral community, preventing succession to a riparian woodland or forest (Holland 1986). In the absence of periodic flooding, competition between the willows will intensify as these individuals grow and

resources become scarcer. A small percentage of these individuals will survive and form the tree stratum, while most will die or exist as suppressed juveniles in the lower stratum.

Approximately 3.79 ha (9.35 ac) of southern willow scrub (including disturbed) occur within the jurisdictional delineation study area (refer to Figures 2.15-1a and 2.15-1b). This vegetation community occurs in the following locations: east and west of I-5 south of Voigt Drive; west of I-5 on the north and south sides of Genesee Avenue; and west of I-5 south of Sorrento Valley Road. Typical species in this vegetation community within the jurisdictional delineation study area include arroyo willow (*Salix lasiolepis*), sedge (*Cyperus* sp.), and pampas grass.

Emergent Wetland

Emergent wetland is identified as an herbaceous vegetation community occurring in an area that has experienced altered hydrology. This vegetation community is typically dominated by wrinkled rush (*Juncus rugulosus*), toad rush (*Juncus bufonius*), and wetland grasses.

Approximately 0.06 ha (0.16 ac) of emergent wetland occurs within the jurisdictional delineation study area south of Voigt Drive and east of I-5 (refer to Figure 2.15-1b). Species in this vegetation community within the jurisdictional delineation study area include California bulrush (*Scirpus californicus*), curly dock, yerba mansa, and rabbitsfoot grass (*Polypogon monspeliensis*).

Open Water

Open water habitat includes lakes, ponds, or other bodies of water that do not support emergent plant cover. Approximately 0.02 ha (0.04 ac) of open water occurs within the northern portion of the jurisdictional delineation study area near Sorrento Valley Road (refer to Figure 2.15-1a).

Disturbed Wetland

This vegetation community is dominated by exotic wetland species that have invaded sites that have been previously disturbed or undergone periodic disturbances such that these invasive non-natives have displaced the native wetland flora. Characteristic species include giant reed (*Arundo donax*), ox tongue (*Picris echioides*), cocklebur, and tamarisk (*Tamarix* sp.).

Approximately 0.33 ha (0.82 ac) of disturbed wetland occurs east of I-5 and south of Voigt Drive within the BSA (refer to Figure 2.15-1a). Species in this vegetation community within the BSA include rabbitsfoot grass, celery (*Apium graveolens*), and Crete hedypnois (*Hedypnois cretica*).

Jurisdictional Areas

Jurisdictional delineations were conducted in June 2007 within a jurisdictional delineation study area that encompasses the Project site limits plus a 30.5-m (100-ft) buffer. The jurisdictional delineation study area is located within the larger BSA (Project site limits plus a 152.4-m [500-ft] buffer). Prior to conducting jurisdictional delineation fieldwork, topographical and vegetation maps, as well as recent aerial photographs were reviewed to determine potential jurisdictional areas within the BSA. Corps and CDFG jurisdictional areas within the jurisdictional delineation study area are depicted in Figures 2.16-1a, 2.16-1b, 2.16-2a, and 2.16-2b.

All potential wetlands/WUS areas within the jurisdictional delineation study area were evaluated according to the Corps wetland delineation guidelines. Wetland boundaries were determined

using the three Corps criteria (vegetation, hydrology, and soils) established for wetland delineations, as described within the Wetlands Delineation Manual (Environmental Laboratory 1987) and Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Corps 2006). If an area was suspected of being a wetland, vegetation and hydrology indicators were noted, and a soil pit was dug and described (see Appendix D of the NES for wetland sampling plot data sheets). The area was determined to be a federal wetland if it satisfied all three wetland criteria (as listed above). Areas were determined to be non-wetland WUS if there was evidence of regular surface flow (e.g., bed and bank), but the vegetation criterion was not met. Non-wetland areas encompassed by the ordinary high water mark (OHWM) were measured, and vegetation (if present) was noted. All non-wetland WUS were measured and mapped in the field.

CDFG jurisdictional areas also were identified and mapped during the delineation. CDFG jurisdictional boundaries were determined based on the presence of riparian vegetation or regular surface flow (bed and bank). Streambeds within CDFG jurisdiction were delineated based on the definition of streambed as “a body of water that flows at least periodically or intermittently through a bed or channel having banks and supporting fish or other aquatic life, including watercourses having a surface or subsurface flow that supports riparian vegetation.” CDFG jurisdictional habitat includes all riparian shrub or tree canopy that may extend beyond the banks of a stream. CDFG jurisdictional areas include the above-mentioned Corps jurisdictional areas, as well as some areas of wetland vegetation beyond the limits of federal (Corps) jurisdiction.

Corps jurisdictional areas in the jurisdictional delineation study area include freshwater marsh (including disturbed), southern willow scrub (including disturbed), open water, and non-wetland WUS. CDFG jurisdictional areas within the BSA include freshwater marsh (including disturbed), southern willow scrub (including disturbed), open water, and streambed. Descriptions of wetland habitats within jurisdictional areas are provided above, and non-wetland WUS/CDFG streambed is discussed below. Corps and CDFG jurisdictional areas within the jurisdictional delineation study area are summarized in Table 2.16-1 and are depicted in Figures 2.16-1a, 2.16-1b, 2.16-2a, and 2.16-2b.

| Table 2.16-1 CORPS AND CDFG JURISDICTIONAL AREAS WITHIN THE JURISDICTIONAL DELINEATION STUDY AREA | | |
|--|--------------------------|--------------------|
| HABITAT | ACREAGE (ha [ac]) | |
| | Corps | CDFG |
| Wetlands | | |
| Freshwater marsh (including disturbed) | 0.19 (0.46) | 0.19 (0.46) |
| Southern willow scrub (including disturbed) | 0.26 (0.63) | 1.82 (4.49) |
| Open water | 0.02 (0.04) | 0.02 (0.04) |
| Non-wetland WUS | | |
| Drainage | 0.15 (0.37) | -- |
| Streambed | -- | 0.05 (0.13) |
| TOTAL | 0.62 (1.50) | 2.08 (5.12) |

Non-wetland WUS/CDFG Streambed

The jurisdictional delineation study area contains portions of unnamed drainages that connect various riparian areas. These areas are regulated by the Corps as non-wetland WUS and by the CDFG as streambeds. Corps jurisdictional drainages were delineated at the OHWM and CDFG streambeds were delineated at the top of bank, with widths ranging from 0.3 to 1.5 m (1 to 5 ft). Jurisdictional drainages/streambeds are located west of I-5 and north of Genesee Avenue, as well as on both sides of I-5 south of Voigt Drive. Culverts under the I-5 connect the drainages south of Voigt Drive to each other; flows are conveyed to the south. An OHWM was not present in all portions of the drainages, and areas not exhibiting an OHWM were not considered Corps jurisdictional.

2.16.3 Environmental Consequences

Project

Wetland and Riparian Habitats

The Project would temporarily impact 0.02 ha (0.05 ac) of southern willow scrub (including disturbed) and permanently impact 0.45 ha (1.12 ac), for a total of 0.47 ha (1.17 ac; Figure 2.15-2a). Impacts would occur as a result of filling a drainage located to the northwest of the I-5/Genesee Avenue interchange. The Project would avoid temporary and permanent impacts to all other wetland and riparian habitats within the BSA, including freshwater marsh (including disturbed), southern cottonwood-willow riparian forest, emergent wetland, open water, and disturbed wetland.

Jurisdictional Areas

Corps jurisdictional areas that would be impacted by the Project consist of 0.04 ha (0.09 ac) of non-wetland WUS (Figures 2.16-1a and 2.16-1b). CDFG jurisdictional areas that would be impacted include 0.47 ha (1.17 ac) of southern willow scrub, which includes 0.02 ha (0.05 ac) of non-wetland streambed (Figures 2.16-2a and 2.16-2b). These areas would be impacted by grading required for the buttress at the northwestern corner of I-5/Genesee Avenue.

Water quality could be affected during construction or operation by potential surface runoff, including sedimentation, fertilizers, and car petroleum products. Decreased water quality may affect vegetation, aquatic animals, and terrestrial wildlife that depend upon these resources.

No Build Alternative

Under the No Build Alternative, no effects would occur to wetland or riparian habitat or jurisdictional areas.

2.16.4 Avoidance, Minimization, and/or Mitigation Measures

It should be noted that discussions with the resource agencies regarding mitigation ratios and the potential location of off-site mitigation are ongoing. Mitigation ratios within this document are based on mitigation requirements for recent, similar Caltrans projects.

Wetland and Riparian Habitats

The Project has been designed to avoid and/or minimize temporary and permanent impacts to wetland and riparian habitats. As noted in Subchapter 1.5, Alternatives Considered but Eliminated from Further Discussion, an alternative design that would avoid impacts to wetlands was considered. The Project design team examined the use of a large retaining wall to stabilize the ancient landslide below the southbound I-5 off-ramp to Genesee Avenue as an alternative to the proposed earthen buttress design. It was concluded by the Project design team that any typical application of retaining wall (structural concrete, steel, soldier pile with lagging, soil-nail, or tie-back wall) cannot adequately be designed to provide the required factor of safety. The large retaining wall alternative was therefore rejected based on design feasibility. While it is not feasible to completely avoid Project impacts to southern willow scrub (including disturbed), the area of impact in other portions of the Project site has been reduced with the use of retaining walls that minimize the Project grading footprint.

Mitigation for both temporary and permanent impacts to southern willow scrub is proposed at a 3:1 ratio. Temporary impact areas would be revegetated after construction; however, all impacts are mitigated as permanent due to the proposed I-5 North Coast Corridor project that would likely impact the area again. Therefore, the temporary impact area would be mitigated as permanent under this project and mitigation would be complete for this area. The off-site mitigation for southern willow scrub (including disturbed) would be completed at the Pardee (Deer Canyon) Mitigation Parcel as part of a 5.0 ha (12.3 ac) wetland creation site. Approximately 1.46 ha (3.60 ac) of southern willow scrub is required for mitigation for impacts to southern willow scrub and drainage/streambed.

The Pardee (Deer Canyon) Mitigation Parcel occurs within the western end of McGonigle Canyon (within the coastal zone). The site is located near other areas successfully restored to wetland habitat and is suitable for wetland creation. Caltrans proposes to create approximately 5.0 ha (12.3 ac) of southern willow scrub to meet the no net loss requirement for wetland impacts along either side of the existing cobble channel, without impacting the channel itself within the Pardee (Deer Canyon) Mitigation Parcel. The wetland created on site also would be used to mitigate wetland impacts for several other projects.

Wetland communities occur in proximity to the Project footprint in several areas, including freshwater marsh (including disturbed) within approximately 1.5 m (5 ft), southern cottonwood-willow riparian forest within approximately 96.0 m (315 ft), emergent wetland within approximately 41.2 m (135 ft), open water within approximately 1.5 m (5 ft), and disturbed wetland within approximately 54.9 m (180 ft) from the Project site limits. Additionally, the freshwater marsh (including disturbed), southern willow scrub (including disturbed), open water, and emergent wetland communities located outside the direct impact areas would be designated as environmentally sensitive areas, as discussed in Section 2.15.4.

Jurisdictional Areas

The Project has been designed to avoid and/or minimize impacts to jurisdictional areas within the Project site limits. While it is not feasible to completely avoid project impacts to jurisdictional areas as noted above, the area of impact has been reduced with the use of retaining walls that minimize the Project grading footprint. In addition, environmentally sensitive areas (including jurisdictional areas) adjacent to proposed impacts would be fenced with orange plastic snow fencing, as discussed in Section 2.15.4.

Mitigation for temporary and permanent impacts to drainage/streambed under Corps jurisdiction is proposed at a 1:1 ratio (Tables 2.16-2 and 2.16-3). Mitigation for temporary and permanent impacts to southern willow scrub (1.42 ha [3.51 ac]) under CDFG jurisdiction is described above for southern willow scrub.

| Table 2.16-2 MITIGATION FOR CORPS JURISDICTIONAL AREA IMPACTS (ha [ac]) | | | | |
|--|---------------------|--------------------|-------------------------|----------------------------|
| Habitat | Impact Type | Impact | Mitigation Ratio | Required Mitigation |
| Non-wetland WUS | | | | |
| Drainage | Temporary/Permanent | 0.04 (0.09) | 1:1 | 0.04 (0.09) |
| Total | | 0.04 (0.09) | -- | 0.04 (0.09) |

| Table 2.16-3 MITIGATION FOR CDFG JURISDICTIONAL AREA IMPACTS (ha [ac])* | | | | |
|--|--------------------|--------------------|-------------------------|----------------------------|
| Habitat | Impact Type | Impact | Mitigation Ratio | Required Mitigation |
| Wetlands | | | | |
| Southern willow scrub | Temporary | 0.02 (0.05) | 3:1 | 0.06 (0.15) |
| | Permanent | 0.45 (1.12) | 3:1 | 1.36 (3.36) |
| Total | | 0.47 (1.17) | -- | 1.42 (3.51) |

*Due to rounding, hectares do not exactly match the associated acreages or totals.

The Project also has been designed to reduce temporary construction-related and permanent erosion, sedimentation, and water pollution impacts to jurisdictional areas (both within and outside of the Project site limits). Site design best management practices (BMPs) are intended to control construction and post-development runoff, erosion potential, and contaminant generation. Construction-related and post-construction-related BMPs would be the same as those implemented to minimize impacts to upland communities discussed in Section 2.15.4.

2.16.5 Wetlands Only Practicable Alternative Finding

As previously stated, EO 11990 (Protection of Wetlands) regulates the activities of federal agencies with regard to wetlands. This executive order states that a federal agency cannot undertake or provide assistance for new construction located in wetlands unless the head of the agency finds: (1) that there is no practicable alternative to the construction and (2) the proposed project includes all practicable measures to minimize harm. This section demonstrates these findings.

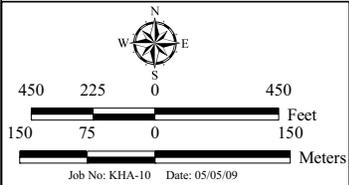
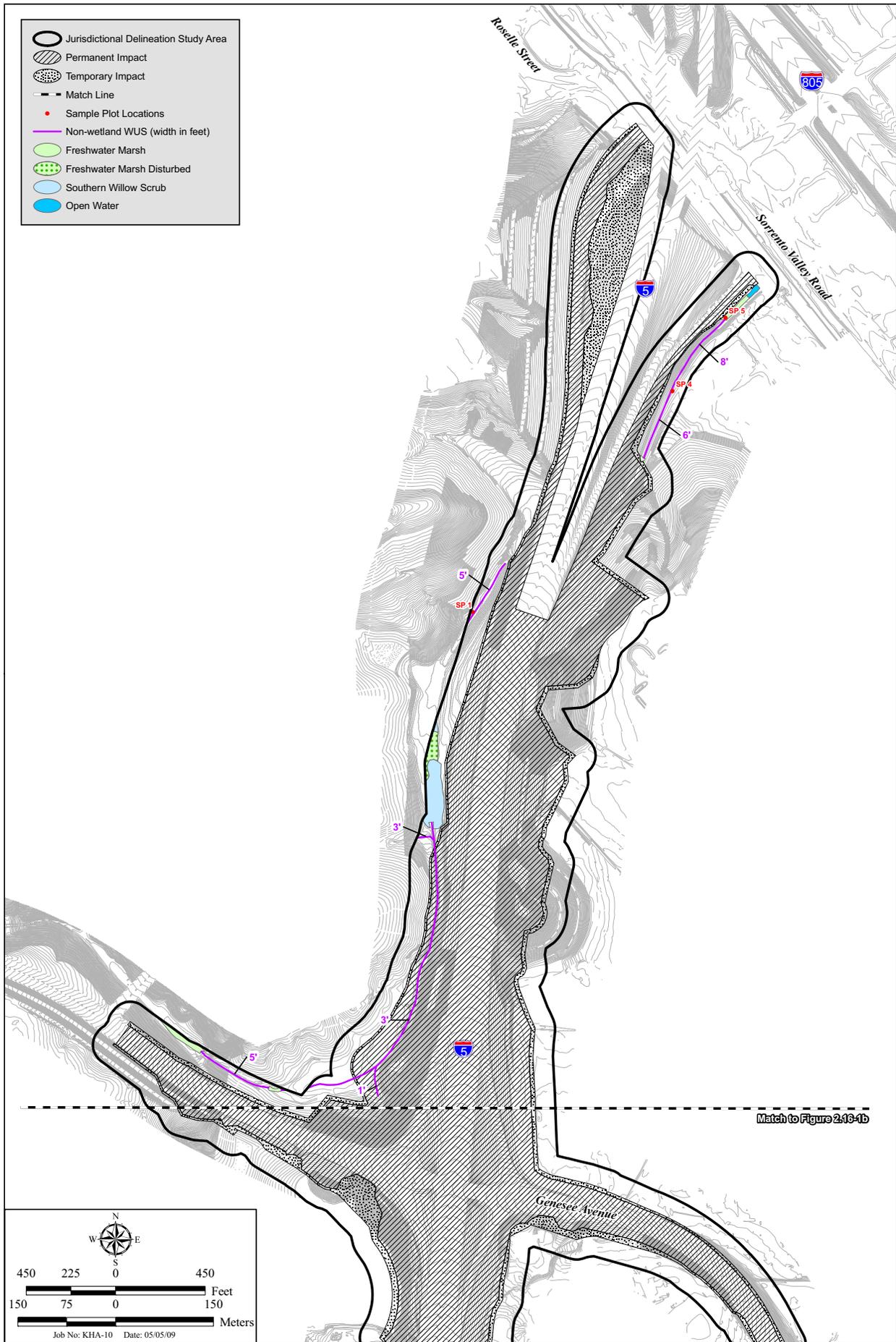
As discussed in Section 1.5.3, an alternative design that would avoid impacts to wetlands was considered. There is an existing ancient landslide located under the existing southbound I-5 off-ramp to Genesee Avenue that potentially is unstable and should be stabilized. The Project design team examined the potential use of a large retaining wall to stabilize the embankment as proposed for the I-5/Genesee Avenue Reconstruction Project, as an alternative to the proposed earthen buttress design. Based on the available technical information, it was concluded by the Project design team that any typical application of retaining wall (structural concrete, steel, soldier pile with lagging, soil-nail, or tie-back wall) cannot adequately be designed to provide the

required factor of safety for supporting the roadway and stabilizing the landslide. The proposed earthen buttress consists of a large amount of soil deposited and compacted at the toe of the existing ancient landslide area. The earthen buttress design is considered a superior engineering design. The large retaining wall alternative was therefore rejected based on design feasibility.

The Project has been designed to avoid and/or minimize temporary and permanent impacts to wetland and riparian habitats. No net loss of wetlands would occur with the implementation of the mitigation measures presented in Section 2.16.4. In addition, environmentally sensitive areas (including jurisdictional areas) adjacent to proposed impacts would be fenced with orange plastic snow fencing, as discussed in Section 2.15.4.

Based on the above considerations, it is determined that there is no practicable alternative to the proposed construction in wetlands and that the Proposed Project includes all practicable measures to minimize harm to wetlands that may result from such use.

-  Jurisdictional Delineation Study Area
-  Permanent Impact
-  Temporary Impact
-  Match Line
-  Sample Plot Locations
-  Non-wetland WUS (width in feet)
-  Freshwater Marsh
-  Freshwater Marsh Disturbed
-  Southern Willow Scrub
-  Open Water

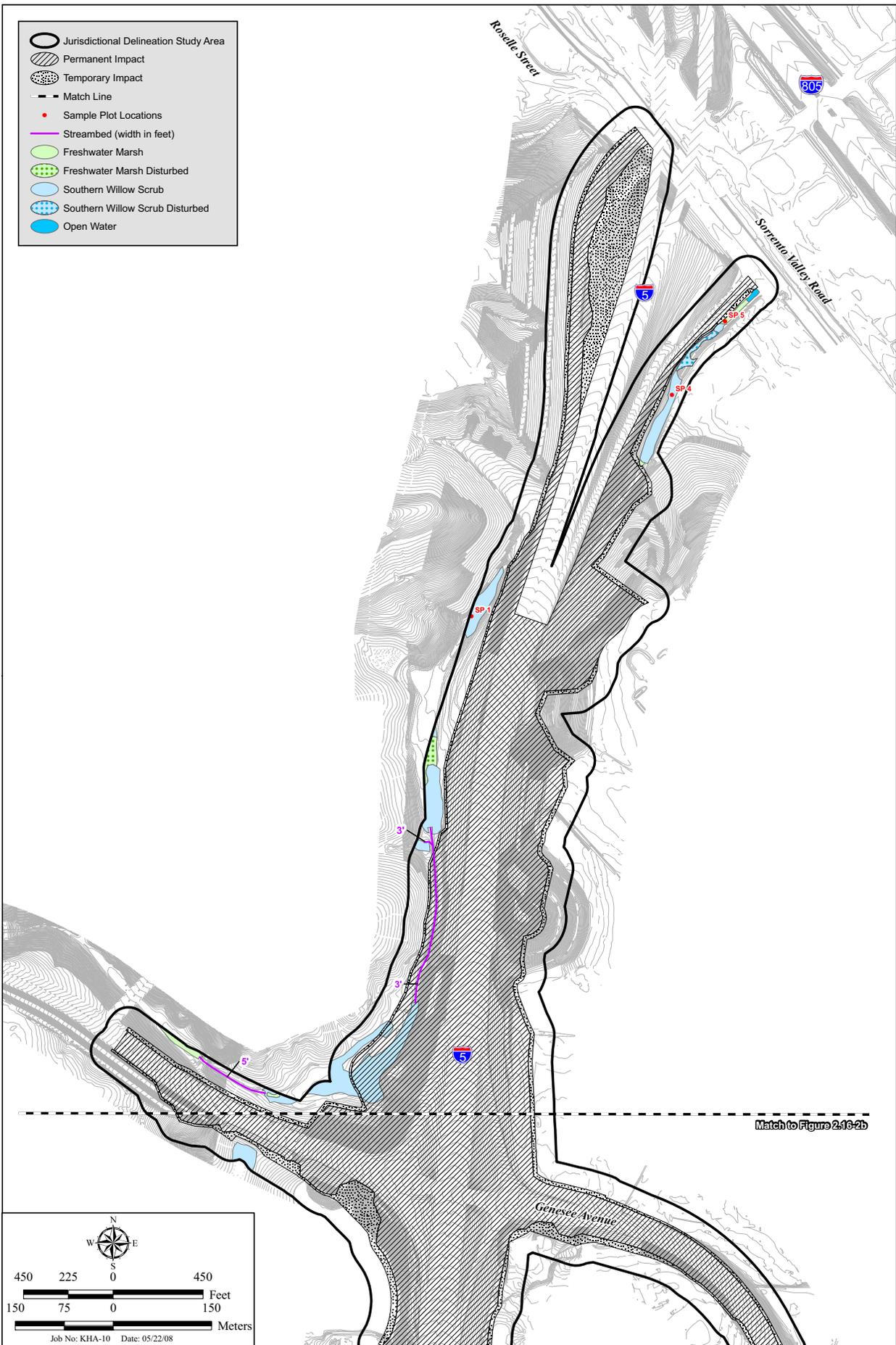


D:\ArcGIS\KHA-10\5 Genesee Interchange\Map\ISEA\Fig2-16-1a_Corps.mxd -AT

Corps Jurisdictional Areas/Impacts

INTERSTATE 5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION

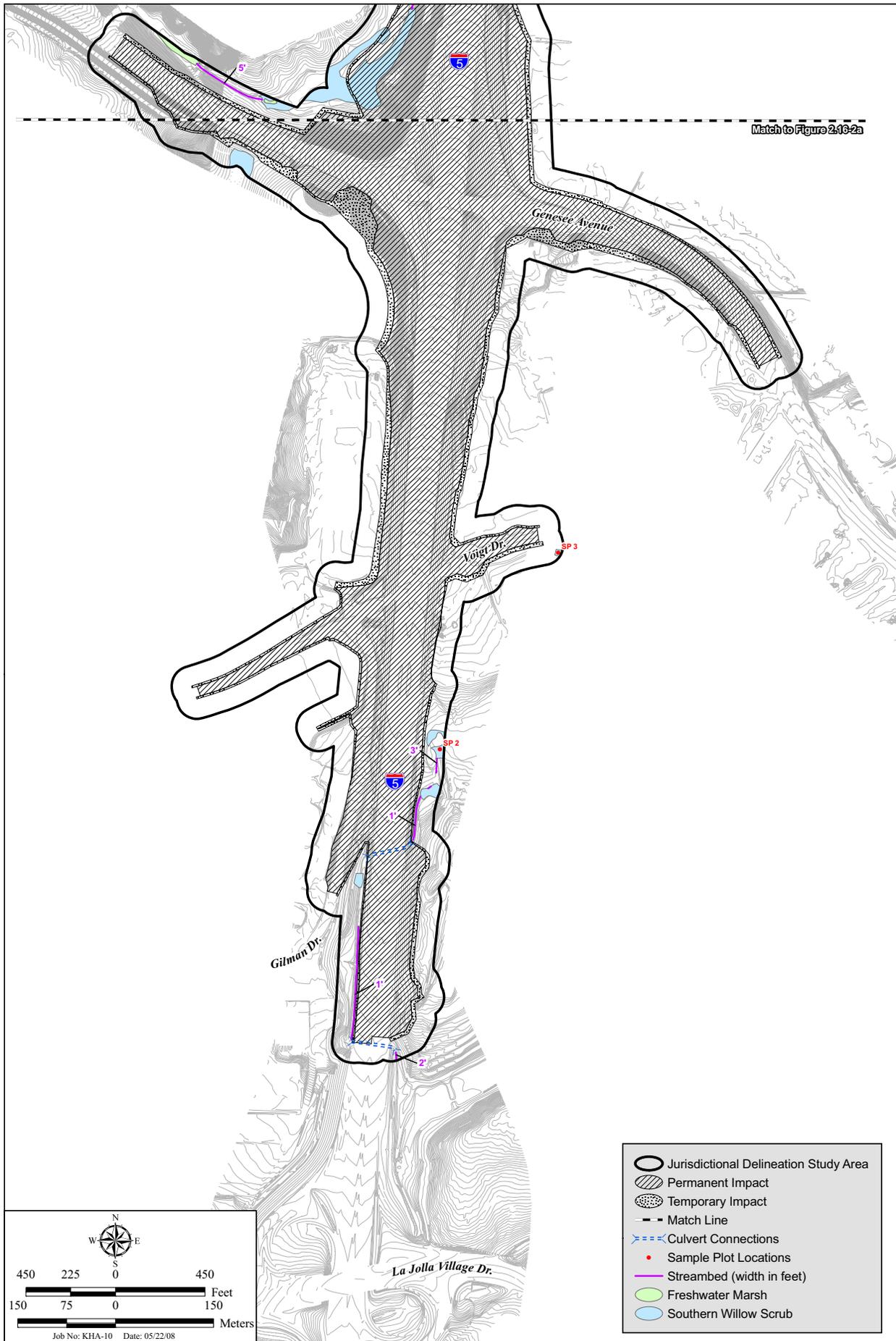
Figure 2.16-1a



CDFG Jurisdictional Areas/Impacts

INTERSTATE 5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION

Figure 2.16-2a



CDFG Jurisdictional Areas/Impacts

INTERSTATE 5/GENESEEE AVENUE INTERCHANGE RECONSTRUCTION

Figure 2.16-2b

2.17 PLANT SPECIES

This subchapter discusses the presence of special status plant species within the Biological Study Area (BSA), and assesses potential impacts associated with the Project and No Build Alternative.

2.17.1 Regulatory Setting

The U.S. Fish Wildlife Service (USFWS) and California Department of Fish and Game (CDFG) share regulatory responsibility for the protection of special status plant species. "Special status" species are selected for protection because they are rare and/or subject to population and habitat declines. Special status is a general term for species that are afforded varying levels of regulatory protection. The highest level of protection is given to threatened and endangered species; these are species that are formally listed or proposed for listing as endangered or threatened under the Federal Endangered Species Act (ESA) and/or the California ESA. Refer to Subchapter 2.19, Threatened and Endangered Species, in this document for detailed information regarding these species.

This subchapter of the document discusses all the other special status plant species, including CDFG fully protected species and species of special concern, USFWS candidate species, and non-listed California Native Plant Society (CNPS) rare and endangered plants.

The regulatory requirements for the Federal ESA can be found at 16 USC Section 1531, et. seq. See also 50 CFR Part 402. The regulatory requirements for the California ESA can be found at California Fish and Game Code, Section 2050, et. seq. Caltrans projects also are subject to the Native Plant Protection Act, found at Fish and Game Code, Section 1900-1913, and the California Environmental Quality Act (CEQA), Public Resources Code, Sections 2100-21177.

2.17.2 Affected Environment

A Natural Environment Study (NES; 2008) was prepared to evaluate the biological resources and potential impacts (permanent and temporary) to special status plant species within the BSA identified for the Project. Information presented in the following sections is summarized from the NES.

A rare plant survey was conducted in June 2004 to identify and record all special status plant species occurring within the BSA. Table 2.17-1 identifies special status plant species that have potential to occur within an eight-km (five-mi) radius of the BSA according to the California Natural Diversity Database (CNDDB; CDFG 2006).

Two species listed as sensitive by the CNPS were observed within the BSA; San Diego barrel cactus (*Ferocactus viridescens*) and southwestern spiny rush (*Juncus acutus* ssp. *lepodii*). A discussion of these two species is provided below.

**Table 2.17-1
SPECIAL STATUS PLANT SPECIES THAT COULD POTENTIALLY OCCUR WITHIN THE BSA**

| Scientific Name | Common Name | Status* | Specific Habitat Present/Absent | Species Present/Absent** | Rationale |
|---|--------------------------|---|---|--------------------------|--|
| <i>Adolphia californica</i> | California adolphia | --/-- CNPS List 2.1 | Diegan coastal sage scrub occurs within the BSA. | ABSENT | This is a conspicuous shrub that would have been detected during surveys if present. |
| <i>Agave shawii</i> | Shaw's agave | --/-- CNPS List 2.1 MSCP NE | Diegan coastal sage scrub occurs within BSA; however, no volcanic soils occur within BSA. | ABSENT | Highly visible species not observed during surveys. |
| <i>Chorizanthe polygonoides</i> var. <i>longispina</i> | Long-spined spineflower | --/-- CNPS List 1B.2 | Diegan coastal sage scrub and appropriate soils occur within BSA. | ABSENT | Species not observed during rare plant surveys. |
| <i>Cylindropuntia californica</i> var. <i>californica</i> | Snake cholla | --/-- CNPS List 1B.1 MSCP NE | Diegan coastal sage scrub occurs within BSA. | ABSENT | Species' range is south of BSA. Would have been observed during rare plant surveys if present. |
| <i>Dudleya variegata</i> | Variiegated dudleya | --/-- CNPS List 1B.2 MSCP NE | Diegan coastal sage scrub and grasslands occur within BSA. | ABSENT | Would have been observed during rare plant surveys if present. |
| <i>Ferocactus viridescens</i> | San Diego barrel cactus | --/-- CNPS List 2.1 MSCP Covered | Diegan coastal sage scrub with dry slopes occurs within BSA. | PRESENT | Observed during surveys. |
| <i>Geothallus tuberosus</i> | Campbell's liverwort | --/-- CNPS List 1B.1 CA Endemic | Diegan coastal sage scrub occurs within BSA. | ABSENT | Recently reported at Camp Pendleton, however, species probably extirpated elsewhere in urbanized San Diego County (CNPS 2007). |
| <i>Juncus acutus</i> ssp. <i>leopoldii</i> | South-western spiny rush | --/-- CNPS List 4.2 | Riparian habitat occurs within BSA. | PRESENT | Observed during surveys. |
| <i>Muilla clevelandii</i> | San Diego goldenstar | --/-- CNPS List 1B.1 MSCP Covered | Native and non-native grassland are present within BSA. | ABSENT | Would have been observed during rare plant surveys if present. |
| <i>Navarretia prostrata</i> | Prostrate navarretia | --/-- CNPS List 1B.1 CA Endemic | Coastal sage scrub and grasslands are present within BSA. | ABSENT | Appropriate soils to support this species do not occur within the BSA. |
| <i>Quercus dumosa</i> | Nuttall's scrub oak | --/-- CNPS List 1B.1 | Suitable habitat and soils occur within BSA. | ABSENT | Would have been observed during rare plant surveys if present. |
| <i>Senecio aphanactis</i> | Rayless ragwort | --/-- CNPS List 2.2 | Diegan coastal sage scrub occurs within BSA. | ABSENT | Not observed during rare plant survey. |
| <i>Sphaerocarpos drewei</i> | Bottle liverwort | --/-- CNPS List 1B.1 CA Endemic | Diegan coastal sage scrub occurs within BSA. | ABSENT | Most reported locations are presumed eradicated. |

*Status: FE = Federal Endangered, FT = Federal Threatened, SE = State Endangered, ST = State Threatened, SSC=California Species of Special Concern, NE = Narrow Endemic, CNPS = California Native Plant Society. A listing and explanation of CNPS status codes is provided in Appendix E of the NES.

**ABSENT means no further work is needed. PRESENT means species was detected during field surveys.

San Diego Barrel Cactus (*Ferocactus viridescens*)

San Diego barrel cactus is a CNPS List 2.1 and City MSCP-covered species. This plant species occurs on coastal sage scrub hillsides and mesas with mima mound topography, often

in association with vernal pool communities. Several individual San Diego barrel cacti were observed during surveys in Diegan coastal sage scrub north of Genesee Avenue and west of I-5 (refer to Figure 2.15-1a).

Southwestern Spiny Rush (*Juncus acutus* spp. *leopodii*)

Southwestern spiny rush is a CNPS List 4.2 species. This plant species occurs on moist, saline, or alkaline soils in coastal salt marshes and riparian marshes. Southwestern spiny rush was observed within southern cottonwood-willow riparian forest in the southern portion of the BSA and east of I-5 (refer to Figure 2.15-1b).

2.17.3 Environmental Consequences

Project

San Diego Barrel Cactus (*Ferocactus viridescens*)

Although San Diego barrel cactus occurs within the BSA, Project implementation would not impact this species because it is located at least 41.1 m (135 ft) from the Project impact limits (refer to Figure 2.15-2a). No direct or indirect impacts would occur.

Southwestern Spiny Rush (*Juncus acutus* spp. *leopodii*)

Southwestern spiny rush is located within the BSA, but Project implementation would not affect this species because it is located at least 109.7 m (360 ft) from the Project impact limits (refer to Figure 2.15-2b). No direct or indirect impacts would occur.

No Build Alternative

Under the No Build Alternative, no effects would occur to San Diego barrel cactus or southwestern spiny rush because no construction is proposed.

2.17.4 Avoidance, Minimization, and/or Mitigation Measures

San Diego Barrel Cactus (*Ferocactus viridescens*)

The Project would completely avoid impacts to San Diego barrel cactus. Therefore, no minimization or mitigation measures would be necessary.

Southwestern Spiny Rush (*Juncus acutus* spp. *leopodii*)

The Project would completely avoid impacts to southwestern spiny rush. Therefore, no minimization or mitigation measures would be necessary.

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2.18 ANIMAL SPECIES

This subchapter discusses the presence of special status animal species within the Biological Study Area (BSA) and assesses potential impacts associated with the Project and No Build Alternative.

2.18.1 Regulatory Setting

Many state and federal laws regulate impacts to wildlife. The U.S. Fish and Wildlife Service (USFWS), the National Oceanic and Atmospheric Administration (NOAA) Fisheries, and the California Department of Fish and Game (CDFG) are responsible for implementing these laws. This subchapter discusses potential impacts and permit requirements associated with wildlife not listed or proposed for listing under the state or federal Endangered Species Act (ESA). Species listed or proposed for listing as threatened or endangered are discussed in Subchapter 2.19, Threatened and Endangered Species. All other special status animal species are discussed in this subchapter, including CDFG fully protected species and species of special concern, USFWS or NOAA Fisheries candidate species, and MSCP-covered species.

Federal laws and regulations pertaining to wildlife include the following:

- National Environmental Policy Act (NEPA)
- Migratory Bird Treaty Act
- Fish and Wildlife Coordination Act

State laws and regulations pertaining to wildlife include the following:

- California Environmental Quality Act (CEQA)
- Sections 1600 – 1603 of the Fish and Game Code
- Sections 4150 and 4152 of the Fish and Game Code

In July 1997, the USFWS, CDFG, and City adopted the Implementing Agreement for the Multiple Species Conservation Program (MSCP; City 1997b). This program allows the incidental take of regionally sensitive species it conserves (covered species). The MSCP covers 39 animal species. Impacts to most species covered by the MSCP are considered to be mitigable through appropriate habitat preservation within the MHPA.

2.18.2 Affected Environment

A Natural Environment Study (NES; 2008) was prepared to evaluate the biological resources and potential impacts (permanent and temporary) to special status animal species within the Biological Study Area (BSA) identified for the Project. Information presented in the following sections is summarized from the NES.

Table 2.18-1 identifies special status animal species that have potential to occur within an eight-km (five-mi) radius of the BSA according to the California Natural Diversity Database (CNDDDB; CDFG 2006).

**Table 2.18-1
SPECIAL STATUS ANIMAL SPECIES THAT COULD POTENTIALLY OCCUR
WITHIN THE BSA**

| Scientific Name | Common Name | Status* | Specific Habitat Present/Absent | Species Present/Absent** | Rationale |
|---|--|---------------------------|--|--------------------------|---|
| Invertebrate | | | | | |
| <i>Danaus plexippus</i> | Monarch butterfly | --/--§ | Eucalyptus woodland occurs within BSA. | ABSENT | Neither species nor host plants observed during surveys. |
| Vertebrates | | | | | |
| Amphibians and Reptiles | | | | | |
| <i>Cnemidophorus hyperythrus beldingi</i> | Orange-throated whiptail | --/SSC MSCP Covered | Diegan coastal sage scrub and southern cottonwood-willow riparian forest with sandy substrates occur within the BSA. | PRESENT | Observed during surveys. |
| <i>Cnemidophorus tigris stejnegeri</i> | Coastal western whiptail | --/--§ | Diegan coastal sage scrub occurs within BSA. | ABSENT | Not observed during surveys, but species has a moderate potential to occur within the BSA. |
| <i>Phrynosoma coronatum blainvillei</i> | Coast horned lizard | --/SSC MSCP Covered | Suitable habitat (coastal sage scrub and grassland) occurs within BSA. | ABSENT | BSA likely too patchy and urbanized to support species. |
| Birds | | | | | |
| <i>Aimophila ruficeps canescens</i> | Southern California Rufous-crowned sparrow | --/SSC MSCP Covered | Diegan coastal sage scrub occurs within BSA. | PRESENT | Observed/detected during surveys. |
| <i>Athene cucularia hypugea</i> | Burrowing owl | --/SSC | Diegan coastal sage scrub and grasslands occur within BSA. | ABSENT | Sign of species would have been observed during the many surveys within the BSA if present. |
| <i>Circus cyaneus</i> | Northern harrier | --/SSC MSCP Covered | Grassland occurs within BSA. | PRESENT | Observed/detected during surveys. |
| <i>Dendroica petechia brewsteri</i> | Yellow warbler | --/SSC | Riparian habitat occurs within the BSA. | PRESENT | Observed/detected during surveys. |
| <i>Icteria virens</i> | Yellow-breasted chat | --/SSC | Riparian habitat occurs within the BSA. | PRESENT | Observed/detected during surveys. |
| Mammals | | | | | |
| <i>Chaetodipus fallax fallax</i> | Northwestern San Diego pocket mouse | --/SSC | Appropriate habitat (Diegan coastal sage scrub) and soils occur within BSA. | PRESENT | Observed during trapping surveys. |
| <i>Lepus californicus bennettii</i> | San Diego black-tailed jackrabbit | --/SSC | Diegan coastal sage scrub, grasslands, and disturbed areas occur within BSA. | PRESENT | Observed/detected during surveys. |
| <i>Neotoma lepida intermedia</i> | San Diego desert woodrat | --/SSC | Appropriate habitat (Diegan coastal sage scrub) occurs within BSA. | PRESENT | Observed during trapping surveys. |
| <i>Odocoileus hemionus</i> | Southern mule deer | --/-- MSCP Covered | Appropriate habitat (riparian areas, Diegan coastal sage scrub, and grasslands) occurs within BSA. | PRESENT | Detected during surveys. |

*Status: SSC=California Species of Special Concern.

**ABSENT means no further work is needed. PRESENT means species was detected during field surveys.

--§ Species tracked by CNDDB although not listed as sensitive.

Eight state species of special concern were observed/detected within the BSA during surveys (three of which are also City MSCP-covered species), including orange-throated whiptail (*Cnemidophorus hyperythrus beldingi*), southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), northern harrier (*Circus cyaneus*), yellow warbler (*Dendroica petechia brewsteri*), yellow-breasted chat (*Icteria virens*), northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*), San Diego black-tailed jackrabbit (*Lepus californicus bennettii*), and San Diego desert woodrat (*Neotoma lepida intermedia*). Southern mule deer (*Odocoileus hemionus*), a MSCP-covered species, also was detected within the BSA. These sensitive animal species are discussed below.

Orange-throated Whiptail (*Cnemidophorus hyperythrus beldingi*)

Orange-throated whiptail is a state species of special concern and City MSCP-covered species. This species occurs in a variety of habitats, including Diegan coastal sage scrub, chaparral, riparian woodlands, grasslands, and disturbed areas adjacent to these communities. The species can also be found in weedy, disturbed areas adjacent to these habitats. Important requirements for orange-throated whiptail populations include a mosaic of open, sunny areas and shade for thermoregulation. During biological surveys, this species was observed within Diegan coastal sage scrub and disturbed habitat within the BSA (refer to Figure 2.15-1a).

Southern California Rufous-crowned Sparrow (*Aimophila ruficeps canescens*)

The southern California rufous-crowned sparrow is a state species of special concern and City MSCP-covered species. This species occurs on hillsides containing Diegan coastal sage scrub and chaparral vegetation. Southern California rufous-crowned sparrow was observed/detected within Diegan coastal sage scrub north of Genesee Avenue and west of I-5 within the BSA (refer to Figure 2.15-1a).

Northern Harrier (*Circus cyaneus*)

The northern harrier is a state species of special concern and City MSCP-covered species. This species prefers grassland and marshes. A northern harrier was observed flying overhead north of Genesee Avenue and west of I-5 during surveys (refer to Figure 2.15-1a).

Yellow Warbler (*Dendroica petechia brewsteri*)

The yellow warbler is a state species of special concern and prefers riparian woodland. Yellow warbler was observed/detected in southern willow scrub at the northernmost portion of the BSA adjacent to Sorrento Valley Road (refer to Figure 2.15-1a).

Yellow-breasted Chat (*Icteria virens*)

The yellow-breasted chat is a state species of special concern. This species prefers mature riparian woodland. Yellow-breasted chat was observed/detected in southern cottonwood-willow riparian forest at the southernmost portion of the BSA (refer to Figure 2.15-1b).

Northwestern San Diego Pocket Mouse (*Chaetodipus fallax fallax*)

The northwestern San Diego pocket mouse is a state species of special concern. This species occurs in open areas of coastal sage scrub and weedy growth, often on sandy substrates. Forty-six (46) northwestern San Diego pocket mice were caught during protocol trapping

surveys for Pacific pocket mouse. The trapping surveys were conducted north of Genesee Avenue and west of I-5 within Diegan coastal sage scrub (refer to Figure 2.15-1a).

San Diego Black-tailed Jackrabbit (*Lepus californicus bennettii*)

The San Diego black-tailed jackrabbit is a state species of special concern. This species inhabits open habitats, including coastal sage scrub, chaparral, grasslands, croplands, and disturbed areas if some shrub cover is present. San Diego black-tailed jackrabbit was observed/detected within disturbed wetland south of Voigt Drive and east of I-5 (refer to Figure 2.15-1b).

San Diego Desert Woodrat (*Neotoma lepida intermedia*)

The San Diego desert woodrat is a state species of special concern. This species occurs in open chaparral and coastal sage scrub, often building large stick nests in rock outcrops or around clumps of cactus or yucca. Forty-two (42) San Diego desert woodrats were caught during protocol trapping surveys for Pacific pocket mouse. The trapping surveys were conducted north of Genesee Avenue and west of I-5 within Diegan coastal sage scrub (refer to Figure 2.15-1a).

Southern Mule Deer (*Odocoileus hemionus*)

The southern mule deer is a City MSCP-covered species. This species occurs in coastal sage scrub, riparian and montane forests, chaparral, grasslands, croplands, and open areas if there is at least some scrub cover present. Within the BSA, southern mule deer was observed/detected in Diegan coastal sage scrub, non-native grassland, and eucalyptus woodland (refer to Figures 2.15-1a and 2.15-1b).

Raptors

Raptor species, including red-tailed hawks (*Buteo jamaicensis*), were observed nesting within eucalyptus woodland within the BSA during the biological surveys. Although this raptor species is not a listed special status species, nesting activities are protected by the Migratory Bird Treaty Act.

2.18.3 Environmental Consequences

Project

Orange-throated Whiptail (*Cnemidophorus hyperythrus beldingi*)

The Project would impact areas of Diegan coastal sage scrub and non-native grassland, the preferred habitats of orange-throated whiptail. The impacted area, as described in Section 2.15 and shown in Figures 2.15-2a and 2.15-2b, would include three locations where orange-throated whiptails were observed during surveys.

Southern California Rufous-crowned Sparrow (*Aimophila ruficeps canescens*)

The Project limits are approximately 54.8 m (180 ft) from an area where southern California rufous-crowned sparrow was observed/detected during surveys. The Project would, however, impact Diegan coastal sage scrub, the preferred habitat of this species. Impacts to Diegan

coastal sage scrub, as described in Section 2.15 and shown in Figures 2.15-2a and 2.15-2b, could potentially affect southern California rufous-crowned sparrow habitat.

Northern Harrier (*Circus cyaneus*)

The Project limits are approximately 54.8 m (180 ft) from an area where northern harrier was observed/detected during surveys. The Project would, however, impact non-native grassland, the preferred habitat of northern harrier. Impacts to non-native grassland, as described in Section 2.15 and shown in Figures 2.15-2a and 2.15-2b, could potentially affect the northern harrier.

Yellow Warbler (*Dendroica petechia brewsteri*)

The Project would avoid impacts to riparian habitat within the BSA where yellow warbler was detected. The Project would, however, impact riparian habitat, the preferred habitat of yellow warbler. Impacts to riparian vegetation are described in Section 2.16 and shown in Figures 2.15-2a and 2.15-2b. Although the yellow warbler was not detected in the areas that would be impacted, this species could potentially be affected.

Yellow-breasted Chat (*Icteria virens*)

The Project would avoid impacts to riparian habitat within the BSA where yellow-breasted chat was detected. The Project would, however, impact riparian habitat, the preferred habitat of yellow-breasted chat. Impacts to riparian vegetation are described in Section 2.16 and shown in Figures 2.15-2a and 2.15-2b. Although the yellow-breasted chat was not detected in the areas that would be impacted, this species could potentially be affected.

Northwestern San Diego Pocket Mouse (*Chaetodipus fallax fallax*)

Trapping locations for northwestern San Diego pocket mouse were approximately 20.6 m (67.5 ft) from the Project limits. The Project would, however, impact Diegan coastal sage scrub, the preferred habitat of this species. Impacts to Diegan coastal sage scrub, as described in Section 2.15 and shown in Figures 2.15-2a and 2.15-2b, could potentially affect northwestern San Diego pocket mouse.

San Diego Black-tailed Jackrabbit (*Lepus californicus bennettii*)

The Project limits are approximately 54.9 m (180 ft) from an area where San Diego black-tailed jackrabbit was observed/detected during surveys. The Project would, however, impact areas of Diegan coastal sage scrub and non-native grassland, the preferred habitats for this species. Impacts to Diegan coastal sage scrub and non-native grassland, as described in Section 2.15 and shown in Figures 2.15-2a and 2.15-2b, could potentially affect the San Diego black-tailed jackrabbit.

San Diego Desert Woodrat (*Neotoma lepida intermedia*)

The Project limits are approximately 20.6 m (67.5 ft) from an area where San Diego desert woodrat was observed/detected during surveys. The Project would, however, impact Diegan coastal sage scrub, the preferred habitat of this species. Impacts to Diegan coastal sage scrub, as described in Section 2.15 and shown in Figures 2.15-2a and 2.15-2b, could potentially affect San Diego desert woodrat.

Southern Mule Deer (*Odocoileus hemionus*)

The Project limits are approximately 1.5 m (5 ft) from an area where southern mule deer was observed/detected during surveys. The Project would, however, impact areas of Diegan coastal sage scrub and non-native grassland, the preferred habitats for this species. Impacts to Diegan coastal sage scrub and non-native grassland, as described in Section 2.15 and shown in Figures 2.15-2a and 2.15-3b, could potentially affect southern mule deer.

Raptors

The Project would result in temporary and permanent impacts to eucalyptus woodland habitat (refer to Section 2.15, and Figures 2.15-2a and 2.15-2b), which could potentially support nesting raptors. Nesting raptor species were observed flying overhead and within the eucalyptus woodland within the BSA.

Indirect impacts related to construction also could occur during the raptor breeding season if birds are nesting within 91 m (300 ft) of the construction. However, given the relatively high existing ambient noise from the adjacent roadway, construction noise would be minimal, as the noise level is already high and the increase during construction is intermittent and not permanent. Operational noise impacts would rise 2 dB(A) or less during Project operation.

No Build Alternative

Under the No Build Alternative, no effects would occur to special status animal species because no construction is proposed.

2.18.4 Avoidance, Minimization, and/or Mitigation Measures

The Project would impact riparian habitat; therefore, there is a potential to impact yellow warbler and yellow-breasted chat. Impacts to this habitat have been minimized and to date, neither of these species has been detected in the riparian habitat to be impacted; thus, no avoidance, minimization, or mitigation measures would be required for those species.

Avoidance and minimization efforts have been incorporated into the Project design to minimize impacts to habitat supporting orange-throated whiptail, southern California rufous-crowned sparrow, northern harrier, northwestern San Diego pocket mouse, San Diego black-tailed jackrabbit, San Diego desert woodrat, and southern mule deer. Such avoidance efforts include installation of retaining walls and construction of manufactured slopes with 2:1 slopes rather than 4:1 to minimize the grading footprint. Avoidance efforts include designating all sensitive habitats (including those occupied by sensitive animal species) outside the impact areas as environmentally sensitive areas, fencing environmentally sensitive areas with orange plastic snow fencing, and prohibiting personnel, debris, or equipment within the environmentally sensitive areas. Temporary and permanent impacts to Diegan coastal sage scrub (including disturbed) and non-native grassland would be reduced through the implementation of avoidance and minimization measures described in Section 2.15.4. In addition, the following avoidance and minimization measure would minimize impacts to special status animal species and raptors:

- All native vegetation, trees, and large shrubs shall be cleared outside the breeding season of southern California rufous-crowned sparrow, northern harrier and other raptors, and other migratory birds (February 15 through August 31) to avoid breeding birds. If Project construction occurs during the breeding season, pre-construction

surveys and avoidance of nesting birds would be required by a biologist approved by USFWS. If nesting southern California rufous-crowned sparrow, northern harrier or other raptor, or other migratory birds are observed/detected within the Project limits, construction would not be permitted to commence until the conclusion of the breeding season (August 31), or until all young have fledged. No direct impacts to nests are allowed during the breeding season.

- All lighting (including night lighting during construction) installed in the vicinity of the MHPA, native vegetation communities, and/or other open space areas would be directed away or shielded to prevent light overspill. Streetlights would be low-intensity and shielded to minimize illumination of the adjacent habitat. Night lighting of construction areas would be of the lowest illumination necessary for human safety, selectively placed, shielded, and directed away from natural habitats.

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2.19 THREATENED AND ENDANGERED SPECIES

This subchapter discusses the presence of threatened and endangered plant and animal species within the Biological Study Area (BSA), and assesses potential impacts associated with the Project and No Build Alternative. Special status species that are not federally or state listed as threatened or endangered are not included in this subchapter. Refer to Subchapter 2.17, Plant Species, and Subchapter 2.18, Animal Species, for the impact analyses regarding such species.

2.19.1 Regulatory Setting

The primary federal law protecting threatened and endangered species is the Federal Endangered Species Act (ESA): 16 USC Section 1531, et seq. See also 50 CFR Part 402. This act and subsequent amendments provide for the conservation of endangered and threatened species and the ecosystems upon which they depend. Under Section 7 of this act, federal agencies, such as the FHWA, are required to consult with U.S. Fish and Wildlife Service (USFWS) and National Oceanic and Atmospheric Administration (NOAA) to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species or destroy or modify designated critical habitat. Critical habitat is defined as geographic locations critical to the existence of a threatened or endangered species. The outcome of consultation under Section 7 is a Biological Opinion or an incidental take permit. Section 3 of Federal ESA defines take as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect or any attempt at such conduct.”

California has enacted a similar law at the state level, the California ESA, California Fish and Game Code, Section 2050, et seq. The California ESA emphasizes early consultation to avoid potential impacts to rare, endangered, and threatened species and to develop appropriate planning to offset Project-caused losses of listed species populations and their essential habitats. California Department of Fish and Game (CDFG) is the agency responsible for implementing the California ESA. Section 2081 of the Fish and Game Code prohibits “take” of any species determined to be an endangered species or a threatened species. Take is defined in Section 86 of the Fish and Game Code as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” The California ESA allows for take incidental to otherwise lawful development projects; for these actions an incidental take permit is issued by CDFG. For projects requiring a Biological Opinion under Section 7 of the Federal ESA, CDFG may also authorize impacts to California ESA species by issuing a Consistency Determination under Section 2080.1 of the Fish and Game Code.

2.19.2 Affected Environment

A Natural Environment Study (NES; 2008) was prepared to evaluate the biological resources and potential impacts (permanent and temporary) to threatened and endangered plant and animal species within the BSA identified for the Project. Information presented in the following sections is summarized from the NES.

A rare plant survey was conducted in June 2004 to identify and record all threatened and endangered plant species occurring within the BSA. USFWS protocol surveys for the federally listed threatened coastal California gnatcatcher were conducted in 2004 and 2007 due to the presence of Diegan coastal sage scrub within the BSA. USFWS protocol surveys also were conducted for the federally and state-listed endangered least Bell’s vireo in 2004 and 2007 due to the presence of potentially suitable habitat (freshwater marsh [including disturbed], southern

cottonwood-willow riparian forest, southern willow scrub [including disturbed], emergent wetland, and disturbed wetland) within the BSA and the potential for indirect noise impacts immediately off site. Additionally, USFWS protocol trapping for the Pacific pocket mouse was conducted within the BSA in May 2004 due to the presence of suitable habitat. Table 2.19-1 identifies threatened and endangered plant and animal species that have potential to occur within or near the BSA (USFWS 2008; Appendix A).

| Table 2.19-1 FEDERALLY AND STATE LISTED THREATENED AND ENDANGERED SPECIES THAT COULD POTENTIALLY OCCUR WITHIN THE BSA | | | | | |
|--|--------------------------------|---|---|---------------------------------|---|
| Scientific Name | Common Name | Status* | Specific Habitat Present/Absent | Species Present/Absent** | Rationale |
| Plants | | | | | |
| <i>Ambrosia pumila</i> | San Diego ambrosia | FE/-- CNPS List 1B.1 MSCP NE | Diegan coastal sage scrub and disturbed habitat occur within BSA. Clay soils are present. | ABSENT | Species not observed during rare plant and other biological surveys. |
| <i>Arctostaphylos glandulosa</i> ssp. <i>crassifolia</i> | Del Mar manzanita | FE/-- CNPS List 1B.1 MSCP Covered | Open coastal chaparral absent. | ABSENT | No suitable habitat occurs within the BSA. Species not observed during rare plant and other biological surveys. |
| <i>Astragalus tener</i> var. <i>titi</i> | Coastal dunes milk-vech | FE/SE CNPS List 1B.1 CA Endemic MSCP NE | Coastal dunes and sandy habitat absent. | ABSENT | No suitable habitat occurs within the BSA. Species not observed during rare plant and other biological surveys. |
| <i>Baccharis vanessae</i> | Encinitas baccharis | FT/SE CNPS List 1B.1 CA Endemic MSCP NE | Mature but relatively low-growing chaparral absent. | ABSENT | No suitable habitat occurs within the BSA. Species not observed during rare plant and other biological surveys. |
| <i>Brodiaea filifolia</i> | Thread-leaved brodiaea | FT/SE CNPS List 1B.1 CA Endemic MSCP Covered | Clay soils and grasslands present. | ABSENT | Species not observed during rare plant and other biological surveys. |
| Birds | | | | | |
| <i>Charadrius alexandrinus nivosus</i> | Western snowy plover | FT/SSC MSCP covered | Sandy beaches, salt marshes, and alkaline lakes not present. | ABSENT | No suitable habitat occurs and this species was not observed during surveys. |
| <i>Empidonax traillii extimus</i> | Southwestern willow flycatcher | FE/-- MSCP Covered | Although some riparian habitat occurs within the BSA it lacks the maturity to support this species. | ABSENT | Species not observed during surveys. |
| <i>Polioptila californica californica</i> | Coastal California gnatcatcher | FT/SSC MSCP covered | Diegan coastal sage scrub and riparian habitats occur within BSA. | PRESENT | Observed/detected during surveys. |

| Table 2.19-1 (cont.) FEDERALLY AND STATE LISTED THREATENED AND ENDANGERED SPECIES THAT COULD POTENTIALLY OCCUR WITHIN THE BSA | | | | | |
|---|---------------------------|------------------------------------|-------------------------------------|--------------------------|--|
| Scientific Name | Common Name | Status* | Specific Habitat Present/Absent | Species Present/Absent** | Rationale |
| Birds (cont.) | | | | | |
| <i>Rallus longirostris levipes</i> | Light-footed clapper rail | FE/SE Fully Protected MSCP Covered | Freshwater marsh occurs within BSA. | ABSENT | Not observed during surveys. Would likely have been observed/ detected if present. |
| <i>Vireo bellii pusillus</i> | Least Bell's vireo | FE/SE MSCP Covered | Riparian habitat occurs within BSA. | ABSENT | Riparian habitat within BSA of poor quality. Species not observed during protocol surveys in 2004 or 2007. |

*Status: FE = Federal Endangered, FT = Federal Threatened, SE = State Endangered, ST = State Threatened, SSC=California Species of Special Concern, NE = Narrow Endemic, CNPS = California Native Plant Society. A listing and explanation of CNPS status codes is provided in Appendix E of the NES.

**ABSENT means no further work is needed. PRESENT means species was detected during field surveys.

--§ Species tracked by CNDDDB although not listed as sensitive.

No federally or state-listed threatened or endangered plant species were observed within the BSA during the rare plant survey. One federally listed threatened animal species, coastal California gnatcatcher (*Polioptila californica californica*), was observed/detected within the BSA during surveys.

Coastal California Gnatcatcher

The coastal California gnatcatcher is federally listed threatened, a state species of special concern, and a City Multiple Species Conservation Program (MSCP)-covered species. The habitat of this species is primarily Diegan coastal sage scrub, although it may sometimes use other habitats adjacent to Diegan coastal sage scrub.

Several coastal California gnatcatchers were observed or detected within Diegan coastal sage scrub west of I-5 and both north and south of Genesee Avenue during USFWS protocol surveys (refer to Figures 2.15-1a and 2.15-1b). Specifically, three pairs and one individual were observed/detected in Diegan coastal sage scrub immediately north of Genesee Avenue and west of I-5. In addition, one pair was observed/detected south of Genesee Avenue and west of I-5. In the northwestern-most portion of the BSA, two family groups (a pair and a juvenile) and two pairs were observed/detected during surveys. The BSA is not located within coastal California gnatcatcher critical habitat.

Noise level measurement surveys were conducted in July 2007 at two locations west of I-5 and north of Genesee Avenue where coastal California gnatcatchers were observed/detected (Figure 2.19-1). Ambient noise levels were 61.1 dBA L_{eq} at the southern location and 66.4 dBA L_{eq} at the northern location.

Federal Endangered Species Act Consultation Summary

On June 25, 2004, the USFWS provided written correspondence regarding potential presence of federally listed threatened, endangered, or proposed species within the vicinity of the Project. Due to the time that had passed, a second written request was sent to the USFWS on November 19, 2007 requesting a list of potential listed threatened, endangered or proposed species within the vicinity of the Project. A letter was received from USFWS on March 11, 2008 (see Appendix A for letter).

2.19.3 Environmental Consequences

Project

Coastal California Gnatcatcher (*Polioptila californica californica*)

The Project would impact Diegan coastal sage scrub, the preferred habitat of the coastal California gnatcatcher. Direct impacts to Diegan coastal sage scrub, as described in Section 2.15 and shown in Figures 2.15-2a and 2.15-2b, would occur where one pair of coastal California gnatcatcher was observed/detected. In addition, impacts would occur to Diegan coastal sage scrub potentially used by another coastal California gnatcatcher pair. Impacts to Diegan coastal sage scrub would affect the coastal California gnatcatcher.

As stated above, there were two locations south of Genesee Avenue where coastal California gnatcatchers were observed/detected in 2004, but not in 2007 (refer to the NES [2008]). No impacts to these locations would occur upon implementation of the Project.

In addition, Project construction would generate noise that could potentially result in a temporary impact to coastal California gnatcatcher. Noise-related direct impacts would occur if coastal California gnatcatchers were displaced from their nests and failed to breed. Construction-related noise is not likely to adversely impact to coastal California gnatcatchers given the relatively high existing ambient noise from the adjacent roadway and that the construction noise would be sporadic and is not permanent.

No permanent indirect impacts would occur given that ambient noise levels were 61.1 dBA L_{eq} at the southern measurement location and 66.4 dBA L_{eq} at the northern measurement location, and noise levels are not likely to rise substantially (2 dB[A] or less) during operation of the new facilities.

No Build Alternative

Under the No Build Alternative, no effects would occur to coastal California gnatcatcher because no construction is proposed.

2.19.4 Avoidance, Minimization, and/or Mitigation Measures

Coastal California Gnatcatcher (*Polioptila californica californica*)

Avoidance and minimization efforts have been incorporated into the Project design to minimize impacts to habitat supporting coastal California gnatcatcher, including installation of proposed retaining walls and construction of manufactured slopes with 2:1 slopes rather than 4:1 to minimize the grading footprint. Avoidance efforts also include designating all sensitive habitats

(including those occupied by coastal California gnatcatcher) outside the impact areas as environmentally sensitive areas, fencing environmentally sensitive areas with orange plastic snow fencing, and prohibiting personnel, debris, or equipment within the environmentally sensitive areas. Temporary and permanent impacts to Diegan coastal sage scrub (including disturbed) habitat would be reduced through the implementation of avoidance and minimization measures described in Section 2.15.4. In addition, implementation of the following avoidance and minimization measure would reduce direct and indirect impacts to coastal California gnatcatcher:

- All native vegetation, trees, and large shrubs shall be cleared outside the coastal California gnatcatcher and migratory bird breeding season (February 15 through August 31) to avoid breeding birds. If ornamental vegetation clearing occurs during the breeding season, pre-construction nesting bird surveys and avoidance of nesting birds would be required by a biologist approved by USFWS. If nesting gnatcatchers are observed/detected within a proposed impact area, on-site clearing would be suspended until the end of the breeding season (August 31), or until all young have fledged. No direct impacts to nests are allowed during the breeding season.
- A biologist would be present on site during initial clearing and grubbing, as well as weekly during Project construction located within 152 m (500 ft) of off-site gnatcatcher habitat to ensure compliance with all conservation measures. The Project biologist would be familiar with the habitats, plants, and wildlife in the Project area to ensure that issues relating to biological resources are appropriately and lawfully managed.
- To minimize construction noise impacts to nesting gnatcatchers, all pile driving for the Project that would occur near habitats that support gnatcatchers would be conducted between September 1 and February 14 to avoid the gnatcatcher breeding season (or sooner than September 1 if the Project biologist can demonstrate to the satisfaction of USFWS that all nesting is complete).

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Sound Level Measurement Locations

INTERSTATE 5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION

Figure 2.19-1

2.20 INVASIVE SPECIES

This subchapter discusses the presence of invasive plant and animal species within the Biological Study Area (BSA) and analyzes potential impacts associated with the Project and No Build Alternative.

2.20.1 Regulatory Setting

On February 3, 1999, President Clinton signed Executive Order (EO) 13112 requiring federal agencies to combat the introduction or spread of invasive species in the United States. The order defines invasive species as "any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem whose introduction does or is likely to cause economic or environmental harm or harm to human health." FHWA guidance issued August 10, 1999 directs the use of the state's noxious weed list to define the invasive plants that must be considered as part of the National Environmental Policy Act (NEPA) analysis for a proposed project.

2.20.2 Affected Environment

A Natural Environment Study (NES; 2008) was prepared to evaluate biological resources and potential impacts (permanent and temporary) associated with invasive plant and animal species within the BSA identified for the Project. Information presented in the following sections is summarized from the NES.

Several invasive plant species occur within the BSA. The most abundant invasive species observed within the BSA include pampas grass (*Cortaderia selloana*) in southern willow scrub; black mustard (*Brassica nigra*) within disturbed habitat, non-native grassland, and Diegan coastal sage scrub; hottentot fog and myoporum (*Myoporum laetum*) within non-native vegetation areas; and oats and bromes within non-native grassland. Other invasive plant species include, but are not limited to, giant reed, rabbitsfoot grass (*Polypogon monspeliensis*), Mediterranean grass (*Schismus barbatus*), fescue (*Vulpia myuros*), crystalline iceplant (*Mesembryanthemum crystallinum*), Peruvian pepper tree (*Schinus molle*), fennel (*Foeniculum vulgare*), Italian thistle (*Carduus pycnocephalus*), star thistle (*Centaurea melitensis*), and tamarisk. No invasive animal species were observed within the BSA.

2.20.3 Environmental Consequences

Project

The Project would comply with the requirements of EO 13112. The plant palette of the Project landscape plan includes the use of appropriate native and non-invasive plant species to revegetate the temporary impact areas. Invasive species that are included on the California Invasive Plant Council lists and/or the City's invasive plants list would not be used to revegetate disturbed areas. Additionally, none of the species on the California list of noxious weeds is currently used by Caltrans for erosion control or landscaping.

Although construction of the Project would eliminate invasive species within the Project footprint, there is the potential for construction activities to result in the further spread of invasive plant species within the BSA. Non-native plants could colonize areas disturbed by construction and could potentially spread into adjacent native habitats. Many non-native plants are highly invasive and can displace native vegetation (reducing native species diversity), potentially

increase flammability and fire frequency, change ground and surface water levels, and potentially affect native wildlife dependent on the native plant species.

No Build Alternative

Under the No Build Alternative, no effects associated with invasive species would occur over existing conditions, as no construction is proposed. Consequently, because no construction activities would take place under this alternative, there would be no opportunity for removal of existing invasive species within the Project limits.

2.20.4 Avoidance, Minimization, and/or Mitigation Measures

Implementation of the following avoidance and minimization measures would reduce impacts associated with invasive species:

- A qualified biologist would review the Project landscape concept plans to ensure that no invasive species (as listed in the California Invasive Plant Inventory) are included.
- A biological monitor would educate construction crews (prior to construction) on the benefits of cleaning equipment prior to ingress and egress.
- Upon completion of grading, all areas of temporary disturbance would be revegetated with native species or ornamental landscaping to limit colonization by invasive species.
- Following installation of revegetation and landscaping, such areas would be monitored and maintained to minimize invasive species.
- In compliance with EO 13112, and subsequent guidance from the FHWA, the landscaping and erosion control included in the Project would not use species listed as noxious weeds. In areas of particular sensitivity, extra precautions would be taken if invasive species are found in or adjacent to the construction areas. Such precautions could include the inspection and cleaning of construction equipment and eradication strategies to be implemented should an invasion occur.

ADDITIONAL IMPACTS

2.21 CUMULATIVE IMPACTS

2.21.1 Regulatory Setting

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions, combined with the potential impacts of this Project. A cumulative effect assessment looks at the collective impacts posed by individual land use plans and projects. Cumulative impacts can result from individually minor, but collectively substantial impacts taking place over a period of time.

Cumulative impacts to resources in the Project area may result from residential, commercial, industrial, and highway development. These land use activities can degrade habitat and species diversity through consequences such as displacement and fragmentation of habitats and populations, alteration of hydrology, contamination, erosion, sedimentation, disruption of migration corridors, changes in water quality, and introduction or promotion of predators. They can also contribute to potential community impacts identified for the project, such as changes in community character, traffic patterns, housing availability, and employment.

The California Environmental Quality Act (CEQA) Guidelines, Section 15130, describes when a cumulative impact analysis is warranted and what elements are necessary for an adequate discussion of cumulative impacts. The definition of cumulative impacts under CEQA can be found in Section 15355 of the CEQA Guidelines. A definition of cumulative impacts under the National Environmental Policy Act (NEPA) can be found in 40 CFR Section 1508.7 of the Council on Environmental Quality (CEQ) Regulations.

2.21.2 Affected Environment

The Project area has changed substantially over time with the construction of I-5 and commercial, institutional, and residential development in the I-5 corridor. Numerous buildings have been built in the area to accommodate office use, health care, and the continuing growth of University of California, San Diego (UCSD). The Project area has been transformed in term of its use, density, and resulting overall character. The extent to which the Proposed Project would contribute to cumulative impacts is discussed below.

The analysis of cumulative impacts is based on the following process typically used by Caltrans' to identify and assess cumulative impacts:

1. Identify the resources to consider in the cumulative impact analysis.
2. Define the geographic boundary or Resource Study Area (RSA) for each resource to be addressed in the cumulative impact analysis.
3. Describe the current health and the historical context of each resource.
4. Identify the direct and indirect impacts of the Proposed Project that might contribute to a cumulative impact on the identified resources.
5. Identify the set of other current and reasonably foreseeable future actions or projects and their associated environmental impacts to include in the cumulative impact analysis.
6. Assess the potential cumulative impacts.

7. Report the results of the cumulative impact analysis.
8. Assess the need for mitigation and/or recommendations for actions by other agencies to address a cumulative impact.

Determination of which resources to include in the cumulative analysis is based on the analysis in Chapter 2.0, Affected Environment, Environmental Consequences, and Avoidance, Minimization and/or Mitigation Measures, of this Initial Study/Environmental Assessment (IS/EA), which documents the degree of impact for each resource area per NEPA and CEQA guidance. If a project would not cause direct or indirect impacts on a resource, the project would not contribute to a cumulative impact on that resource. The cumulative impact analysis should focus only on: “(1) those resources significantly impacted by the project; and (2) resources currently in poor or declining health or at risk even if project impacts are relatively small (less than significant).”

The following resource areas are included in the cumulative impacts analysis:

- Visual/Aesthetics
- Natural Communities
- Wetlands and Other Waters
- Animal Species
- Threatened and Endangered Species
- Invasive Species

The area of cumulative effect, or the RSA, varies depending on the resource issue analyzed. The cumulative study area for visual/aesthetics includes the viewshed of the Proposed Project (Figure 2.6-2). Cumulative impacts to biological resources (natural communities, wetlands and other waters, animal species, threatened and endangered species, and invasive species) were evaluated with respect to the planning area governed by the City of San Diego Subarea Plan of the Multiple Species Conservation Program (MSCP).

Current and reasonably foreseeable projects in the general area encompassed by the Project study area are identified in Table 2.21-1. Information on these projects was obtained through consultation with City planners familiar with past, present, and reasonably foreseeable projects in the area surrounding the Project site, as well as review of available environmental documentation. Table 2.21-1 provides a summary of both public and private development projects in the vicinity of the Project site. Refer to Figure 2.1-4 for the location of these identified cumulative projects.

Specifically, there are 19 private projects and 9 public projects that have been recently constructed, are under construction, are in various stages of processing/review by the City, or are currently planned for future development. Cumulative development largely consists of industrial park/research and development projects with some commercial retail, residential, and institutional projects. Cumulative projects also include several roadway/freeway improvements and a sewer maintenance project.

| Table 2.21-1 CUMULATIVE PROJECTS | | | |
|---|---------------------------------------|--|--|
| Map Key | Project Name | Description | Status |
| 1 | Eastgate Technology Park | 32-lot, 236,313-m ² (2,543,655-ft ²) industrial/ business park | Near completion; 2 vacant lots remain |
| 2 | Nexus University Science Center | 17,791 m ² (191,500 ft ²) of research and development office | Under construction |
| 3 | Costa Verde Commercial Center | 6,968 m ² (75,000 ft ²) of additional neighborhood/ community commercial within the existing Costa Verde Commercial Center which is currently developed with a 16,537-m ² (178,000-ft ²) shopping center | Community Plan Amendment initiated on February 26, 2004 |
| 4 | Towne Centre Science Park | 17,652 m ² (190,000 ft ²) of research and development office | Completed |
| 5 | La Jolla Commons | 32 story, 156 unit condominium tower, 32 story, 112 unit/256 room hotel tower, 15 story, 31 633-m ² (340,500 ft ²) office tower, 3,716-m ² (40,000 ft ²) research and development | Office tower completed. Construction of condominium tower or condominium/hotel tower has not begun |
| 6 | Scripps Memorial Hospital | Two 29,079-m ² (313,000-ft ²) hospital towers and a 2,701-m ² (141,400-ft ²) medical office building | Approved September 2009 |
| 7 | La Jolla Crossroads | 15,050 m ² (162,000 ft ²) of research and development office park, 1,500 residential units | Residential component completed |
| 8 | Nobel Research Park | 71,238 m ² (766,800 ft ²) of research and development office | Approximately 50 percent complete |
| 9 | Mid-coast Light Rail Transit Project | 18-km (11-mi) extension of the San Diego trolley system from the Old Town Transit Center to University City (ending with Light Rail Transit station near UTC along Genesee Avenue) | Supplemental Environmental Impact Statement/Subsequent EIR in preparation |
| 10 | UCSD 2004 Long Range Development Plan | Various campus facilities | Various projects underway/in planning process |
| 11 | Regents Road Bridge | Bridge crossing over Rose Canyon to connect Regents Road | Contract approved for design in order to analyze in new project specific EIR |
| 12 | Monte Verde | 560 units approved in one 23-story tower, two 22-story towers and one 21-story tower | Approved. Construction has not begun |

| Table 2.21-1 (cont.) CUMULATIVE PROJECTS | | | |
|---|---|---|---|
| Map Key | Project Name | Description | Status |
| 13 | I-805 Managed Lanes Project | Approximately 18-km (11-mi) managed lanes facility in the median of I-805 between SR 905 and I-5 | Corridor study completed in 2005. Preliminary engineering and environmental studies are underway. Bus Rapid Transit service is scheduled to begin in 2010. All improvements are planned to be functioning by 2030 |
| 14 | UTC Revitalization | Phased development of up to 69,677 m ² 750,000 ft ²) of new retail and entertainment space and 250 residential dwelling units, with the option to build less retail and more residential | Approved by City Council in July 2008 |
| 15 | I-5/La Jolla Village Drive Overcrossing/Interchange | Widen 2,134 m (7,000 ft) of roadway, including the overcrossing, and improve other conditions at the interchange | Completed |
| 16 | I-5/Sorrento Valley Road Interchange | Redesign I-5/Sorrento Valley Road interchange and add auxiliary lanes between La Jolla Village Drive and Sorrento Valley Road | Environmental studies/site design to be completed |
| 17 | North Coast I-5 HOV/Managed Lane Project | Managed lanes in each direction on I-5 from Voigt Drive north to Del Mar Heights Road, and two managed lanes in each direction from Del Mar Heights Road to Vandergrift Boulevard/Harbor Drive in Oceanside on I-5. Project may also include one general purpose lane in each direction from Del Mar Heights Road to State Route 78 | Environmental studies underway. Draft environmental document circulated to public; comment period closed November 22, 2010 |
| 18 | I-5/I-805 Widening | Separate freeway bypass system constructed from the junction of I-5 and I-805 to the Del Mar Heights Road interchange. | Completed |
| 19 | SuperLoop Transit Project | High-frequency commuter bus project that would serve the campus and the rest of the University Community, including stop at UTC (preliminary design and environmental work currently being conducted by SANDAG) | Final EIR adopted by SANDAG in August 2007. Operations began in 2009 |
| 20 | Eastgate Plant Map Waiver | Subdivide an existing parcel for the creation of two lots on a 3.05-ha (7.54-ac) site | Approved by Hearing Office in April 2008 |
| 21 | Chestnut Drive Expansion | 8,882-m ² (95,609-ft ²) commercial building with 2 commercial condominium units | First review completed in February 2008 |

| Table 2.21-1 (cont.) CUMULATIVE PROJECTS | | | |
|---|---|--|--|
| Map Key | Project Name | Description | Status |
| 22 | Programmatic Environmental Impact Report and Master SDP/CDP Project (Sorrento – Flintkote Canyon) | Maintenance of existing access for sewers in Sorrento - Flintkote Canyon | First review due March 2008 |
| 23 | Congregation Beth Israel | 500-seat temple, school (75 pre-school and 180 kindergarten to eighth grade students) | Completed |
| 24 | Salk Institute | 19,527 m ² (210,182 ft ²) for a laboratory, residential quarters and day care | Approved by City Council on October 2008 |
| 25 | Scripps Green Hospital | Accessory hospital building and a parking structure | Approved by Planning Commission in November 2008 |
| 26 | Costa Verde North | Convert 652 existing residential units to condominiums | Approved by Planning Commission in June 2008 |
| 27 | Costa Verde South | Convert 614 existing residential units to condominiums | Approved by Planning Commission in June 2008 |
| 28 | La Jolla Center III | Community Plan Amendment for a new 15-story commercial office building | First review completed in March 2009 |

A discussion of cumulative impacts associated with the Proposed Project and No Build Alternative in relation to these other projects in the surrounding area follows.

2.21.3 Environmental Consequences

The Project has the potential to result in temporary and/or permanent impacts to utilities and emergency services, traffic and transportation, hydrology and floodplain, water quality and storm water runoff, geology/soils/seismic/topography, paleontology, hazardous waste/materials, air quality, and climate change; however, the Project would include avoidance and/or minimization measures that would eliminate any impacts.

The incremental impacts of the project are small. The entire Project would not result in cumulatively considerable impacts on visual/aesthetics, natural communities, wetlands and other waters, animal species, threatened and endangered species, and invasive species, as discussed in this section. Accordingly, no avoidance, minimization, and/or mitigation measures would be required.

Visual/Aesthetics

Project

Five of the cumulative projects listed above occur within the viewshed of the Proposed Project, including the Scripps Memorial Hospital project, I-5/Sorrento Valley Road Interchange project, North Coast I-5 High-occupancy Vehicle (HOV)/Managed Lane project, I-5/I-805 Widening project, and SuperLoop Transit project. The viewshed was computer-generated and is shown

on Figure 2.6-2. The I-5/I-805 Widening project (to the north of the Project site) was completed in 2007 and is already a part of existing visual conditions; however, it is still included in this cumulative analysis. This project included a separate freeway bypass system from the junction of I-5 and I-805 north to Del Mar Heights Road. The Scripps Memorial Hospital project would include the construction of two towers and an office building. These structures would be visible along the eastern portion of Genesee Avenue that is proposed for widening, but not I-5. The I-5/Sorrento Valley Road Interchange project would occur in the northern portion of the Project site and would include a redesign of the I-5/Sorrento Valley Road interchange and the addition of auxiliary lanes between La Jolla Village Drive and Sorrento Valley Road. The North Coast I-5 HOV/Managed Lane Project would occur within the Project from Voigt Drive to past the Project viewshed in Oceanside and would include managed lanes in each direction of I-5. The SuperLoop Transit project would traverse a portion of Voigt Drive through the Project site. The SuperLoop Transit project would include high-frequency commuter buses serving UCSD, University Towne Centre (UTC), and the remainder of the University Community.

The Project viewshed area is largely built out with buildings and parking lots associated with UCSD, science parks and a hospital. The proposed hospital structures at Scripps Memorial Hospital would be constructed in an area that is already built out with hospital structures. These additional buildings would minimally contribute to impacts of the area, as they would include similar uses at a similar scale. Proposed freeway/interchange expansion projects (i.e., I-5/Sorrento Valley Road Interchange and North Coast I-5 HOV/Managed Lane Project) would occur in an area that is already planned for expansion. The addition of extra lanes along the Project freeway corridor would not be adverse, because a freeway already exists, the area is developed, and there are similar visual elements. The SuperLoop Transit project would result in more buses passing over the Voigt Drive overcrossing in the Project site, but this would not affect visual resources, as traffic already occurs on this roadway. Due to the current urbanized condition of the area, presence of large buildings, and mitigation proposed by the Project, project-related contributions to visual change would not be cumulatively considerable.

No Build Alternative

Under the No Build Alternative, no construction activities would occur, with no associated cumulative impacts to visual/aesthetic resources.

Biological Environment

Project

As discussed in Subchapter 2.15, Natural Communities, the City, U.S. Fish and Wildlife Service (USFWS), California Department of Fish and Game (CDFG), and other local jurisdictions joined together in the late 1990s to develop the MSCP, a program to ensure (generally upland) habitat and species viability throughout the region, while still permitting some level of continued development. Preserve areas identified under the MSCP are designated as Multi-Habitat Planning Area (MHPA). Because the MSCP establishes which areas within the region are to be preserved and can be developed, this program takes into account the cumulative impacts to sensitive upland habitats and MSCP-covered species.

With regard to upland communities, the Proposed Project would impact approximately 2.3 ha (5.6 ac) of the 26.8 ha (66.2 ac) of Diegan coastal sage scrub, which is approximately 8.6 percent of the Diegan coastal sage scrub within the Biological Study Area (BSA); 0.4 ha (0.9 ac) of the 1.8 ha (4.5 ac) of coyote brush scrub, which is approximately 22.2 percent of the coyote

brush scrub within the BSA; and 4.4 ha (11.0 ac) of the 14.4 ha (35.6 ac) of non-native grassland, which is approximately 30.6 percent of the non-native grassland within the BSA. The City addresses cumulative loss of habitat and species for most projects through compliance with the City's MSCP Subarea Plan. Although the Project is located within the MHPA, Caltrans is not an enrolled agency under the MSCP. While Caltrans strives to be consistent with the MSCP, it is not required to comply with the local plan. In addition to the Proposed Project, Caltrans is proposing improvements along I-5 as part of the North Coast and I-5/Sorrento Valley Road Interchange projects. The North Coast project overlaps with the Proposed Project and the Sorrento Valley Road Interchange project. Impact acreages for the other projects are not currently available.

The Proposed Project also would impact approximately 0.47 ha (1.17 ac) of the 3.79 ha (9.35 ac) of southern willow scrub (including disturbed), which is approximately 12.4 percent of southern willow scrub (including disturbed) within the BSA. The majority of cumulative projects that impact southern willow scrub within the Project vicinity are non-roadway development projects regulated by the City, which addresses cumulative loss of habitat and species for non-roadway projects through compliance with its MSCP Subarea Plan. As stated previously, Caltrans, as the lead agency, is not a participant in the MSCP; therefore, Caltrans' projects are not covered by the provisions of the MSCP. (As required by state and federal resource agency permits.)

The Proposed Project would impact approximately 0.04 ha (0.09 ac) of Corps jurisdictional areas and 0.49 ha (1.22 ac) of CDFG jurisdictional areas. Given that impact to jurisdictional areas must be given permits by the resource agencies and a "no net loss" policy is established, mitigation for the permanent contribution to the regional loss of jurisdictional areas would be required (refer to Section 2.21.4 below).

As discussed in Subchapter 2.16, Wetlands and Other Waters, the Proposed Project may affect the water quality within the jurisdictional areas in the BSA during construction and operation. However, construction-related best management practices (BMPs) and post-construction BMPs would be implemented.

Of the nine sensitive animal species that occur within the BSA, five are not covered by the MSCP: yellow warbler, yellow-breasted chat, northwestern San Diego pocket mouse, San Diego black-tailed jackrabbit, and San Diego desert woodrat. As stated in Subchapter 2.18, Animal Species, no impacts would occur to the yellow warbler and yellow-breasted chat, as their preferred habitat would not be impacted. The Project would impact Diegan coastal sage scrub and non-native grassland, the preferred habitat of northwestern San Diego pocket mouse, San Diego black-tailed jackrabbit, and San Diego desert woodrat. The Project also could result in potentially substantial direct and indirect impacts to the coastal California gnatcatcher, which is federally listed threatened, a state species of special concern, and City MSCP-covered species (refer to Subchapter 2.19, Threatened and Endangered Species). Cumulative impacts to these species' preferred habitats are included in the MSCP. No substantial contribution to cumulative regional impacts to sensitive birds would occur as a result of implementation of the Proposed Project. Habitat impact mitigation, clearing, and grubbing outside the breeding season and attenuation of potential construction noise impacts would reduce any impacts that would occur so that breeding and use of the territory would not be affected.

In addition, there is potential for Project construction activities to result in the spread of invasive plant species within the BSA. Non-native plants could colonize areas disturbed by construction and could potentially spread into adjacent native habitats. Compliance with regulatory

requirements (i.e., Executive Order [EO] 13112) and implementation of avoidance, minimization, and mitigation measures identified in Subchapter 2.19, Invasive Species, would ensure that colonization and spread of invasive plants would not occur.

In summary, the Proposed Project would not result in substantial cumulative impacts to biological resources due to the implementation of the MSCP, conformance with BMPs for jurisdictional areas, and compliance with regulatory controls.

No Build Alternative

Under the No Build Alternative, no construction or grading activities would occur, and no associated cumulative impacts to biological resources would occur.

2.21.4 Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, and/or mitigation measures are necessary with regard to cumulative impacts. Refer to Sections 2.6 and 2.15 through 2.20 for Project-specific mitigation measures that would eliminate and/or reduce direct impacts to visual/aesthetics, natural communities, wetlands and other waters, animal species, threatened and endangered species, and invasive species.

2.22 CLIMATE CHANGE (CEQA)

2.22.1 Regulatory Setting

While climate change has been a concern since at least 1988, as evidenced by the establishment of the United Nations and World Meteorological Organization's Intergovernmental Panel on Climate Change, the efforts devoted to greenhouse gas (GHG) emissions reduction and climate change research and policy have increased dramatically in recent years. These efforts are primarily concerned with the emissions of GHG related to human activity that include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF₆), HFC-23 (fluoroform), HFC-134a (s, s, s, 2 – tetrafluoroethane), and HFC-152a (difluoroethane).

In 2002, with the passage of Assembly Bill (AB) 1493, California launched an innovative and pro-active approach to dealing with GHG emissions and climate change at the state level. Assembly Bill 1493 requires California Air Resources Board (ARB) to develop and implement regulations to reduce automobile and light truck GHG emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with the 2009-model year; however, in order to enact the standards California needed a waiver from the U.S. Environmental Protection Agency (USEPA). The waiver was denied by USEPA in December 2007. See *California v. Environmental Protection Agency*, 9th Cir. Jul. 25, 2008, No. 08-70011. On January 26, 2009, it was announced that USEPA would reconsider their decision regarding the denial of California's waiver. On May 18, 2009, President Obama announced the enactment of a 35.5-mile per gallon fuel economy standard for automobiles and light duty trucks which will take effect in 2012. On June 30, 2009 USEPA granted California the waiver. California is expected to enforce its standards for 2009 to 2011 and then look to the federal government to implement equivalent standards for 2012 to 2016. The granting of the waiver will also allow California to implement even stronger standards in the future. The state is expected to start developing new standards for the post-2016 model years later this year.

On June 1, 2005, Governor Arnold Schwarzenegger signed Executive Order (EO) S-3-05. The goal of this EO is to reduce California's GHG emissions to: (1) 2000 levels by 2010, (2) 1990 levels by the 2020, and (3) 80 percent below the 1990 levels by the year 2050. In 2006, this goal was further reinforced with the passage of 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 that 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.

With EO S-01-07, Governor Schwarzenegger set forth the low carbon fuel standard for California. Under this EO, the carbon intensity of California's transportation fuels is to be reduced by at least 10 percent by 2020.

Climate change and GHG reduction also is a concern at the federal level; however, at this time, no legislation or regulations have been enacted specifically addressing GHG emissions reductions and climate change. California, in conjunction with several environmental organizations and several other states, sued to force the USEPA to regulate GHG as a pollutant under the Clean Air Act (CAA; *Massachusetts vs. Environmental Protection Agency et al.*, 549 U.S. 497[2007]). The court ruled that GHG does fit within the CAA's definition of a pollutant,

and that the USEPA does have the authority to regulate GHG. Despite the Supreme Court ruling, there are no promulgated federal regulations to date limiting GHG emissions.

On December 7, 2009, the EPA Administrator signed two distinct findings regarding GHGs under section 202(a) of the Clean Air Act:

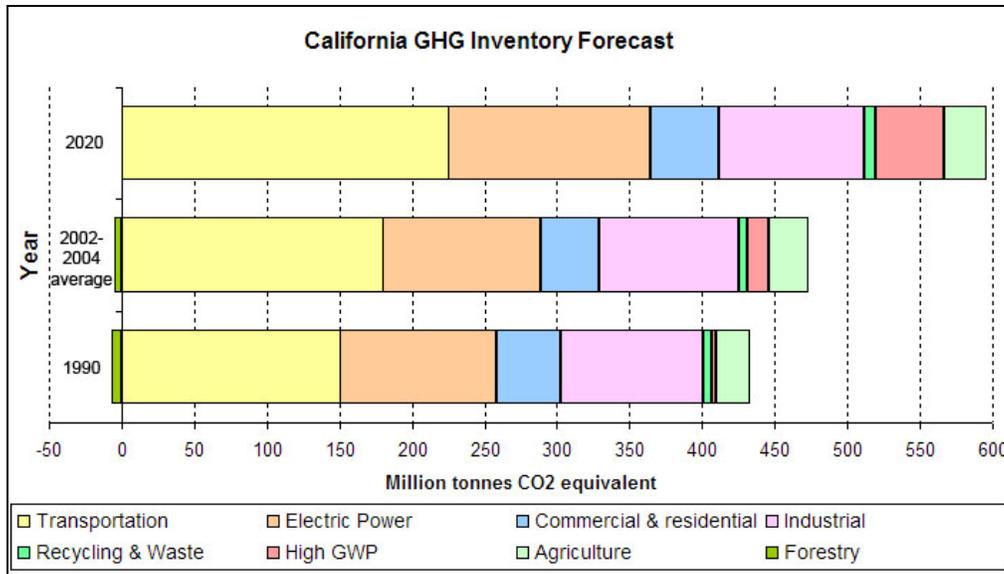
- **Endangerment Finding:** The Administrator finds that the current and projected concentrations of the six key well-mixed GHGs—CO₂, CH₄, N₂O, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and SF₆—in the atmosphere threaten the public health and welfare of current and future generations.
- **Cause or Contribute Finding:** The Administrator finds that the combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution which threatens public health and welfare.

These findings do not themselves impose any requirements on industry or other entities. However, this action is a prerequisite to finalizing the USEPA's proposed GHG emission standards for light-duty vehicles, which were jointly proposed by USEPA and the Department of Transportation's National Highway Safety Administration on September 15, 2009.

According to Recommendations by the Association of Environmental Professionals on How to Analyze GHG Emissions and Global Climate Change in CEQA Documents (March 5, 2007), an individual project does not generate enough GHG emissions to significantly influence global climate change. Rather, global climate change is a cumulative impact. This means that a project may participate in a potential impact through its incremental contribution combined with the contributions of all other sources of GHG. In assessing cumulative impacts, it must be determined if a project's incremental effect is "cumulatively considerable." See CEQA Guidelines Sections 15064(i)(1) and 15130. To make this determination, the incremental impacts of the project must be compared with the effects of past, current, and probable future projects. To gather sufficient information on a global scale of all past, current, and future projects in order to make this determination is a difficult, if not impossible, task.

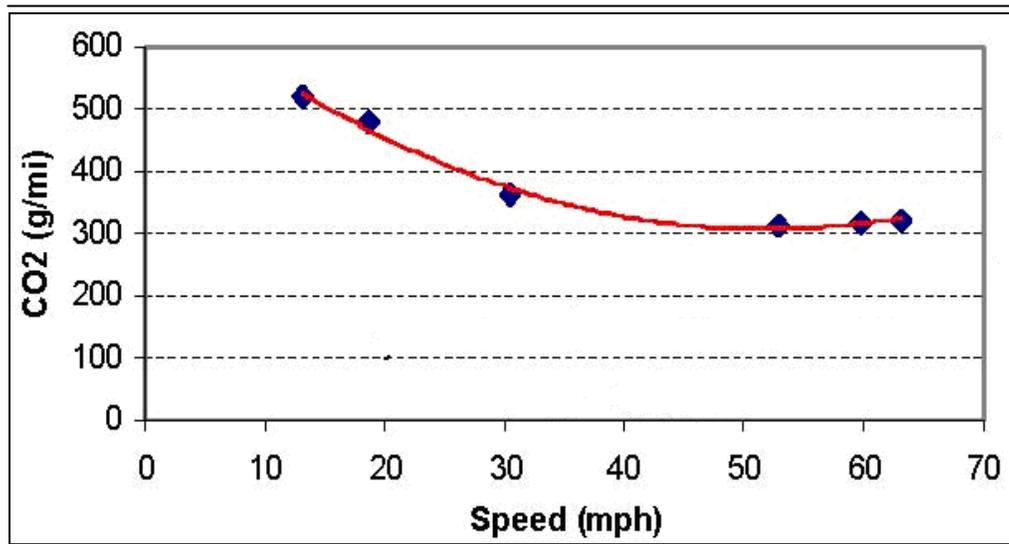
As part of its supporting documentation for the Draft Scoping Plan, ARB recently released an updated version of the GHG inventory for California (June 26, 2008). Shown below (in Figure 2.22-1) is a graph from that update that shows the total GHG emissions for California for 1990, 2002-2004 average, and 2020 projected if no action is taken.

Caltrans and its parent agency, the Business, Transportation, and Housing Agency, have taken an active role in addressing GHG emission reduction and climate change. Recognizing that 98 percent of California's GHG emissions are from the burning of fossil fuels and 40 percent of all human-made GHG emissions are from transportation (see Climate Action Program at Caltrans [December 2006]), Caltrans has created and is implementing the Climate Action Program at Caltrans that was published in December 2006. This document can be found at: <http://www.dot.ca.gov/docs/ClimateReport.pdf>.



CALIFORNIA GHG INVENTORY
Figure 2.22-1

One of the main strategies in Caltrans' Climate Action Program to reduce GHG emissions is to make California's transportation system more efficient. The highest levels of CO₂ from mobile sources, such as automobiles, occur at stop-and-go speeds (0 to 40 km/h [0 to 25 mph]) and speeds over 89 km/h (55 mph); the most severe emissions occur from 0 to 40 km/h (0 to 25 mph) (see Figure 2.22-2). Relieving congestion by enhancing operations and improving travel times in high-congestion travel corridors would lead to an overall reduction in GHG emissions.



FLEET CO₂ EMISSIONS VERSUS SPEED (HIGHWAY)
Figure 2.22-2

2.22.2 Environmental Consequences

Project

GHG emissions for transportation projects can be divided into those produced during construction and those produced during operations.

Construction Emissions

Construction GHG emissions include those produced as a result of material processing, on-site construction equipment, and traffic delays due to construction. These emissions would be produced at different levels throughout the construction period; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction. In addition, with innovations, such as longer pavement lives, improved traffic management plans, and changes in materials, the GHG emissions produced during construction can be mitigated to some degree by longer intervals between maintenance and rehabilitation events.

Year 2030 Analysis

The purpose of the Project is to improve traffic flow and reduce congestion on Genesee Avenue and the I-5 ramp intersections with Genesee Avenue, in addition to improving general access and mobility within the University area. The Project would not generate new vehicular traffic trips since it would not construct new homes or businesses. However, there is a possibility that some traffic currently utilizing other routes would be attracted to use the improved facility, thus resulting in slight increases in VMT in the study area.

The EMFAC2007 emission rates were used to calculate the CO₂ emissions for the 2030 regional conditions, based on the I-5 North Coast 2030 No Build Revenue Constrained Scenario from the 2007 Transportation Plan for the San Diego Region (RTP). As shown in Table 2.22-1, the Project would decrease CO₂ emissions within the region.

| Alternative | Regional CO₂ Annual Average Emissions (tons/day) | Decrease from No Build (tons/day) | Percent Decrease from No Build |
|--------------------|--|--|---------------------------------------|
| 2030 No Build | 56,430 | - | - |
| 2030 Build | 56,400 | 30 | 0.0005 |

Source: Caltrans, September 2009.

Based on the Traffic Operational Analysis (2008), the Project would reduce congestion and improve level of service (LOS). Relieving congestion by enhancing operations and improving travel times in high-congestion travel corridors would lead, in general, to an overall reduction in GHG emissions. It should be noted that the modeling output in Table 2.22-1 is based on the proposed facility improvements (widening of the Genesee Avenue overcrossing and ramps, addition of auxiliary lanes, etc.) and does not include the beneficial effect of improving traffic flow and speed.

No Build Alternative

As discussed previously for the Project, the No Build Alternative would result in regional average CO₂ emissions that would be 30 tons greater than that of the Project. Under the No Build Alternative, none of the proposed improvements would be implemented, and the existing and projected operational deficiencies at the I-5/Genesee Avenue interchange would remain. The existing congestion would be exacerbated through growth planned in the City and in the region, which would contribute to increased GHG emissions.

Limitations and Uncertainties with Modeling

EMFAC

Although EMFAC can calculate CO₂ emissions from mobile sources, the model does have limitations when it comes to accurately reflecting CO₂ emissions. According to the National Cooperative Highway Research Program report, *Development of a Comprehensive Modal Emission Model* (April 2008), studies have revealed that brief but rapid accelerations can contribute significantly to a vehicle's CO and hydrocarbon emissions during a typical urban trip. Current emission-factor models are insensitive to the distribution of such modal events (i.e., cruise, acceleration, deceleration, and idle) in the operation of a vehicle and instead estimate emissions by average trip speed. This limitation creates an uncertainty in the model's results when compared to the estimated emissions of the various alternatives with baseline in an attempt to determine impacts. Although work by USEPA and ARB is underway on modal-emission models, neither agency has yet approved a modal emissions model that can be used to conduct this more accurate modeling. In addition, EMFAC does not include speed corrections for most vehicle classes for CO₂; for most vehicle classes, emission factors are held constant, which means that EMFAC is not sensitive to the decreased emissions associated with improved traffic flows for most vehicle classes. Therefore, unless a project involves a large number of heavy-duty vehicles, the difference in modeled CO₂ emissions due to speed change would be slight.

Other Variables

Other variables also are considered with respect to the uncertainties of GHG emissions modeling. With the current science, project-level analysis of GHG emissions is limited. Although a GHG analysis is included for this project, there are several key GHG variables that are likely to change dramatically during the design life of the proposed project and would thus dramatically change the projected CO₂ emissions.

First, vehicle fuel economy is increasing. The USEPA's annual report, "Light-Duty Automotive Technology and Fuel Economy Trends: 1975 through 2008 (<http://www.epa.gov/oms/fetrends.htm>)," which provides data on the fuel economy and technology characteristics of new light-duty vehicles, including cars, minivans, sports utility vehicles, and pickup trucks, confirms that average fuel economy has improved each year beginning in 2005 and is now the highest since 1993. Most of the increase since 2004 is due to higher fuel economy for light trucks, following a long-term trend of slightly declining overall fuel economy that peaked in 1987. These vehicles also have a slightly lower market share, peaking at 52 percent in 2004, with projections at 48 percent in 2008. Table 2.22-2 shows the alternatives for vehicle fuel economy increases currently being studied by the National Highway Traffic Safety Administration in its Draft EIS for Corporate Average Fuel Economy (CAFE) Standards (October 2008).

| Table 2.22-2 MODEL YEAR 2015 REQUIRED MILES PER GALLON (MPG) BY ALTERNATIVE | | | | | | | |
|--|------|------------------------------------|----------------------------------|------------------------------------|------------------------------------|---|----------------------------------|
| No Action | | 25% Below Optimized | Optimized (Preferred) | 25% Above Optimized | 50% Above Optimized | Total Costs Equal Total Benefits | Technology Exhaustion |
| Cars | 27.5 | 33.9 | 35.7 | 37.5 | 39.5 | 43.3 | 52.6 |
| Trucks | 23.5 | 27.5 | 28.6 | 29.8 | 30.9 | 33.1 | 34.7 |

Source: National Highway Traffic Safety Administration 2008.

Second, near-zero carbon vehicles will come into the market during the design life of the proposed project. According to a March 2008 report released by University of California, Davis, Institute of Transportation Studies:

Large advancements have occurred in fuel cell vehicle and hydrogen infrastructure technology over the past 15 years. Fuel cell technology has progressed substantially resulting in power density, efficiency, range, cost, and durability all improving each year. In another sign of progress, automotive developers are now demonstrating over 100 fuel cell vehicles (FCVs) in California – several in the hands of the general public – with configurations designed to be attractive to buyers. Cold-weather operation and vehicle range challenges are close to being solved, although vehicle cost and durability improvements are required before a commercial vehicle can be successful without incentives. The pace of development is on track to approach pre-commercialization within the next decade.

A number of the United States Department of Energy (DOE) 2010 milestones for FCV development and commercialization are expected to be met by 2010. Accounting for a five to six year production development cycle, the scenarios developed by the U.S. DOE suggest that 10,000s of vehicles per year from 2015 to 2017 would be possible in a federal demonstration program, assuming large cost share grants by the government and industry are available to reduce the cost of production vehicles.

Third, as previously stated, California has recently adopted a low-carbon transportation fuel standard. The ARB is initiating regulatory proceedings to establish and implement regulations for low-carbon fuels, with implementation of the standard to begin in 2010.

Fourth, driver behavior has been changing as the U.S. economy and oil prices have changed. In its January 2008 report, “Effects of Gasoline Prices on Driving Behavior and Vehicle Market,” the Congressional Budget Office found the following results based on data collected from California: (1) freeway motorists have adjusted to higher gas prices by making fewer trips and driving more slowly; (2) the market share of sports utility vehicles is declining; and (3) the average prices for larger, less-fuel-efficient models have declined over the past five years as average prices for the most-fuel-efficient automobiles have risen, showing an increase in demand for the more fuel efficient vehicles (2008).

Limitations and Uncertainties with Impact Assessment

Much of the uncertainty in assessing an individual project’s impact on climate change surrounds the global nature of climate change. Even assuming that the target of meeting the 1990 levels of emissions is met, there is no regulatory or other framework in place that would allow for a

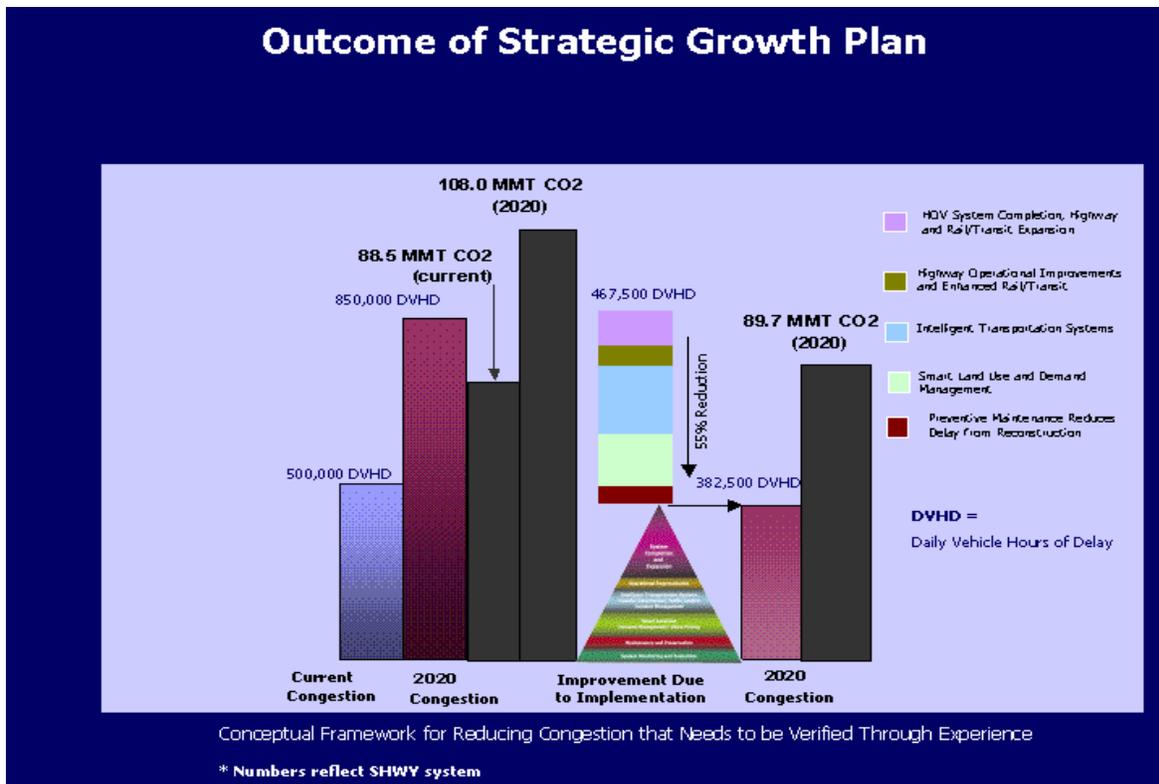
ready assessment of what the modeled 30-ton decrease in CO₂ emissions would mean for climate change given the overall GHG emissions inventory of approximately 430 million tons of CO₂ equivalent. This uncertainty only increases when viewed globally. The Intergovernmental Panel on Climate Change (IPCC) has created multiple scenarios to project potential future global GHG emissions as well as to evaluate potential changes in global temperature, other climate changes, and their effect on human and natural systems. These scenarios vary in terms of the type of economic development, the amount of overall growth, and the steps taken to reduce GHG emissions. Non-mitigation IPCC scenarios project an increase in global GHG emissions by 9.7 up to 36.7 billion metric tons of CO₂ from 2000 to 2030, which represents an increase of between 25 and 90 percent (IPCC 2007).

Caltrans recognizes the concern that CO₂ emissions raise for climate change. However, accurate modeling of GHG emissions levels, including CO₂, at the project level is not currently possible. No federal, state, or regional regulatory agency has provided methodology or criteria for GHG emission and climate change impact analysis. The assessment is further complicated by the fact that changes in GHG emissions can be difficult to attribute to a particular project because the projects often cause shifts in the locale for some types of GHG emissions, rather than causing “new” GHG emissions. The extent to which the modeled 30-ton decrease in CO₂ emissions represents a global increase, reduction, or no change is uncertain, and there are no models approved by regulatory agencies that operate at the global or even statewide scale. Therefore, Caltrans is unable to provide a scientific or regulatory-based conclusion regarding the Project’s direct impact and its contribution on the cumulative scale to climate change. However, Caltrans is firmly committed to reducing the potential effects of the project, including compliance with AB 32, as described in the following section, and implementing the avoidance, minimization, and/or mitigation measures detailed in Section 2.22.3.

AB 32 Compliance

Caltrans continues to be actively involved on the Governor’s Climate Action Team as ARB works to implement the Governor’s EOs and help achieve the targets set forth in AB 32. Many of the strategies Caltrans is using to help meet the targets in AB 32 come from the California Strategic Growth Plan, which is updated each year. Governor Arnold Schwarzenegger’s Strategic Growth Plan calls for a \$238.6 billion infrastructure improvement program to fortify the state’s transportation system, education, housing, and waterways, including \$100.7 billion in transportation funding through 2016.¹ As shown on the figure below (Figure 2.22-3), the Strategic Growth Plan targets a significant decrease in traffic congestion below today’s level and a corresponding reduction in GHG emissions. The Strategic Growth Plan proposes to do this while accommodating growth in population and the economy. A suite of investment options has been created that combined together yield the promised reduction in congestion. The Strategic Growth Plan relies on a complete systems approach of a variety of strategies: system monitoring and evaluation, maintenance and preservation, smart land use and demand management, and operational improvements.

¹ Governor’s Strategic Growth Plan, Figure 1 (<http://gov.ca.gov/pdf/gov/CSGP.pdf>)



OUTCOME OF STRATEGIC GROWTH PLAN
Figure 2.22-3

As part of the Climate Action Program at Caltrans (Caltrans 2006c), Caltrans is supporting efforts to reduce VMT by planning and implementing smart land use strategies: job/housing proximity, developing transit-oriented communities, and high-density housing along transit corridors. Caltrans is working closely with local jurisdictions on planning activities; however, Caltrans does not have local land use planning authority. Caltrans is also supporting efforts to improve the energy efficiency of the transportation sector by increasing vehicle fuel economy in new cars and light- and heavy-duty trucks; Caltrans is doing this by supporting ongoing research efforts at universities, by supporting legislative efforts to increase fuel economy, and by its participation on the Climate Action Team. It is important to note, however, that the control of the fuel economy standards is held by USEPA and ARB. Lastly, the use of alternative fuels is also being considered; Caltrans is participating in funding for alternative fuel research at University of California, Davis.

Table 2.22-3 summarizes the efforts that Caltrans is implementing in order to reduce GHG emissions. For more detailed information about each strategy, please see Climate Action Program at Caltrans (2006c), available at: <http://www.dot.ca.gov/docs/ClimateReport.pdf>.

**Table 2.22-3
STRATEGIES FOR IMPROVING TRANSPORTATION SYSTEM ENERGY EFFICIENCY**

| Strategy | Program | Partnership | | Method/Process | Estimated CO ₂ Savings (MMT) | |
|---|--|---|--|---|---|-----------------------------|
| | | Lead | Agency | | 2010 | 2020 |
| Smart Land Use | Intergovernmental Review (IGR) | Caltrans | Local Governments | Review and seek to mitigate development proposals | Not Estimated | Not Estimated |
| | Planning Grants | Caltrans | Local and regional agencies & other stakeholders | Competitive selection process | Not Estimated | Not Estimated |
| | Regional Plans and Blueprint Planning | Regional Agencies | Caltrans | Regional Plans and application policies | 0.975 | 7.8 |
| Operational Improvements & Intelligent Transportation System (ITS) Deployment | Strategic Growth Plan | Caltrans | Regions | State ITS; Congestion Management Plan | 0.007 | 2.17 |
| Mainstream Energy & GHG into Plans and Projects | Office of Policy Analysis & Research; Division of Environmental Analysis | Interdepartmental effort | | Policy establishment, guidelines, technical assistance | Not Estimated | Not Estimated |
| Educational & Information Program | Office of Policy Analysis & Research | Interdepartmental, California EPA, ARB, CEC | | Analytical report, data collection, publication, workshops, outreach | Not Estimated | Not Estimated |
| Fleet Greening & Fuel Diversification | Division of Equipment | Department of General Services | | Fleet Replacement B20 B100 | 0.0045 | 0.0065 0.45 0.0225 |
| Non-vehicular Conservation Measures | Energy Conservation Program | Green Action Team | | Energy Conservation Opportunities | 0.117 | 0.34 |
| Portland Cement | Office of Rigid Pavement | Cement and Construction Industries | | 2.5% limestone cement mix 25% fly ash cement mix > 50% fly ash/slag mix | 1.2 0.36 Not Estimated | 4.2 3.6 Not Estimated |
| Goods Movement | Office of Goods Movement | California EPA, ARB, BT&H, MPOs | | Goods Movement Action Plan | Not Estimated | Not Estimated |
| | | | | TOTAL | 2.72 | 18.67 |

Source: Caltrans 2006c (http://www.climatechange.ca.gov/publications/agencies/2006-12_CALTRANS_ClimateReport.PDF)

2.22.3 Avoidance, Minimization, and/or Mitigation Measures

To the extent that it is applicable or feasible for the Project and through coordination with the Project Development Team, the following measures would be included in the Project to reduce the GHG emissions and potential climate change impacts from the Project:

- Landscaping would use reclaimed water, where possible. Currently 30 percent of the electricity used in California is used for the treatment and delivery of water. Use of reclaimed water helps conserve this energy, which reduces GHG emissions from electricity production.
- Landscaping would be utilized to reduce surface warming and through photosynthesis decreases CO₂. The Project proposes planting of ornamental, drought tolerant trees, shrubs, vines, and groundcover on modified slopes, medians, and landscaped strips. This vegetation would help offset any potential CO₂ emissions increase.
- According to Caltrans Standard Specification Provisions, idling time for lane closure during construction is restricted to 10 minutes in each direction; in addition, the contractor must comply with San Diego Air Quality Management District's rules, ordinances, and regulations in regard to air quality restrictions.
- Caltrans and the California Highway Patrol are working with regional agencies to implement intelligent transportation systems (ITS) to help manage the efficiency of the existing highway system. ITS is commonly referred to as electronics, communications, or information processing used singly or in combination to improve the efficiency or safety of a surface transportation system.
- The City of San Diego provides ridesharing services and park-and-ride facilities to help manage the growth in demand for highway capacity.

Adaptation Strategies

"Adaptation strategies" refer to how Caltrans and others can plan for the effects of climate change on the state's transportation infrastructure and strengthen or protect the facilities from damage. Climate change is expected to produce increased variability in precipitation, rising temperatures, rising sea levels, storm surges and intensity, and the frequency and intensity of wildfires. These changes may affect the transportation infrastructure in various ways, such as damaging roadbeds by longer periods of intense heat; increasing storm damage from flooding and erosion; and inundation from rising sea levels. These effects will vary by location and may, in the most extreme cases, require that a facility be relocated or redesigned. There may also be economic and strategic ramifications as a result of these types of impacts to the transportation infrastructure.

Climate change adaption must also involve the natural environment as well. Efforts are underway on a statewide-level to develop strategies to cope with impacts to habitat and biodiversity through planning and conservation. The results of these efforts will help California agencies plan and implement mitigation strategies for programs and projects.

On November 14, 2008, Governor Schwarzenegger signed EO S-13-08, which directed a number of state agencies to address California's vulnerability to sea-level rise caused by climate change.

The Natural Resources Agency (previously known as the California Resources Agency), through the interagency Climate Action Team, was directed to coordinate with local, regional, state, and federal public and private entities to develop a state Climate Adaptation Strategy. The Climate Adaptation Strategy will summarize the best known science on climate change impacts to California, assess California's vulnerability to the identified impacts and then outline solutions that can be implemented within and across state agencies to promote resiliency.

As part of its development of the Climate Adaptation Strategy, the Natural Resources Agency was directed to request the National Academy of Science to prepare a Sea-level rise Assessment Report by December 2010 to advise how California should plan for future sea-level rise. The report is to include:

- Relative sea-level rise projections for California, taking into account coastal erosion rates, tidal impacts, El Niño and La Niña events, storm surge, and land subsidence rates;
- The range of uncertainty in selected sea-level rise projections;
- A synthesis of existing information on projected sea-level rise impacts to state infrastructure (such as roads, public facilities, and beaches), natural areas, and coastal and marine ecosystems; and
- A discussion of future research needs regarding sea-level rise for California.

Furthermore EO S-13-08 directed the Business, Transportation, and Housing Agency to prepare a report to assess vulnerability of transportation systems to sea level affecting safety, maintenance and operational improvements of the system and economy of the state. Caltrans continues to work on assessing the transportation system vulnerability to climate change, including the effect of sea-level rise.

Prior to the release of the final Sea-level rise Assessment Report, all state agencies that are planning to construct projects in areas vulnerable to future sea-level rise were directed to consider a range of sea-level rise scenarios for 2050 and 2100 in order to assess project vulnerability and, to the extent feasible, reduce expected risks and increase resiliency to sea-level rise. However, all projects that have filed a Notice of Preparation, and/or are programmed for construction funding the next five years (through 2013), or are routine maintenance projects as of the date of EO S-13-08 may, but are not required to, consider these planning guidelines. Sea-level rise estimates should also be used in conjunction with information regarding local uplift and subsidence, coastal erosion rates, predicted higher high water levels, storm surge, and storm wave data. (EO S-13-08 allows some exceptions to this planning requirement.)

Climate change adaptation for transportation infrastructure involves long-term planning and risk management to address vulnerabilities in the transportation system from increased precipitation and flooding; the increased frequency and intensity of storms and wildfires; rising temperatures; and rising sea levels. Caltrans is an active participant in the efforts being conducted as part of Governor's Schwarzenegger's Executive Order on Sea-level rise and is mobilizing to be able to respond to the National Academy of Science report on *Sea-level rise Assessment* which is due to be released by December 2010. Currently, Caltrans is working to assess which transportation facilities are at greatest risk from climate change effects. However, without statewide planning scenarios for relative sea-level rise and other climate change impacts, Caltrans has not been able to determine what change, if any, may be made to its design standards for its transportation facilities. Once statewide planning scenarios become available,

Caltrans will be able review its current design standards to determine what changes, if any, may be warranted in order to protect the transportation system from sea-level rise.

CHAPTER 3.0

COMMENTS AND COORDINATION

CHAPTER 3.0 – COMMENTS AND COORDINATION

3.1 COORDINATION

Introduction

Early and continuing coordination with the general public agencies is an essential part of the environmental process to determine the scope of environmental documentation, the level of analysis, potential impacts, and mitigation measures and related environmental requirements. Agency consultation and public participation for the Project have been accomplished through a variety of formal and informal methods, including: Project Development Team meetings and interagency coordination meetings. This chapter summarizes the results of Caltrans' efforts to fully identify, address, and resolve Project-related issues through early and continuing coordination.

Consultation and Coordination with Public Agencies

The Project Development Team for the Project has met on a regular basis (generally once a month, beginning in June 2004) since Project inception to facilitate coordination and keep an open dialogue between the Project team members, which includes Caltrans engineering, environmental, and landscaping staff; City engineering and environmental staff; engineering consultants; environmental consultants; and other Project stakeholders, including representatives from University of California, San Diego (UCSD), Scripps Medical Center, and Qualcomm. The meetings have addressed engineering design, traffic considerations, and environmental issues.

Caltrans and the City of San Diego coordinated with U.S. Fish and Wildlife Service (USFWS), California Department of Fish and Game (CDFG), and U.S. Army Corps of Engineers (Corps) regarding biological resources, including wetlands and other issues of concern. In May 2004, a list of candidate, proposed, threatened, and endangered species with potential for occurrence in the vicinity of the BSA was requested from USFWS staff, who provided a list in June 2004. Following contact with National Oceanic and Atmospheric Administration's (NOAA's) National Marine Fisheries Service, a letter was received in October 2005 concurring that this project is separate from the larger proposed I-5 North Coast Corridor project (see Appendix A for letter). On November 19, 2007, another request was made to USFWS for an updated list of candidate, proposed, threatened, and endangered species with potential for occurrence; a list was received March 11, 2008 (see Appendix A for letter). The wetlands were discussed with USFWS, CDFG, and Corps along with National Marine Fisheries Service, U.S. Environmental Protection Agency (USEPA), Regional Water Quality Control Board (RWQCB), and California Conservation Corps on May 22, 2008 in the NEPA 404 meeting for the proposed I-5 North Coast Corridor project. On March 23, 2011, USFWS issued a Biological Opinion (Appendix B). The conditions from the Biological Opinion have been added to this document.

Comments from Native American Heritage Commission (NAHC) were associated with "project-related" impacts to cultural resources within the area of potential effect (APE); specifically Native American cultural resources. NAHC recommended contact with appropriate Native American representatives in an attached contact list, conducting a sacred lands file search, following appropriate procedures, preparing a mitigation plan for the accidental discovery of cultural resources, and avoidance if significant cultural resources are discovered during Project activities. Refer to Appendix C for correspondence with NAHC.

Public Participation

In July 2007, letters describing the Project and a map of the study area were mailed to local Native American tribe representatives, in order to solicit information regarding any potential concerns. Follow-up telephone calls were made in November 2007. Native American contacts included the San Pasqual Band of Mission Indians, Sycuan Band of the Kumeyaay Nation, Viejas Band of Mission Indians, Mesa Grande Band of Mission Indians, Kwaaymii Laguna Band of Mission Indians, Santa Ysabel Band of Mission Indians, Kumeyaay Cultural Heritage Preservation, Kumeyaay Cultural Historic Committee, Kumeyaay Cultural Heritage Preservation, and Kumeyaay Cultural Repatriation Committee.

The IS/EA was circulated for public review on September 23, 2010. The comment period was open from until October 25, 2010. The Notice of Availability of the IS/EA was published in the San Diego Union Tribune and is included as Figure 3-1. Notices also were mailed to elected officials, resource agencies, and other interested parties. Comments were received from the following:

Federal

Federal Emergency Management Agency

State

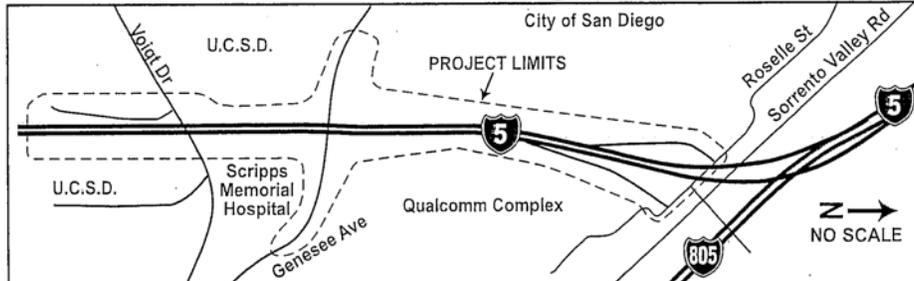
California Regional Water Quality Control Board
California Coastal Commission
California Department of Toxic Substances Control

Local Agencies, Organizations, and Businesses

San Diego Gas and Electric
University of California, San Diego
San Diego County Archaeological Society
Native American Heritage Commission

Comment letters and responses are included as Figure 3-2.

Caltrans **Public Notice** Notice of Intent to
 Adopt Mitigated Negative Declaration and Availability of
 Initial Study / Environmental Assessment Notice of
 Opportunity for Public Hearing
Interstate 5/Genesee Avenue Interchange Reconstruction Project



WHAT'S BEING PLANNED? The California Department of Transportation (Caltrans) District 11 is proposing to reconstruct the Interstate 5 (I-5) interchange at Genesee Avenue in the City of San Diego. Project limits along I-5 are from Postmile (PM) R28.6 to R30.5. Work would include replacement of the existing overcrossings at Genesee Avenue and Voigt Drive with wider structures that would accommodate additional lanes, including bicycle lanes. Work would also include ramp widening at Genesee and Sorrento Valley Road interchanges, construction of I-5 auxiliary lanes, realignment of Gilman Drive, and various measures to improve pedestrian and bicycle safety. The proposed project would require minor encroachments upon a floodplain, wetlands, riparian areas, and various scrub brush communities. The project is being evaluated to ensure that all practicable measures would be taken to avoid or minimize harm to these natural communities.

WHY THIS NOTICE? Pursuant to the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA), Caltrans has studied the effects this project may have on the environment. Studies show the project would not significantly affect the quality of the environment with incorporation of avoidance, minimization, and mitigation measures. These studies and conclusions are discussed in the Initial Study / Environmental Assessment (IS/EA) prepared for the project.

This notice is to advise you of the preparation of a Proposed Mitigated Negative Declaration (MND) and availability of the IS/EA for your review. The comment period is from September 23 to October 25, 2010.

WHAT'S AVAILABLE? The IS/EA with the Proposed MND and Technical Reports are available for review from 8:00 a.m. to 4:00 p.m. at the Caltrans District 11 Office at 4050 Taylor St., San Diego; during regular library hours at the University Community Branch Library located on 4155 Governor Dr. in San Diego; and on the Caltrans District 11 website at <http://www.dot.ca.gov/dist11/> or <http://www.keepsandiegomoving.com>.

WHERE YOU COME IN: Do you have any comments or concerns regarding the IS/EA or proposed MND? Please submit your comments in writing no later than October 25, 2010, to: Ms. Shay Lynn M. Harrison, Chief, Environmental Analysis Branch C, Caltrans District 11, 4050 Taylor Street, MS 242, San Diego, CA 92110; or via e-mail to: Shay.Lynn.Harrison@dot.ca.gov

OPPORTUNITY FOR A PUBLIC HEARING: If requested by an interested agency or member of the general public, a public hearing will be conducted.

CONTACT/SPECIAL ACCOMMODATIONS: For more information about this project or for individuals who require documents in alternative formats, please contact Caltrans District 11 Public Information Office at 619-688-6670. TDD users may contact the California Relay Service TDD line at 1-800-735-2929 or Voice Line at 1-800-735-2922, or you may dial 711.

**Public Notice
 Figure 3-1**

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U.S. Department of Homeland Security
FEMA Region IX
1111 Broadway, Suite 1200
Oakland, CA. 94607-4052



FEMA

October 1, 2010

Ms. Shay Lynn M. Harrison, Chief
Environmental Analysis, Branch C
California Department of Transportation, District 11
4050 Taylor Street, MS 242
San Diego, California 92110

Dear Ms. Harrison:

This is in response to your request for comments on the Notice of Availability of Initial Study/Environmental Assessment and Notice of Opportunity for Public Hearing for I-5/Genesee Interchange Reconstruction Project.

Please review the current effective countywide Flood Insurance Rate Maps (FIRMs) for the County (Community Number 060284) and City (Community Number 060295) of San Diego, Maps revised September 29, 2006. Please note that the City of San Diego, San Diego County, California is a participant in the National Flood Insurance Program (NFIP). The minimum, basic NFIP floodplain management building requirements are described in Vol. 44 Code of Federal Regulations (44 CFR), Sections 59 through 65.

A summary of these NFIP floodplain management building requirements are as follows:

- All buildings constructed within a riverine floodplain, (i.e., Flood Zones A, AO, AH, AE, and A1 through A30 as delineated on the FIRM), must be elevated so that the lowest floor is at or above the Base Flood Elevation level in accordance with the effective Flood Insurance Rate Map.
- If the area of construction is located within a Regulatory Floodway as delineated on the FIRM, any *development* must not increase base flood elevation levels. The term *development* means any man-made change to improved or unimproved real estate, including but not limited to buildings, other structures, mining, dredging, filling, grading, paving, excavation or drilling operations, and storage of equipment or materials. A hydrologic and hydraulic analysis must be performed prior to the start of development, and must demonstrate that the development would not cause any rise in base flood levels. No rise is permitted within regulatory floodways.

www.fema.gov

1

The Flood Insurance Rate Map (FIRM) was reviewed, and the slight encroachment of the project onto the floodplain is shown in Figure 2.8-2.

2

No buildings would be constructed as part of this project.

3

The northern limits of the project extend into the floodplain fringe and essentially terminate at the Regulatory floodway boundary. The nature of the proposed project within the floodplain is to widen the on and off-ramps that tie into Roselle Street and to reconstruct the associated curb returns. The work will not require any change in topography as the improvements must conform to the existing configuration of Roselle Street, thereby not introducing any new obstructions that would impede floodwaters. Please refer to Section 2.8.3 of the environmental document and to the Location Hydraulic Study for further information.

Ms. Shay Lynn M. Harrison, Chief
Page 2
October 1, 2010

4 All buildings constructed within a coastal high hazard area, (any of the "V" Flood Zones as delineated on the FIRFM), must be elevated on pilings and columns, so that the lowest horizontal structural member, (excluding the pilings and columns), is elevated to or above the base flood elevation level. In addition, the posts and pilings foundation and the structure attached thereto, is anchored to resist flotation, collapse and lateral movement due to the effects of wind and water loads acting simultaneously on all building components.

5 Upon completion of any development that changes existing Special Flood Hazard Areas, the NFIP directs all participating communities to submit the appropriate hydrologic and hydraulic data to FEMA for a FIRFM revision. In accordance with 44 CFR, Section 65.3, as soon as practicable, but not later than six months after such data becomes available, a community shall notify FEMA of the changes by submitting technical data for a flood map revision. To obtain copies of FEMA's Flood Map Revision Application Packages, please refer to the FEMA website at <http://www.fema.gov/business/nfip/forms.shtm>.

Please Note:

6 Many NFIP participating communities have adopted floodplain management building requirements which are more restrictive than the minimum federal standards described in 44 CFR. Please contact the local community's floodplain manager for more information on local floodplain management building requirements. The City of San Diego floodplain manager can be reached by calling Jamal Batta, Floodplain Manager, at (619) 533-7482. The San Diego County floodplain manager can be reached by calling Cid Tesoro, Flood Control District Manager at (858) 694-3672.

If you have any questions or concerns, please do not hesitate to call Robert Durrin of the Mitigation staff at (510) 627-7057.

Sincerely,

Gregor Blackburn, CFM, Branch Chief
Floodplain Management and Insurance Branch

cc:
Jamal Batta, Floodplain Manager, City of San Diego
Cid Tesoro, Flood Control District Manager, San Diego County
Garret Tam Sing/Salomon Miranda, State of California, Department of Water Resources,
Southern Region Office
Robert Durrin, NFIP Specialist, CFM, DHS/FEMA Region IX
Alessandro Amaglio, Environmental Officer, DHS/FEMA Region IX

www.fema.gov

4 As described in Chapter 1 of the environmental document, no buildings would be constructed as part of this project.

5 No Special Flood Hazard Areas would change as a result of this project.

6 All three of the individuals listed were contacted and briefed regarding the extent and nature of the floodplain encroachment.

STATE OF CALIFORNIA - THE NATURAL RESOURCES AGENCY
CALIFORNIA COASTAL COMMISSION
SAN DIEGO OFFICE
3800 LA JOLLA VILLAGE DRIVE, SUITE 103
SAN DIEGO, CA 92108-4421
(619) 797-2370

ARNOLD SCHWARZENEGGER, Governor



October 28, 2010

Shay Lynn Harrison
Environmental Analysis Branch Chief
California Department of Transportation, District 11
4050 Taylor Street
San Diego, CA 92110

Subject: Comments on the Initial Study with Proposed Negative Declaration/Environmental Assessment for the Interstate 5/Genesee Avenue Interchange Reconstruction Project

Dear Ms. Harrison,

Commission staff appreciates the opportunity to review and provide comment on the above-referenced environmental document. Due to limited staff resources, coupled with concurrent review of the Interstate 5 North Coast Corridor (I-5 NCC) environmental documents, we offer the following initial comments regarding the summary document and its analysis of potential impacts from the proposed project alternatives. Additional and more thorough project review will be required as a part of necessary future coastal development permits (CDPs) for the proposed project.

The project as proposed would result in the replacement and reconstruction of both the Genesee and Voigt Drive overcrossings. The new overcrossings would be designed to be longer to accommodate proposed future I-5 widening improvements, and would be wider to facilitate improved traffic circulation on local streets and intersections, and would also include enhanced pedestrian sidewalks and bike travel lanes. Proposed interchange improvements would also consist of widened freeway on and off ramps, auxiliary lanes, ramp meters and other associated lighting and signage improvements. Our understanding is that Caltrans contends this project will not prejudice any future decisions regarding proposals for the I-5 and LOSSAN corridors.

Significant portions of the proposed Genesee/Voigt Interchange project are located within the Coastal Zone. As the document correctly describes, portions of the project fall under the jurisdiction of the City of San Diego and its certified Local Coastal Program (LCP), specifically within the University Community Plan, and possibly to a lesser extent the Torrey Community Plan, and would therefore require a CDP be issued by the City. Within the City of San Diego LCP jurisdiction, portions of the project are located in some areas that are appealable to the Coastal Commission and other areas that are not. We note that the document fails to identify that southwestern portions of the project, located south of Genesee Avenue and west of I-5 are located in an area where the Commission still has jurisdiction over proposed development and therefore a CDP from the Commission would be required for portions of the project extending into these areas.

Comments continued on next page

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Thank you for pointing out this omission. We concur that the CCC does indeed have jurisdiction in that area and Table S-1, Table 1-1 and Section 2.1.3 have been revised. The first paragraph of Section 2.1.3 was revised to state, "The Project site lies within the Coastal Zone and traverses both the City of San Diego's Local Coastal Program and the California Coastal Commission's (CCC) jurisdiction. Continued coordination will occur between Caltrans, the City of San Diego, and CCC staff. Permits will be obtained from the City of San Diego and the CCC. With the approval of a Coastal Development Permit (CDP), the Project would be consistent with the Coastal Zone Management Act (CZMA)."

1

Both Table S-1 and Section 2.1.1.3 should be amended to describe these additional CDP requirements. The standard of review for development within areas of direct Commission jurisdiction is the Coastal Act. In order to streamline the CDP process, Coastal Act Section 30601.3 allows for the consolidation of permit requirements into one CDP processed by the Coastal Commission if the local jurisdiction, Caltrans and Commission mutually agree to this option. Under this scenario, the Chapter 3 policies of the Coastal Act would be the standard of review and the policies of the City's certified LCP would be used as guidance.

1

Response on previous page

According to the Initial Study, the proposed project would include both temporary and permanent impacts to environmentally sensitive habitat areas (ESHA), as well as impacts to wetlands and floodplains, that are all protected under the Coastal Act. Allowable development in wetlands is significantly restricted and does not include capacity increasing improvements to an existing roadway or other associated development (Section 30233). In addition, Coastal Act policies direct that only uses dependent on ESHA resources are allowed within those areas and that adjacent development must be sited and designed so as to prevent impacts that would significantly degrade ESHA (Section 30240). In light of these restrictions, more information will be needed for subsequent Coastal Commission reviews to determine if the proposed project can be found to be consistent with Coastal Act and LCP policies. It will be imperative to demonstrate how the project has been designed to avoid and minimize impacts to sensitive coastal resources to the greatest extent feasible. Proposed mitigation locations and ratios for anticipated impacts will be more specifically reviewed upon submittal of a future CDP application; however, at this time, it is relevant to describe that any proposed mitigation should be located on-site whenever possible, and, when located off-site, should be located within the Coastal Zone in close proximity to the subject site. Additionally, further analysis of what constitutes temporary impacts may be required, as any temporary disturbance associated with the proposed project resulting in significant ground or wetland disturbance or the death of vegetation or aquatic organisms would likely be considered permanent impacts and would require appropriate mitigation. Finally, many of the proposed mitigation sites described are also listed as potential future mitigation for the I-5 NCC project, mitigation will need to be secured with each entitlement.

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Visual impacts from the proposed project also warrant significant investigation. Changes to both scenic resources and visual community character are protected under the Coastal Act. The environmental document states that the project would conform to corridor-wide design guidelines for the I-5 NCC; however, at this time, it appears that these design guidelines have yet to be developed. In order to ensure that proposed development does not result in significant impacts to visual resources, a more thorough depiction of these design guidelines should be included. Future CDP review will require a complete visual analysis of the proposal, including perspectives from nearby public areas that have views of the project. Also, in order to minimize impacts to both visual and biological resources, all proposed landscaping should only consist of native vegetation.

3

The Coastal Act includes policies to protect both water quality and biological productivity. The proposed project includes the addition of a sizable amount of new impervious surfaces. Demonstration should be made that the amount of impervious surface has been reduced to the smallest area feasible. Existing, construction phase, and

4

Comments continued on next page

As discussed in Sections 1.5 and 2.16.4, impacts to wetland could not be avoided due to unstable geology of an ancient landslide near I-5/Genesee. But, despite various environmental and engineering design constraints, the project avoids and minimizes impacts to the extent practicable. As described in Sections 2.15.4 and 2.16.4, mitigation would be within the Coastal Zone, at the Pardee (Deer Canyon) mitigation site. Certain slopes with temporary impacts would be temporarily revegetated (Sections 2.15.4 and 2.16-4) until the I-5 North Coast Corridor project is implemented, at which time the final slopes would be permanently revegetated.

Visual impacts from the proposed project were thoroughly investigated as stated in Section 2.6. Although the project site is located in a vegetated canyon, the area is described as having a "suburban parkway" character. The visual impact of new walls and other features would be softened in time as vegetation matured and, along with other measures described in Section 2.6.4, would help ensure the project was visually consistent with anticipated corridor-wide design themes in this suburban area. Plant selection would be done in consultation with the District Biologist. The need for fire prevention protection in areas adjacent to developed property would influence plant selection, along with other criteria including but not limited to selections that are drought tolerant, have acceptable potential for erosion control, are non-invasive, and are native. Caltrans will coordinate with CCC staff to identify possible additional measures when applying for the CDP.

As stated in Section 2.9.4, the project would be designed in accordance with current NPDES Permit and other guidelines, and would incorporate post-construction BMPs to the Maximum Extent Practicable (MEP). Analyses have been done to evaluate all Caltrans-approved structural BMPs for incorporation as part of the project, which are found in the Storm Water Data Report as stated throughout the environmental document to provide conformance or compliance with NPDES Permit requirements. In addition, the project development process for highways must consider multiple conflicting concerns, including minimizing the size of the facility to help reduce the amount of right of way and material needed which also helps reduce total impervious surface area.

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post-construction drainage and treatment should be described. In order to display consistency with Coastal Act and LCP policies, it will be important to detail how any proposed BMPs would be able to treat anticipated runoff from the entire affected roadway systems effectively. The standard typically applied would be to evaluate if the BMPs in place have the ability to capture and infiltrate or treat the amount of water produced by an 85th percentile storm event.

4

Lastly, the summary document asserts that the impacts from the proposed project would not be "cumulatively considerable" when compared with other large scale projects proposed in the vicinity. Given the size, scope, and adjacency of the proposed I-5 NCC widening improvements, and the sensitivity of the impacted resources, it is unclear how the potential impacts associated with the Genesee Avenue Interchange improvements would not be considered a cumulative impact when reviewed in concert with the larger I-5 improvement plans. Under CEQA, cumulative impacts on resources of concern, including impacts resulting from past, present, and reasonably foreseeable future actions, combined with the potential impacts of this project, should be assessed. In this case it would appear that even if the impacts resulting from this project may appear to be individually minor, there may be collectively substantial impacts on the areas resources taking place over a period of time. We believe more analysis in this regard should be conducted.

5

Thank you again for the opportunity to provide review and comment on the proposed project. If you have any questions or require further clarification, please do not hesitate to contact at the above office.

Sincerely,

Gabriel Buhr
Coastal Program Analyst III
San Diego District

Cc (copies sent via email):
Sherilyn Sarb (CCC)
Deborah Lee (CCC)
Tami Grove (CCC)
Lee McEachern (CCC)
John Dixon (CCC)
Allan Kosup (Caltrans)
Arturo Jacobo (Caltrans)

As noted in Section 2.21, impacts from this project would not be cumulatively considerable relative to other major projects in area, including the I-5 NCC project. Construction of a wider and longer bridge over an existing freeway would not be adverse because a bridge over the freeway already exists, the freeway is of "suburban parkway" in character, and the area is already largely developed. For biological issues of concern, mitigation measures would be implemented that would reduce potential impacts to levels below significance. And, although a separate project, I-5 NCC would overlap I-5/Genesee and impacts would not be additive or cumulative.

5



Department of Toxic Substances Control

Maziar Movassaghi
Acting Director
5796 Corporate Avenue
Cypress, California 90630



Arnold Schwarzenegger
Governor

Linda S. Adams
Secretary for
Environmental Protection

October 25, 2010

Ms. Shay Lynn Harrison
California Department of Transportation, District 11
4050 Taylor Street, MS 242
San Diego, CA 92110

DRAFT MITIGATED NEGATIVE DECLARATION FOR INTERSTATE 5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION PROJECT (SCH# 2010091064)

Dear Ms. Harrison:

The Department of Toxic Substances Control (DTSC) has received your submitted document for the above-mentioned project. As stated in your document: "The California Department of Transportation (Caltrans), in cooperation with the City of San Diego (City), proposes to improve the Interstate 5 (I-5)/Genesee Avenue interchange and make related improvements to the freeway, on- and off-ramps, Voigt Drive overcrossing, and Gilman Drive.

The Project would reconstruct the I-5/Genesee Avenue interchange to accommodate widening of Genesee Avenue and meet vertical clearance requirements for the overcrossing. Construction of the Project would not preclude the ultimate I-5 freeway condition. The Project would replace the existing Genesee Avenue four-lane overcrossing with a new six-lane overcrossing. The new overcrossing structure would be wider, longer, and higher than the existing structure, and would be shifted slightly to the north (the centerline would shift approximately 16.1 m [53 ft]) so that the existing overcrossing could continue to carry traffic during construction of the new overcrossing. The four ramps at the Genesee Avenue interchange also would be widened and lengthened to accommodate increased (future year [2030]) traffic flows and the proposed overcrossing structure.

Based on the review of the submitted document DTSC has the following comments:

- 1) The ND should identify and determine whether current or historic uses at the project area may have resulted in any release of hazardous wastes/substances.

- 1) As stated in Section 2.12.3, prior to highway construction in 1966, the site was undeveloped except for an unpaved road. Since no impacts were identified in the records search and review, no Phase II Environmental Site Investigations will be necessary or performed for this project.

Ms. Shay Lynn Harrison
October 26, 2010
Page 2

- 2) The document states that the ND would identify any known or potentially contaminated sites within the proposed project area. For all identified sites, the ND should evaluate whether conditions at the site may pose a threat to human health or the environment. Following are the databases of some of the regulatory agencies:
- National Priorities List (NPL): A list maintained by the United States Environmental Protection Agency (U.S.EPA).
 - EnviroStor, a database primarily used by the California Department of Toxic Substances Control, at [www. Envirostor.dtsc.ca.gov](http://www.Envirostor.dtsc.ca.gov).
 - Resource Conservation and Recovery Information System (RCRIS): A database of RCRA facilities that is maintained by U.S. EPA.
 - Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS): A database of CERCLA sites that is maintained by U.S.EPA.
 - Solid Waste Information System (SWIS): A database provided by the California Integrated Waste Management Board which consists of both open as well as closed and inactive solid waste disposal facilities and transfer stations.
 - GeoTracker: A List that is maintained by Regional Water Quality Control Boards.
 - Local Counties and Cities maintain lists for hazardous substances cleanup sites and leaking underground storage tanks.
 - The United States Army Corps of Engineers, 911 Wilshire Boulevard, Los Angeles, California, 90017, (213) 452-3908, maintains a list of Formerly Used Defense Sites (FUDS).

2

- 3) The ND should identify the mechanism to initiate any required investigation and/or remediation for any site that may be contaminated, and the government agency to provide appropriate regulatory oversight. If hazardous materials or wastes were stored at the site, an environmental assessment should be conducted to determine if a release has occurred. If so, further studies should be carried out to delineate the nature and extent of the contamination, and the

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No known or potentially contaminated sites were identified within the project area. A review of the records search has been completed using First Search Database search utilizing all pertinent regulatory agency records. The databases listed were reviewed in the "Hazardous Waste Initial Site Assessment" as referenced in Section 2.12.2.

3

Since no known impacts were identified in the records search and review, no Phase II Environmental Site Investigation will be necessary or performed for this project. since no impacts were identified in the project area, no associated avoidance, minimization or mitigation measures are proposed. A review of the records search has been completed using First Search Database search utilizing all pertinent regulatory agency records. It is not anticipated to encounter any hazardous waste on this project, but if unexpected hazardous waste is encountered a site-specific health and Safety Plan and Hazardous Waste Management Plan shall be prepared by qualified personnel that will be designed to minimize risk to human health and the environment during construction.

Ms. Shay Lynn Harrison
October 26, 2010
Page 3

3 Response on previous page

4 The project would include soil excavation and backfill. As described in Section 2.12.2, an investigation for aerially deposited lead (ADL) was performed and soil containing ADL was found but determined to be at non-hazardous levels.

5 Sensitive receptors are addressed in Section 2.13.2. Health concerns would be protected for the duration of the project through preparation of a Site Safety Plan, which addresses the management of potential health and safety hazards to workers and the public, will be prepared.

6 Soil or groundwater contamination would not be anticipated for this project as no contaminated sites were identified during the hazardous waste, air quality, health and safety, and water quality investigations, as indicated in Sections 2.9 and 2.12. Measures to avoid, minimize or mitigate hazardous and non-hazardous waste are addressed in Sections 2.12.3 and 2.12.4. If unexpected hazardous waste is encountered a site-specific Health and Safety Plan and Hazardous Waste Management Plan shall be prepared by qualified personnel that will be designed to minimize risk to human health and the environment during construction.

7 There was no evidence of herbicide storage, mixing, or unlawful release within the project limits. As such, testing for herbicides was not indicated nor performed.

8 As indicated in Section 2.9.3, hazardous wastes generated by the proposed operations would be managed in accordance with federal, state, and local regulations. If hazardous wastes are generated, a temporary EPA ID number would be obtained. A line item would be in the project Plans Specifications and Estimates (PS&E) to cease construction activities and observe appropriate health and safety measures if unforeseen contamination is encountered.

3 potential threat to public health and/or the environment should be evaluated. It may be necessary to determine if an expedited response action is required to reduce existing or potential threats to public health or the environment. If no immediate threat exists, the final remedy should be implemented in compliance with state laws, regulations and policies.

4 The project construction may require soil excavation and soil filling in certain areas. Appropriate sampling is required prior to disposal of the excavated soil. If the soil is contaminated, properly dispose of it rather than placing it in another location. Land Disposal Restrictions (LDRs) may be applicable to these soils. Also, if the project proposes to import soil to backfill the areas excavated, proper sampling should be conducted to make sure that the imported soil is free of contamination.

5 Human health and the environment of sensitive receptors should be protected during the construction or demolition activities. A study of the site overseen by the appropriate government agency might have to be conducted to determine if there are, have been, or will be, any releases of hazardous materials that may pose a risk to human health or the environment.

6 If during construction/demolition of the project, soil and/or groundwater contamination is suspected, construction/demolition in the area should cease and appropriate health and safety procedures should be implemented. If it is determined that contaminated soil and/or groundwater exist, the ND should identify how any required investigation and/or remediation will be conducted, and the appropriate government agency to provide regulatory oversight.

7 If weed abatement occurred, onsite soils may contain herbicide residue. If so, proper investigation and remedial actions, if necessary, should be conducted at the site prior to construction of the project.

8 If it is determined that hazardous wastes are, or will be, generated by the proposed operations, the wastes must be managed in accordance with the California Hazardous Waste Control Law (California Health and Safety Code, Division 20, Chapter 6.5) and the Hazardous Waste Control Regulations (California Code of Regulations, Title 22, Division 4.5). If it is determined that hazardous wastes will be generated, the facility should also obtain a United States Environmental Protection Agency Identification Number by contacting (800) 618-6942. Certain hazardous waste treatment processes or hazardous materials, handling, storage or uses may require authorization from the local

Comments continued on next page

Ms. Shay Lynn Harrison
October 26, 2010
Page 4

8 Certified Unified Program Agency (CUPA). Information about the requirement for authorization can be obtained by contacting your local CUPA.

9) DTSC can provide guidance for cleanup oversight through an Environmental Oversight Agreement (EOA) for government agencies that are not responsible parties, or a Voluntary Cleanup Agreement (VCA) for private parties. For additional information on the EOA or VCA, please see www.dtsc.ca.gov/SiteCleanup/Brownfields, or contact Ms. Maryam Tasnif-Abbasi, DTSC's Voluntary Cleanup Coordinator, at (714) 484-5489.

If you have any questions regarding this letter, please contact me at ashami@dtsc.ca.gov, or by phone at (714) 484-5472.

Sincerely,


Al Shami

Project Manager
Brownfields and Environmental Restoration Program

cc: Governor's Office of Planning and Research
State Clearinghouse
P.O. Box 3044
Sacramento, California 95812-3044
state.clearinghouse@opr.ca.gov

CEQA Tracking Center
Department of Toxic Substances Control
Office of Environmental Planning and Analysis
P.O. Box 806
Sacramento, California 95812
ADelacr1@dtsc.ca.gov

CEQA # 3012

8 Response on previous page

9 Thank you for your information regarding this matter.

STATE OF CALIFORNIA
Arnold Schwarzenegger, Governor

NATIVE AMERICAN HERITAGE COMMISSION

915 CAPITOL MALL, ROOM 384
SACRAMENTO, CA 95814
(916) 652-6390
Fax: (916) 652-6390
Web Site: www.nahc.ca.gov
e-mail: dn_nahc@pacbell.net



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October 18, 2010

Ms. Shay Lynn M. Harrison, Chief
CALIFORNIA DEPARTMENT OF TRANSPORTATION – DISTRICT 11
Environmental Analysis, Branch C
450 Taylor Street, M.S. 242
San Diego, CA 92110

Re: SC#20100910#4, Joint CEQA/NEPA Notice of Completion; draft Environmental Impact Statement/Environmental Impact Report (Draft EIS/EIR) for the Interstate 5 North Coast Corridor Draft EIR/EIS Project (I1-SD-5; PM: 28.4/55.4; E.A. 11000000159); located in the Coastal Area from San Diego County, California

Dear Ms. Harrison:

The Native American Heritage Commission (NAHC) is the State of California 'trustee agency' pursuant to California Public Resources Code §21070 designated to protect California's Native American Cultural Resources and Burial Grounds. The NAHC also is a 'reviewing agency' for environmental documents prepared under the National Environmental Policy Act (NEPA; 42 U.S.C. 4321 *et seq*) and that are subject to the Tribal and interested Native American consultation requirements of the National Historic Preservation Act, as amended (Section 106) (16 U.S.C. 470). The provision of the Native American Graves Protection and Repatriation Act (NAGPRA) (25 U.S.C. 3001-3013) apply to this project if Native American human remains are inadvertently discovered during ground-breaking' activity.

The California Environmental Quality Act (CEQA) requires that any project that causes a substantial adverse change in the significance of an historical resource, that includes archaeological resources, is a 'significant effect' requiring the preparation of an Environmental Impact Report (EIR) per the California Code of Regulations §15064.5(b)(7) CEQA guidelines). Section 15382 of the 2007 CEQA Guidelines defines a significant impact on the environment as "a substantial, or potentially substantial, adverse change in any of physical conditions within an area affected by the proposed project, including ...objects of historic or aesthetic significance." In order to comply with this provision, the lead agency is required to assess whether the project will have an adverse impact on these resources within the 'area of potential effect (APE)', and if so, to mitigate that effect. The NAHC is of the opinion that the federal standards, pursuant to the above-referenced Acts of the U.S. Congress and the President's Council on Environmental Quality (CSQ; 42 U.S.C. 4371 *et seq*) are similar to and in many cases more stringent with regard to the 'significance' of historic, including Native American items, and archaeological features, including those of Native American origin, than are the provisions of the California Environmental Quality Act (CEQA.) of 1970, as

As stated Section 2.7.4, the project would result in no effects to archaeological or historical resources. However, should any be found during construction, earth-moving around the discovery area would be diverted until a qualified archaeologist could assess the find. If human remains were discovered, the County Coroner would be contacted and, if the remains were thought to be Native American, the coroner would notify the Native American Heritage Commission who would then notify the Most Likely Descendant (MLD). At that time, the person who discovered the remains would contact the Caltrans District Senior Environmental Planner for Cultural Resources so that they may work with the MLD on the respectful treatment and disposition of the remains.

amended. In most cases, federal environmental policy require that any project that causes a substantial adverse change in the significance of an historical resource, that includes archaeological resources, is a 'significant effect' requiring the preparation of an Environmental Impact Statement (EIS). An Environmental Assessment, prepared under NEPA, defines a significant impact on the environment as "a substantial, or potentially substantial, adverse change in any of physical conditions within an area affected by the proposed project, including ...objects of historic or aesthetic significance." In order for either federal or state 'lead agencies' to comply with this provision, the lead agency is required to assess whether the project will have an adverse impact on these resources within the 'area of potential effect (APE)', and if the project is determined to have an adverse impact on a cultural resources; then, to mitigate that effect of the project. The State of California Native American Heritage Commission does prefer "avoidance, as defined in the California Code of Regulations §15370.

To adequately assess the project-related impacts on historical resources, the Commission recommends the following action: As a result of a Sacred Lands File search by the NAHC **there are known cultural resources in close proximity to the APE.** Therefore, contact with Native American representatives, on the attached list, is very important in order to determine the impact of the proposed plan on Native American sacred sites. A search was conducted for Native American cultural resources is conducted in the NAHC Sacred Lands Inventory, established by the California Legislature (CA Public Resources Code 5097.94(a) and is exempt from the CA Public Records Act (c.f. California Government Code 6254.10) although Native Americans on the attached contact list may wish to reveal the nature of identified cultural resources/historic properties. Confidentiality of "historic properties of religious and cultural significance" may also be protected under Section 304 of he NHPA or at the Secretary of the Interior discretion if not eligible for listing on the National Register of Historic Places. The Secretary may also be advised by the federal Indian Religious Freedom Act (cf. 42 U.S.C., 1996) in issuing a decision on whether or not to disclose items of religious and/or cultural significance identified in or near the APE and possibly threatened by proposed project activity.

The NAHC, further, recommends that contact be made to the California Historic Resources Information Center (CHRIS), for possible 'recorded sites' in locations where the development will or might occur. Contact information is at the South Coastal Information Center at San Diego State University (619-594-5682). The record search will determine:

- If a part or the entire APE has been previously surveyed for cultural resources.
- If any known cultural resources have already been recorded in or adjacent to the APE.
- If the probability is low, moderate, or high that cultural resources are located in the APE.
- If a survey is required to determine whether previously unrecorded cultural resources are present.

✓ If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.

Response on previous page

- The final report, Environmental Impact Statement, if required, prepared under NEPA guidelines, containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for public disclosure.
- The final written report should be submitted within 3 months after work has been completed to the appropriate regional archaeological information center.
- The NAHC advises the use of Native American Monitors, also, when professional archaeologists or the equivalent are employed by project proponents, in order to ensure proper identification and care given cultural resources that may be discovered. The NAHC, FURTHER, requests that contact be made with Native American Contacts on the attached list to get their input on project impacts. In some cases, the existence of a Native American cultural resource may be known only to a local tribe(s) or Native American individuals or elders.
- Consultation with tribes and interested Native American consulting parties, on the NAHC list, should be conducted in compliance with the requirements of federal NEPA (42 U.S.C. 4321-43351) and Section 106 and 4(f) of federal NHPA (16 U.S.C. 470 *et seq.*), 36 CFR Part 800.3 (f) (2), the President's Council on Environmental Quality (CSQ, 42 U.S.C. 4371 *et seq.*), and NAGPRA (25 U.S.C. 3001-3013) as appropriate. The 1992 *Secretary of the Interior's Standards for the Treatment of Historic Properties* were revised so that they could be applied to all historic resource types included in the National Register of Historic Places and including cultural landscapes.
- ✓ Lack of surface evidence of archeological resources does not preclude their subsurface existence.
- Lead agencies should include in their mitigation plan provisions for the identification and evaluation of accidentally discovered archeological resources, per California Environmental Quality Act (CEQA) §15064.5 (f). In areas of identified archeological sensitivity, a certified archaeologist and a culturally affiliated Native American, with knowledge in cultural resources, should monitor all ground-disturbing activities.
- Again, a culturally affiliated Native American tribe may be the only source of information about a Sacred Site/Native American cultural resource.
- Lead agencies should include in their mitigation plan provisions for the disposition of recovered artifacts, in consultation with culturally affiliated Native Americans.
- ✓ Lead agencies should include provisions for discovery of Native American human remains or unmarked cemeteries in their mitigation plans.
 - The NAHC recommends that the lead agency to work with the Native Americans identified by this Commission if the Environmental Assessment identifies the presence or likely presence of Native American human remains within the APE. The NAHC recommends agreements with Native American Contacts, identified by the NAHC, to assure the appropriate and dignified treatment of Native American human remains and any associated grave liens.

3

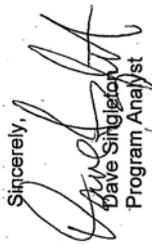
Response on previous page

√ Furthermore, we advise that the County Coroner be notified in the event of a discovery of human remains. California Government Code §27460 requires that any find of human remains, even on federal property and/or on a federal project be reported to the County coroner. While it may not apply on federal land, California law requires all construction to stop (CA Health & Safety Code Section 7050) in the event of a discovery of human remains.

√ The Native American Heritage Commission, furthermore advises Lead agencies to consider avoidance, when significant cultural resources are discovered during the course of project planning and implementation

Please feel free to contact me at (916) 653-6251 if you have any questions.

Sincerely,



Dave Singleton
Program Analyst

Attachment: List of Native American Contacts

Cc: State Clearinghouse

Response on previous page



STATE OF CALIFORNIA
Governor's Office of Planning and Research
State Clearinghouse and Planning Unit



Arnold Schwarzenegger
Governor

Cathleen Cox
Acting Director

October 26, 2010

Ms. Shay Lynn M. Harrison
California Department of Transportation, District 11
4050 Taylor Street, MS 242
San Diego, CA 92110

Subject: Interstate 5 / Genesee Avenue Interchange Reconstruction Project
SCH#: 2010091064

Dear Ms. Shay Lynn M. Harrison:

The State Clearinghouse submitted the above named Joint Document to selected state agencies for review. On the enclosed Document Details Report please note that the Clearinghouse has listed the state agencies that reviewed your document. The review period closed on October 25, 2010, and the comments from the responding agency (ies) is (are) enclosed. If this comment package is not in order, please notify the State Clearinghouse immediately. Please refer to the project's ten-digit State Clearinghouse number in future correspondence so that we may respond promptly.

Please note that Section 21104(c) of the California Public Resources Code states that:

"A responsible or other public agency shall only make substantive comments regarding those activities involved in a project which are within an area of expertise of the agency or which are required to be carried out or approved by the agency. Those comments shall be supported by specific documentation."

These comments are forwarded for use in preparing your final environmental document. Should you need more information or clarification of the enclosed comments, we recommend that you contact the commenting agency directly.

This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act. Please contact the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process.

Sincerely,

Scott Morgan
Director, State Clearinghouse

Enclosures
cc: Resources Agency

1400 TENTH STREET, P.O. BOX 3044, SACRAMENTO, CALIFORNIA 95812-3044
TEL (916) 445-0613 FAX (916) 323-3018 www.opr.ca.gov

No response required.

**Document Details Report
State Clearinghouse Data Base**

SCH# 2010091064
Project Title Interstate 5 / Genesee Avenue Interchange Reconstruction Project
Lead Agency Caltrans #11

Type JD Joint Document
Description NOTE: Review Per Lead/ EA and MND
 Caltrans, as assigned by Federal Highway Administration (FHWA), and in cooperation with City of San Diego, propose to reconstruct Genesee Ave. overcrossing (OC) including a wider and longer structure, widen ramps, add auxiliary lanes to freeway mainline, replace nearby Voigt Ave. OC, realign a portion of nearby Gilman Dr., and improve pedestrian and bicycle access.

Lead Agency Contact
Name Ms. Shay Lynn M. Harrison
Agency California Department of Transportation, District 11
Phone 619-688-0190
Fax
Address 4050 Taylor Street, MS 242
City San Diego **State** CA **Zip** 92110

Project Location
County San Diego
City San Diego
Region
Lat/Long 32° 53' 13" N / 117° 13' 40" W
Cross Streets Interstate 5 / Genesee Ave
Parcel No.
Township 15S **Range** 3E **Section** Unsec **Base** SBB&M

Proximity to:
Highways I-5
Airports MCAS Miramar
Railways SDNR
Waterways Pacific Ocean
Schools UCSD
Land Use Freeway Corridor / CO-1-2, CV-1-1, IP-1-1, RS-1-14, RS-1-7, IL-3-1/ University Comm. Plan; Subarea 1, Torrey Pines; #2, Central

Project Issues
 Aesthetic/Visual; Air Quality; Archaeologic-Historic; Biological Resources; Coastal Zone; Cumulative Effects; Drainage/Absorption; Economics/Jobs; Fiscal Impacts; Flood Plain/Flooding; Geologic/Seismic; Growth Inducing; Noise; Public Services; Recreation/Parks; Schools/Universities; Soil Erosion/Compaction/Grading; Solid Waste; Toxic/Hazardous; Traffic/Circulation; Vegetation; Water Quality; Water Supply; Wetland/Riparian

Reviewing Agencies
 Resources Agency; California Coastal Commission; Department of Fish and Game, Region 5; Office of Historic Preservation; Department of Parks and Recreation; Department of Water Resources; Caltrans, Division of Aeronautics; California Highway Patrol; Air Resources Board, Transportation Projects; Regional Water Quality Control Board, Region 9; Department of Toxic Substances Control; Native American Heritage Commission; Public Utilities Commission.

Date Received 09/23/2010 **Start of Review** 09/23/2010 **End of Review** 10/25/2010

Note: Blanks in data fields result from insufficient information provided by lead agency.

No response required.

UNIVERSITY OF CALIFORNIA, SAN DIEGO

UCSD



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LA JOLLA, CA 92093-0057
(619) 534-6820 • 534-9836 FAX
<http://www.ucrrmp.ucsd.edu>

October 21, 2010

California Department of Transportation, District 11
Attention: Shay Lynn Harrison, Chief, Environmental Analysis
4050 Taylor Street, MS 242
San Diego, CA 92110

Subject: Interstate 5/Genesee Avenue Interchange Reconstruction Project – UC San Diego
comments on Initial Study with Proposed Mitigated Negative Declaration/Environmental
Assessment

Dear Ms. Harrison:

Thank you for the opportunity to review and comment on the Initial Study with Proposed Mitigated Negative Declaration/Environmental Assessment (IS/EA) for the Interstate 5/Genesee Avenue Interchange Reconstruction Project (Project). UC San Diego supports ongoing traffic improvements and demand management projects for better access and circulation to the campus and region.

The IS/EA document correctly references the close relationship of the Project with two other planned improvements: the future Mid-Coast Light Rail Transit project and the I-5 North Coast Corridor project. All three projects involve campus lands and propose changes to Voigt Bridge, the only connection between UC San Diego's West and East campuses. The campus has a number of questions and concerns relative to the proposed Voigt Direct Access Ramp (DAR) and associated site improvements. These concerns have been communicated to Caltrans over several years. Caltrans has acknowledged the need to mitigate the concerns raised and agreed that resources could be focused on design solutions during this phase of the planning. UC San Diego stands ready to work immediately with Caltrans on resolutions, and any remaining questions and concerns will be detailed in the written response to the draft Environmental Impact Report for the I-5 North Coast Corridor project.

More specifically, in the coming months, UC San Diego will be working closely with Caltrans to determine if issues relating to pedestrian/vehicular circulation, safety for Preuss School students, and access to the UC San Diego Medical Center for emergency vehicles and patients in non-emergency vehicles can be appropriately mitigated for the implementation of a DAR at Voigt Bridge. This process and analysis with Caltrans will influence the degree to which the campus supports the concept of the Voigt DAR.

1

The I-5/Genesee Interchange (IC) Project would be separate from the proposed Voigt Drive DAR construction, which is part of the proposed I-5 NCC Project and addressed separately in the I-5 NCC environmental document. Caltrans welcomes the opportunity to coordinate with UCSD to determine how best to address the issues described. Although certain interchange ramps could be subject to temporary short-duration closure, please see Sections 1.4.1, 2.4.3, and 2.5.3 for discussion the Traffic Management Plan (TMP).

1

Shay Lynn Harrison
 October 21, 2010
 Page Two

- 2** Project coordination with UC San Diego is imperative regarding planned utility relocations and shutdowns. Any utility interruptions and lack of vehicular access during the Voigt Bridge replacement downtime will need to be minimized and coordinated. Access to the UC San Diego Medical Center will need to be maintained during construction.
 - 3** In regards to the Genesee Avenue Interchange Reconstruction Project, the campus is concerned with noise impacts. The recommended sound wall as proposed by the Noise Abatement Decision Report should be included with the Project to properly mitigate sound impacts and not rejected as a function of cost.
 - 4** As the Project design advances, UC San Diego should be included in the drawing review. The campus has not been engaged in the process to review and provide direction on the proposed site improvements (e.g. road realignments, retaining wall, architectural details, landscape palette, etc). This close work effort will aid in successful resolution of design and implementation.
 - 5** The IS/EA made incorrect assumptions regarding the displacement of parking spaces. Parking on West Campus is especially constrained and the permanent displacement of any parking is problematic. As a result, any impacts to parking lot P510 should be avoided to the greatest extent possible.
 - 6** Impacts to the UCSD Park Restoration Land located between Gilman Drive and Interstate 5 need to be addressed and mitigated. Mitigation for the loss of the identified Park area will require contribution towards the 1:1 restoration of existing Park lands on campus.
- UC San Diego, on behalf of The Regents of The University of California, is both a property owner and lead agency which provides the campus autonomy to review and implement projects for the benefit of the University. I will ask departments in Resource Management and Planning to work with the City of San Diego and Caltrans to integrate the Project into our campus, both physically and operationally.
- Lastly, the Voigt Bridge replacement is particularly important to the campus, given that it is the only direct connection between West and East campuses. A future bridge connection at Gilman Drive, over Interstate 5, needs to be included in the scope of the I-5 North Coast Corridor project for three

Comments continued on next page

2 Caltrans agrees coordination is imperative for this project. There will be utility coordination plus coordination for vehicular access, which generally occurs in the Traffic Management Plan (TMP). Please see above response re. vehicular access and the TMP. As stated in 2.4.3, Caltrans and the construction contractor would coordinate with utility providers during construction to finalize utility relocation and/or removal efforts, and a TMP would be implemented to provide passage for emergency vehicles. Caltrans will ensure access to the medical center is maintained at all times. Additional discussion of the TMP is provided in Section 2.5.4.

3 The Noise Abatement Decision Report (NADR) did not recommend a soundwall. Title 23, CFR, Part 772 of the Federal Highway Administration (FHWA) standards and the Caltrans Traffic Noise Analysis Protocol establishes a process for determining the feasibility and the reasonableness of proposed noise abatement. The Noise Study Report (NSR) did find the soundwall would potentially lower noise levels by the minimum noise reduction (5dBA) required to make it acoustically feasible. However, Chapter 3 of the Noise Abatement Decision Report (NADR) did not find the wall to be reasonable because the cost to construct it would be higher than the cost per "residence" allowance of the Protocol. Please refer to the NADR for further explanation.

4 Caltrans will continue to coordinate with UCSD throughout the project development process, including phone calls, emails, and meetings, and UCSD will continue to be part of the Project Development Team (PDT). The PDT has reviewed the proposed site, proposed improvements, various impacts, and mitigation. The PDT will continue throughout the Project Specifications and Estimates (PS&E) phase where final design is discussed.

5 Caltrans will continue to coordinate with UCSD to minimize parking impacts, and the project is designed to avoid parking impacts to the maximum extent practicable in the context of other design constraints including but not limited to geology, topography, highway geometrics, geometrics of other roadways, engineering feasibility, and the interests of multiple parties. Caltrans welcomes further coordination with UCSD to help avoid parking facilities.

Shay Lynn Harrison
October 21, 2010
Page Three

important reasons: (1) to offset the construction related impacts associated with the Voigt Bridge improvements, (2) to lessen the impact from increased vehicular trips on Voigt Drive and Campus Point Drive specifically arising from the proposed Voigt DAR, and (3) to provide a direct connection between campuses that will add to safe circulation (pedestrian and vehicular) for the campus community.

7

Please do not hesitate to contact me if you have any questions.

Sincerely,



Gary C. Matthews
Vice Chancellor

cc: J. Gattas
B. Gregory
B. Hellmann
N. Kossan
M. Phegley
B. Werdick

6 Just compensation will be offered for all properties that would be acquired by Caltrans for the proposed project. Some of the UCSD land is classified as a "collective" and, as such, does not meet the definition of park land under NEPA or CEQA. It is not permanently designated as parkland and is instead held in reserve for future restoration or for uses as ecological preserves. Furthermore, in an email from the UCSD Director of Community Planning, it was confirmed that these lands are not considered to be a significant park, recreation area, wildlife refuge, or historic site.

6

7 Caltrans is in agreement with UCSD that Voigt Bridge replacement is important to the campus. However, any future bridge connection at Gilman Drive would be coordinated with the proposed I-5 NCC Project.

7



California Regional Water Quality Control Board San Diego Region

Linda S. Adams
Secretary for
Environmental Protection

Over 50 Years Serving San Diego, Orange, and Riverside Counties
Recipient of the 2004 Environmental Award for Outstanding Achievement from USEPA
9174 Sky Park Court, Suite 100, San Diego, California 92121-4353
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<http://www.waterboards.ca.gov/sandiego>



Arnold Schwarzenegger
Governor

October 28, 2010

Ms. Shay Lynn Harrison
Environmental Analysis Branch Chief
CA Department of Transportation – District 11
Division of Environmental Analysis, MS 242
4050 Taylor Street
San Diego, CA, 92110

In reply refer to:
732082- LPardy

Dear Ms. Harrison:

Comments on the Interstate-5/ Genesee Avenue Interchange Reconstruction Project - Initial Study with Proposed Mitigated Negative Declaration/ Environmental Assessment

The California Water Quality Control Board, San Diego Region (San Diego Water Board) hereby submits comments on the California Department of Transportation (Caltrans) and the Federal Highway Administration (FHWA) Initial Study with proposed Mitigated Negative Declaration/ Environmental Assessment for the Interstate-5/ Genesee Avenue Interchange Reconstruction Project. The San Diego Water Board understands that Caltrans is the lead agency under the California Environmental Quality Act (CEQA) and FHWA is the lead agency under the National Environmental Policy Act (NEPA).

The project proposes reconstruction of the Interstate 5 (I-5) interchange at Genesee Avenue in the City of San Diego. Project limits along I-5 are from post mile (PM) 28.6 to PM 30.5. The project includes replacement of existing overcrossings at Genesee Avenue and Voigt Drive with wider structures that would accommodate additional lanes, including bicycle lanes, ramp widening at Genesee and Sorrento Valley interchanges, construction of I-5 auxiliary lanes, realignment of Gilman Drive, and various measures to improve pedestrian and bicycle safety. The project will encroach upon a floodplain, wetlands, riparian, and upland habitats.

These comments are submitted in compliance with California Environmental Quality Act (CEQA) Guidelines section 15096, which requires CEQA responsible agencies to review and comment on the Mitigated ND/EA, including the need for mitigation and consideration of additional alternatives.

California Environmental Protection Agency



Comment noted.

Ms. Shay Lynn Harrison
 Caltrans District 11
 I-5/Genesee Ave Interchange Reconstruction Project

- 2 -

October 28, 2010

The State Water Resources Control Board (State Board) and the Regional Water Quality Control Boards (Regional Water Boards) regulate discharges of waste to protect the quality of waters of the State, broadly defined as "the chemical, physical, biological, bacteriological, radiological, and other properties and characteristics of water which affects its use."¹ If projects authorized under Interstate 5/Genesee Avenue Interchange Reconstruction Project have any of the following discharges, the project proponent will be required to obtain a permit from the State Board or Regional Water Boards:

Discharge Type

- Discharge of dredge and fill materials
- Point source discharges
- Other discharges

Types of Permits Involved

- Clean Water Act (CWA) section 401 water quality certification for federal waters; or Waste Discharge Requirements for non-federal waters.
- CWA section 402 National Pollutant Discharge Elimination System permit (e.g., storm water permit), new construction general permit (new CGP).
- Waste Discharge Requirements or other permits for discharges that may affect groundwater quality and/or other waters of the State, such as operation of proposed solid waste transfer facilities, and other proposed project activities.

Comment noted.

SCOPE AND LEVEL OF ANALYSIS

The San Diego Water Board is providing the following general and document specific comments on the Initial Study with proposed Mitigated Negative Declaration/ Environmental Assessment (Mitigated ND/EA).

GENERAL COMMENTS

The Mitigated ND/EA for this project should characterize the direct, indirect, and cumulative impacts of this project on the quality of waters of the State. The Mitigated ND/EA should also identify alternatives and other mitigation measures to reduce and eliminate such impacts.

1. Characterization of Impacts

Watersheds are complex natural systems in which physical, chemical, and biologic components interact to create the beneficial uses of water on which our economy and well-being depend. Poorly planned urban transportation projects upset these natural interactions, and degrade water quality through a web of interrelated effects.

¹ California Water Code, section 13050.

Ms. Shay Lynn Harrison
Caltrans District 11
I-5/Genesee Ave Interchange Reconstruction Project

- 3 -

October 28, 2010

The primary impacts of poorly planned development projects on water quality are:

- **Direct impacts** – the direct physical impacts of filling and excavation on wetlands, riparian areas, and other waters;
- **Pollutants** – the generation of urban pollutants during and after construction;
- **Hydromodification** – the alteration of flow regimes and groundwater recharge by impervious surfaces and stormwater collector systems;
- **Watershed Impacts** – the disruption of watershed-level aquatic functions, including pollutant removal, floodwater retention, and habitat connectivity.

These impacts typically degrade water quality, increase peak flows and flooding, and destabilize stream channels; resulting in engineered solutions to the disrupted flow patterns and, ultimately, near-total loss of natural functions and values in the affected basins. Specific technical comments indicating the information and analyses germane to the San Diego Water Board's statutory responsibilities are provided in the following attachments to this letter, and also in the comments which follow.

1a

Caltrans is confident that the environmental document thoroughly and completely discusses cause, nature, and magnitude of impacts.

- Attachment 1, *Urban Development: Potential Water Quality Impacts and Required Analyses*. Outlines and diagrams the potential effects of land development on water quality and identifies related information needs.
- Attachment 2, *Low Impact Development References*. Lists documents providing guidance on principles and practices to avoid water quality and quantity problems associated with urban development.
- Attachment 3, *Terrestrial Habitat Connectivity Related To Wetland, Riparian, and Other Aquatic Resources*. Provides information and references on the importance of stream corridors, wetlands, and other waters in maintaining local and regional habitat connectivity.

As noted above, avoidance is the best strategy for managing potential water quality impacts. For unavoidable impacts, understanding how pollution pathways will operate is essential to managing them.

1a

A. Specify the causes, natures, and magnitude of all proposed impacts. Provide a level of analyses commensurate with the size and complexity of the project and its potential water quality impacts, referring to Attachments 1 and 3 to these comments.

1b

B. Quantify impacts as definitively as feasible, using appropriate modeling and adequate data. Modeling approaches should be documented; and data

1b

Impacts were quantified and analyzed with appropriate modeling for each resource topic. The future permit application may include additional modeling as more detailed project design is developed.

Comment continued on next page.

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1b

deficiencies or other factors affecting the reliability of the results identified and characterized.

1c

Identify whether impacts will be temporary or permanent.

2. Avoidance, Minimization, and Mitigation Analysis

The San Diego Water Board requires the applicant who seeks Clean Water Act section 401 water quality certification for their proposed project to: (1) avoid temporary or permanent impacts to water resources, and/or impacts to the functions and values of water resources, where possible; (2) where these impacts cannot be avoided, minimize impacts to the extent possible; and (3) where impacts cannot be avoided or minimized, mitigate impacts within the appropriate watershed.

There are many ways the proposed project can degrade water quality, and this complicates analysis. Fortunately, avoiding or minimizing any step in a pollution pathway will eliminate or reduce subsequent effects, and will simplify the associated needed analyses. Because the project has significant permanent contribution(s) to impervious surface area, the project poses a significant threat to water quality.

A small number of key variables control most of the pathways causing water quality degradation. We strongly encourage avoidance as the primary strategy to address water quality concerns.

A } Include measures to avoid or minimize each potential cause of water quality degradation as described in Attachments 1 and 3 to these comments.

- Include design modifications or scale reductions within the project alternative that minimizes or reduces the width of the roadways over waterbodies, including lane and shoulder width reduction.

2ai

- Include design features such as the use of permeable pavement where feasible, including but not limited to road shoulders and ramp gore areas.

- Include design features that reflect the full range of Best Management Practices (BMPs), including post-construction controls (treatment) of storm water to be implemented. It is anticipated that the project will fall under Caltrans' proposed updated Municipal Separate Storm Sewer System (MS4) permit, which will address post-construction controls.

2aii

The San Diego Water Board recommends that environmental documents be updated to reflect the concepts in the proposed Caltrans MS4 permit.

Caltrans is requested to explicitly state that post-construction controls will be sized to address not only the flows resulting from the additional impervious area, but also for the existing impervious area, and for future expansion(s), where feasible. If this is not possible, Caltrans should reserve sufficient right-of-way to accommodate the treatment controls needed for future expansion.

2aiii

Impacts were identified as temporary or permanent where appropriate. See Sections 2.9.3 and 2.15-2.20.

1b

Impacts were identified as temporary or permanent where appropriate. See Section 2.9.3 and appropriate biological sections.

1c

The project would not cross any water bodies. Also, the project would be built to applicable design standards for appropriate lane width and pavement material selection as determined by Caltrans engineers in the context of safety, longevity, and numerous other factors. Permeable pavement is being evaluated by headquarters but until it has been proven to meet the above engineering criteria, Caltrans cannot utilize it on this project at this time. As outlined in Section 2.9.4, the Caltrans NPDES Permit requires implementation of post-construction BMPs, which would be implemented as part of this project. Caltrans-approved types of post-construction BMPs were evaluated but found infeasible due to right of way, geotechnical, hydraulic, or other reasons as stated in the Storm Water Data Report (SWDR). Where it's not feasible to implement structural BMPs, Caltrans would maximize vegetation cover to prevent sediment discharge to receiving water bodies.

2ai

The environmental document contains provisions as currently approved by the State Board (SB). As stated in Section 2.9.1, when the new permit is adopted by the SB, all new provisions will be incorporated into Caltrans this project.

2aii

Section 2.9.4, Treatment BMPs, states that bioswales would treat part of the new impervious surface and part of the existing surface area, for a total treated area equivalent to the area of the new impervious surface, which is in accordance with the current NPDES Permit.

2aiii

Comment Letters and Responses

Figure 3-2 (cont.)

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2b B. Include an analysis of why any remaining impacts cannot be avoided or further minimized.

2c C. Any mitigation proposed for the project impacts, should emphasize in-watershed mitigation first. If out-of-watershed mitigation is proposed, Caltrans should emphasize in-kind, higher ratio, and high functioning mitigation. In addition, all proposed mitigation should include continuous monitoring and effectiveness assessment to ensure functionality of the mitigation is maintained in perpetuity.

3. Alternative Analysis

Because transportation projects can individually and cumulatively cause major water quality impacts, the San Diego Water Board encourages a low-impact planning approach.

3a A. Include in the project alternative, an approach that would reduce or limit the area of impervious surface(s). For example, reduce the amount of impervious surfaces, and retrofit existing roadways to treat storm water runoff to the Maximum Extent Practicable (MEP) thresholds.

3b B. Include in the alternative, a low-impact approach for future authorized projects, based on principles and practices described in the documents listed in Attachment 2 to these comments, *Low Impact Development References*. Such an approach generally involves more compact development that:

- Minimizes generation of urban pollutants;
- Preserves the amenity and other values of natural waters;
- Maintains natural waters, drainage paths, landscape features and other water-holding areas to promote stormwater retention, pollution removal, and groundwater recharge;
- Designs transportation projects, buffers and landscaping to minimize stormwater generation, runoff, and concentration; promote groundwater recharge; and reduce water demand; and
- Promotes water conservation and re-use.

3c C. Include in the project alternative, an analysis of the most appropriate BMPs for each runoff area in accordance with the type of pollutant to be treated, the amount of runoff expected, and the water quality needed to sustain the beneficial uses of the receiving water body.

2b All impacts have been accounted for in our analysis and there are no remaining impacts to be avoided or mitigated.

2c All mitigation for water quality is within the watershed. As stated in Section 2.9.4, every effort would be made to ensure successful establishment of landscaping and other erosion control measures throughout project limits.

3a As noted above, the project site has been evaluated for feasibility of incorporation of all Caltrans approved treatment BMPs and they have been implemented to the MEP in accordance with Caltrans NPDES Permit and have been designed for the project to incorporate a minimum of right of way.

3b As described in Section 2.9.4, the project would incorporate the following LID features: Biofiltration swales and strips; minimization of urban pollutants through incorporation of biofiltration swales, and; utilization of native landscaping which promotes water conservation and minimizes the use of fertilizers.

3c As described in Section 2.9.4, measures would include preservation of existing vegetation where feasible; existing drainage's riprap, splash pads and transitions from channels to culverts would be improved as-appropriate, and; drought-tolerant landscaping would be used where appropriate. The majority of off-site flows would be maintained at pre-construction levels, although a minor diversion (0.16 ha [0.39 ac]) from the southern watershed to the northern watershed may occur. Bioswales as proposed are effective at removing particulate and dissolved metals that could otherwise impact downstream beneficial uses of receiving water bodies.

Comment Letters and Responses
 Figure 3-2 (cont.)

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4. Identification of Affected Waters

A clear understanding of the location and nature of the waters potentially affected by this project is fundamental to fulfillment of our regulatory responsibilities.

- A. For waterbodies expected to be directly affected by the project, identify the acreage and, for drainage or shoreline features, the number of linear feet potentially impacted, and sum the total affected acres and linear feet by waterbody type.
- B. Identify at planning area-scale any "isolated" wetlands or other waters excluded from federal jurisdiction by court decisions.²

4

Receiving water bodies are identified in the environmental document and none would be directly affected by the project. The closest water body is Soledad Canyon, which is one mile north of the project site. The impacts to the drainage on the west side of the freeway have been identified in the biology section. The wetlands that would be impacted have ACOE jurisdiction and, as there are no feasibly engineered alternatives, must be impacted in order to stabilize the ancient landslide.

5. Post-Construction BMPs

Caltrans needs to implement post-construction BMPs at the project that (1) reduce discharges of storm water pollutants to the MEP; (2) prevent discharges from the project from causing or contributing to a violation of water quality standards; (3) prevents illicit discharges; and (4) manages increases in runoff discharge rates and durations that are likely to cause increased erosion of streambeds and banks, silt pollutant generation, or other impacts to beneficial uses and stream habitat due to increased erosive force.

5

Post-construction BMPs would be implemented in accordance with the permit and vegetation would be maximized where treatment BMPs are not feasible to reduce stormwater pollutants to MEP. Per the permit, there would be no violation of water quality standards, illicit discharges or increases in runoff discharge rates or duration that could result in erosion.

6. Low Impact Development

The Project should be designed to meet the following post-construction BMP sizing criteria requirements, standard within the San Diego Region:

- A. Use of onsite retention Low Impact Development (LID) BMPs sized and designed to ensure onsite retention without runoff, the volume of runoff produced from a 24-hour 85th percentile storm event.
- B. If onsite retention LID BMPs are technically infeasible, other LID BMPs may be applied to treat any volume that is not retained onsite, provided that the other LID BMPs are sized to hold the design storm volume that is not infiltrated or to achieve equivalent storm water volume and pollutant load reduction as if the entire design capture volume were retained onsite. The LID BMPs must be designed for an appropriate surface loading rate to prevent erosion, scour and channeling within the BMP.

6

As described in Section 2.9.4, the project incorporates Caltrans standards with the following LID features: Biofiltration swales and strips; minimization of urban pollutants through incorporation of biofiltration swales, and; utilization of native landscaping which promotes water conservation and minimizes the use of fertilizers.

² e.g. U.S. Supreme Court, *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers*, 2001.

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Utilization of LID³ stormwater design as an integral part of transportation development and re-development could help to alleviate transportation system impacts to water resources and improve sustainability, social equity, and healthy environment. Utilizing LID stormwater design is important because roadways and other impermeable surfaces to be built as part of the transportation system can cause an increase in runoff velocity, generate an increase in channel and stream bank erosion, cause an increase in sediment pollution and negatively impact beneficial uses, especially aquatic-habitat dependent beneficial uses. Also, transportation systems can be significant sources of gaseous, liquid, and solid pollutants that can be discharged into waterbodies by stormwater runoff.⁴

Applied on a broad scale to the transportation system, LID can help to maintain or restore the water quality and beneficial uses of waterbodies. LID employs principles such as preserving and recreating natural landscape features, minimizing effective imperviousness to create functional and appealing site drainage that treats stormwater as a resource rather than a waste product.

There are many practices that have been used to adhere to LID principles. Some of these practices include: (1) making sensitive choices in site layout leaving sensitive natural areas undeveloped; (2) utilizing pervious surfaces (e.g., permeable pavements on shoulders of roadways); (3) dispersing runoff to adjacent pervious areas; and (4) directing runoff to bioretention facilities, vegetated swales, green gutters, stormwater curb extensions, dry wells, and cisterns. By implementing LID stormwater design, water can be managed in a way that reduces the impact of built areas in transportation systems and promotes the natural movement of water within an ecosystem or watershed.

- A. Implement Low Impact Development (LID) stormwater design as an integral part of the project. Utilize LID Best Management Practices (BMPs) at right-of-ways, Park and Ride Lots and enhancements, overpass enhancements and relocations, streetscape enhancements, and support building areas. For example, incorporate planting strips for bioswales to treat stormwater from

³ *Technical Advisory, CEQA and Low Impact Development Stormwater Design: Preserving Stormwater Quality and Stream Integrity through California Environmental Quality Act (CEQA) Review*. August 5, 2010. State of California, Governor's Office of Planning and Research. 11 pp. Available online at: www.opr.ca.gov.

⁴ Waterbodies have been placed on the Clean Water Act, section 303(d) impaired waterbody list due to polluted stormwater runoff. For example, to remedy the water quality impairment at the Chollas Creek tributary to San Diego Bay, a TMDL (Total Maximum Daily Load) for metals (including copper, lead, and zinc) in storm water runoff is currently in effect. One of the primary sources for copper in runoff from urban pavement includes brake lining wear, while zinc sources include tire and engine wear. Lead sources include tailpipe emissions and brake pads.

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pavement, and incorporate porous pavement on road shoulders and in parking areas to allow water to drain through pavement reducing runoff.

- B. Identify the water quality benefit that would result from a reduction in impervious surface area including LID stormwater design.

7. Hydromodification Analysis

Because increased runoff from impervious areas is the key variable driving a number of adverse effects, attention to maintaining the pre-development hydrograph will prevent or minimize many problems and will limit the need for other analyses and mitigation in the Initial Study with proposed Mitigated ND/EA.

San Diego Water Board Order R9-2007-0001⁵, provision D.1.g requires the San Diego Stormwater Committees to implement a Hydromodification Management Plan (HMP) "...to manage increases in runoff discharge rates and durations from all Priority Development Projects, where such increased rates and durations are likely to cause increased erosion of channel beds and banks, sediment pollutant generation, or other impacts to beneficial uses and stream habitat due to increased erosive force." Priority development projects, like this project, should implement hydromodification mitigation measures so that post-project runoff flow rates and durations do not exceed pre-project flow rates and durations where such increases would result in an increased potential for erosion or significant impacts to beneficial uses. Although not directly regulated by Order R9-2007-0001, this project carries the same potential for water quality impacts, and is surrounded by an area subject to the HMP requirements. Therefore, it is logical and reasonable to expect the project to comply with the same standard. The Mitigated ND/EA needs to include the following:

- 7a** A. The project will meet the requirements of the Final Hydromodification Management Plan for San Diego County (Dated December 29, 2009) adopted by the San Diego Water Board on July 14, 2010.
- 7b** B. Provide analysis of potential cumulative impacts to watershed hydrology from impervious surfaces, and existing and planned development in the watershed or planning area.

⁵ California Regional Water Quality Control Board, San Diego Region, Order No. R9-2007-0001, NPDES No. CAS018758, Waste Discharge Requirements for Discharges of Urban Runoff from the Municipal Separate Storm Sewer Systems (MS4s) Draining the Watersheds of the County of San Diego, the Incorporated Cities of San Diego County, the San Diego Unified Port District, and the San Diego County Regional Airport Authority. Available online at: http://www.waterboards.ca.gov/sandiego/water_issues/programs/stormwater/isd_stormwater.shtml

Comment continued on next page.

7a
7b
7c
7d

Caltrans concurs that hydromodification analysis is important. Section 2.9.1 states Caltrans would be in compliance with the current NPDES Permit. It would also be in compliance when the new permit has been adopted. Section 2.9.4 describes measures to avoid or minimize short and long-term water quality project impacts.

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7c

C. Include in the alternatives and mitigation analyses measures to maintain the pre-project hydrograph.

7d

D. Where applicable, provide bioengineered stream bank stabilization practices (e.g., live staking or fascines, live brush mattresses, vegetated riprap, vegetated articulated concrete blocks) first, prior to more conventional techniques (grouted riprap, channel armoring) to stabilize stream banks.

7e

E. Provide scheduling and maintenance of erosion and sediment control construction and post-construction BMPs to ensure that BMPs achieve performance measures, and are fully functioning and complete, as soon as possible after the placement of the permanent impervious surfaces. Post-construction erosion and sediment control BMPs that are completed in a timely manner can help to prevent or reduce downstream hydromodification and discharges that could affect water quality.⁶ The project should not be deemed operational until post-construction BMPs have been verified to be properly installed and fully functional.

7f

F. Provide receiving water monitoring to assess effectiveness of the hydromodification mitigation measures, erosion and sediment control construction and post-construction BMPs, and to evaluate potential impacts from the project. The receiving waters monitoring shall be designed to assess conditions before, during, and after impacts have occurred by measuring changes in the benthic macroinvertebrate community (e.g., California Stream Assessment Procedure⁷), water quality, and a functional assessment [e.g., California Rapid Assessment (CRAM)⁸] of the health of wetland and riparian habitats in water resources affected by the project.

⁶ California Regional Water Quality Control Board, San Diego Region, Christina Arias and David Gibson. *State Route 125 Toll Road. A Report Describing Lessons Learned for Future Regulatory Action*, March 2008. 13pp. Available online at: http://www.waterboards.ca.gov/sandiego/water_issues/programs/stormwater/docs/caltrans/lessonlearned031208.pdf

⁷ Copies of the California Stream Bioassessment Procedure can be obtained at <http://www.dfg.ca.gov/cabw/cabw/home.html>. Additional information on stream bioassessment may be obtained at <http://www.waterboards.ca.gov/sandiego/programs/bioassessment.html>

⁸ Information on CRAM is available at the California Rapid Assessment Method homepage at <http://www.cramwetlands.org>

Response on previous page.

The maintenance of erosion and sediment control BMPs would be included as part of the construction contract document for the contractor to implement in the field. These are required under the Caltrans Statewide Stormwater Management Plan (SWMP), the Water Quality Handbook and other design guidance documents. For post-construction BMP maintenance, guidance is outlined in the Caltrans Stormwater Quality Handbooks - Maintenance Staff Guide (CTSW-RT-02-057). Once the Statewide Caltrans Permit is approved, Caltrans will comply with all hydromodification requirements under the permit.

Caltrans will coordinate with the SDRWQCB on the bioassessment monitoring requirements during the permitting process, however, receiving waters are not impacted.

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8. Habitat Connectivity Analysis

Riparian corridors and other waters within the regulatory purview of the Water Boards play an important role in maintaining habitat connectivity. Both aquatic and terrestrial habitat may be fragmented by impacts to streams, riparian areas, or other waters.

- A. Analyze the regional importance of movement corridors in and along waterbodies, the potential effect of disrupting such corridors, and the potential for enhancing such corridors through mitigation measures.
- B. Include information regarding any sensitive plant and animal species that likely utilize the corridors.
- C. Identify any impacts to riparian or other waters that could compromise future remediation of existing connectivity barriers.
- D. To inform these analyses, consider the information and literature referenced in Attachment 3, *Terrestrial Habitat Connectivity Related To Wetland, Riparian, and Other Aquatic Resources*, including recent data on the role of riparian corridors as movement corridors in California.

8

We concur that the corridors are an important resource. Please note that wildlife corridors were analyzed in Section 2.15.2, as were wetlands and various plant and animal species, including sensitive species and habitats, in Sections 2.16, 2.17, and 2.18.

9. Pollution Prevention

Pollution prevention measures are important for maintaining water quality and beneficial uses of waterbodies and need to be identified to ensure water quality will not be impacted.

A. Identify pollution prevention measures to be implemented. This includes but is not limited to the following:

- Utilize Best Management Practices (BMPs) which meet Maximum Extent Practicable (MEP), or where appropriate, meet Best Available Technology Economically Achievable (BAT)/ Best Conventional Pollutant Control Technology (BCT), and water quality standards. It is appropriate to address pollutants known to be in a waste stream, even if there is not yet any documented evidence of adverse effect (from Caltrans Stormwater Permit, part F.1).
- Utilize BMP measures to control the expected increase in stormwater pollution related to the increased use of facilities after redevelopment. This includes increased road and park and ride lot sweeping frequency, the need for additional trash containers, and frequency of maintenance activities such as cleanout of storm drains.
- Identify whether or not the treatment flow rates or volumes meet the numeric sizing criteria for Priority Development Projects (as specified above).

9a1

9a1

Post-construction BMPs would be implemented as part of the project to the MEP as required, meeting the BAT/BCT requirements in accordance with Part F1 of Caltrans NPDES Permit.

9a2

9a2

Mitigation for the facilities would be implemented based upon projected future traffic and modified as needed in accordance with future necessity.

9a3

9a3

The project would comply with Caltrans NPDES permit requirements for sizing of treatment BMPs or any future requirements of the updated Caltrans NPDES Permit.

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- 9a4** Utilize integrated pest management techniques to reduce the use of toxic chemicals (including fertilizer and pesticides), and minimize runoff in landscaping practices. This includes selecting drought-tolerant and/or regionally-appropriate native species for landscaping.
- 9a5** Provide trash receptacles along transportation corridors at places where people gather or stop, regular pickup of trash placed in collection containers, regular maintenance of trash receptacles, periodic pickup of trash deposited on the ground or not in the trash receptacle, and periodic pickup of trash which accumulates by other means along the transportation corridor.
- 9a6** Consider site-specific and seasonal conditions when designing storm water control practices.
- 9a7** Minimize land disturbance, minimize impervious surfaces, treat storm water runoff using infiltration and detention/retention, and use other LID BMPs, as described above.
- 9a8** Make use of erosion and sediment control measures such as fiber rolls and erosion control blankets that utilize biodegradable materials such as jute instead of plastic mesh, to avoid potential plastics pollution hazards to wildlife and aquatic life beneficial uses.

9a4 Where appropriate, Caltrans already incorporates integrated pest management techniques and incorporates drought-tolerant and/or native species for landscaping.

9a5 Trash containers are not an appropriate design feature for this project as there are no places where people gather.

9a6 See response to Bullets 1 and 3 above.

9a7

9a8 Caltrans erosion and sediment control measures incorporate biodegradable material where appropriate.

10. Atmospheric Deposition

The San Diego Water Board recognizes that construction of new roadways or freeway expansions introduces pollutants to the watershed via aerial deposition from either vehicle exhausts or re-suspension of materials deposited on road bed surfaces (e.g., tire and brake pad wear), and that quantification of this phenomenon is useful for designing strategies to reduce such pollutants. This is especially important because current aerial particulate standards enforced by the California Air Resources Board are set for the protection of human respiratory health – and have little consideration for the protection of aquatic ecosystems.

In one study, researchers characterized the dry deposition patterns of chromium, copper, lead, nickel, and zinc upwind and at increasing distances downwind of the I-405 Freeway in coastal Los Angeles (Sabin et al., 2006). Dry deposition fluxes and atmospheric concentrations of these metals were highest at the site closest to the freeway, and reduced to approximately urban background concentrations between 10 and 150 meters (0.006 to 0.9 miles) downwind of the freeway. These data indicate that over time aerial deposition of metals in the vicinity of major roadways

Comment continued on next page.

10 The deposition of compounds related to combustion of motor fuels is based upon the fuel formulation as well as the efficiency of the vehicle burning the motor fuels. The formulation of motor fuels is regulated exclusively by the California Air Resource Board. CARB has exclusive regulatory control over fuel formulations, including seasonal blends, and is a co-regulator of fuel efficiency standards. As such, because the Department cannot limit the individual vehicles which use its facilities, controls of compounds which may ultimately be deposited onto waters of the State is a function of fleet composition and fuel formulation- neither of which the Department has the legal authority to address. That said, the long-term and continuing trend is that because of more stringent fuel formulation regulations, increased fleet efficiency regulations as well as continual monitoring/enforcement through the “Smog Check” program, it is anticipated that deposition of compounds related to fuel combustion will decrease in the region, even assuming an overall increase of Vehicle Miles Travelled.

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10

can be a significant anthropogenic source of such pollutants to the affected watershed.

Aerially born pollutants pose a threat to waterways because these pollutants deposit directly into surface waters; and/or deposit within the watershed to potentially dissolve during storm events to contaminate surface waters via runoff. Therefore, it is critical to develop and implement adaptive management strategies which will reduce both the quantity of aerially born pollutants likely to be deposited into waterways, and also remove pollutants from stormwater runoff that would otherwise be likely washed by precipitation into nearby surface waters.

- A. Identify and quantify aerial pollutants projected to be delivered by aerial deposition from the project to affected surface waters.
- B. Evaluate treatment BMPs to be implemented that will reduce the discharge of aerial pollutants to affected surface waters.

10

11. Invasive Exotic Pest Plants

Beneficial uses of the waterbodies in the San Diego Region are negatively affected by the spread of invasive exotic pest plants, and by the degradation and loss of native plant communities. Caltrans activities can inadvertently facilitate the spread of invasive exotics pest plants (such as *Arundo donax*, or giant reed) from infested sites to new areas. For example, construction activities involving heavy equipment in soil containing invasive exotic pest plants may crush and break-up giant reed rhizome (root) fragments and stem nodes.¹⁰ Once the rhizomes and stems are crushed, these fragments can then easily spread. To control the spread of exotic invasive pest plants, appropriate best management practices must be implemented to control and manage invasive exotic pest plants wherever heavy equipment disturbs infected soil.

11

In addition, Caltrans operations and activities (e.g., installing non-pervious pavement which results in stormwater runoff, irrigating landscaping) results in soil conditions favoring the recruitment, propagation and/or growth of invasive exotic pest plants

⁹ Sabin, Lisa D., Jeong Hee Lim, Maria Teresa Venezia, Arthur M. Winer, Kenneth C. Schiff, and Keith D. Stolzenbach, 2006. *Dry deposition and resuspension of particle-associated metals near a freeway in Los Angeles*. Atmospheric Environment 40:7528-7538. Available on-line at: <http://www.scowpr.org/Documents/AnnualReports/BrowseAllAnnualReports/2005-06AnnualReport.aspx>

¹⁰ Boland, J. M. 2008. *The Roles of Floods and Bulldozers in the Break-up and Dispersal of Arundo donax (Giant Reed)*. Madrono, Vol. 55, No. 3, pages 216-222. Available online at: <http://www.bioone.org/doi/abs/10.3120/0024-9637-55.3.216>

Comment continued on next page.

Response continued

With respect to the deposition of compounds associated with automotive brake systems, again the Department is not legally authorized to regulate the components of automotive brake systems. It should be noted that last year Senate Bill 346 was passed into law. That bill provided for changes to the California Health and Safety Code to address automotive brake systems. That law, like the regulatory schemes for motor fuel formulation and fleet efficiency standards, will greatly assist in reducing the emission of materials which might be associated with vehicles using the state highway system at the source- the vehicles themselves.

Beyond continued regulatory enforcement described above, the Department's maintenance operations have, and will continue to, include sweeping, storm drain inlet maintenance and the full suite of activities provided for in the Department's statewide National Pollutions Discharge Elimination System permit. The Department maintains the Best Management Practices associated with its stormwater program are equally beneficial to, and directly address, those same compounds that might make their way into waters of the State via direct conveyance as opposed to aerial deposition.

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(including, but not limited to pampas grass and tamarisk). Therefore, measures to control and manage invasive exotic plant pests need to be taken on all irrigated areas, and in all areas where storm water runoff concentrates to create wet soil conditions. (Note: For a full list of the invasive exotic plants of greatest ecological concern in California, see the California Invasive Plant Council (Cal-IPC) website located at <http://www.cal-ipc.org/>).

- A. Identify measures to use regionally native plants which will provide broad-scale watershed benefits protecting waterbodies and their beneficial uses.
- B. Identify additional measures to control and manage germination and dispersal of seeds from invasive exotic pest plants. This includes implementing water-efficient practices and selecting and siting regionally native plants for landscaping that conserves water and controls soil erosion, and that do not promote the establishment and propagation of invasive exotic pest plants.
- C. Identify additional measures to be implemented to prevent dispersal of invasive exotic plant propagules. This includes, but is not limited to BMPs to avoid the break-up and dispersal of giant reed propagules, and measures to control exotic invasive plants along right-of-ways, streetscapes, and other disturbed and/or infested areas; and measures to re-vegetate these areas with regionally native plants appropriate for the site.
- D. Identify measures to monitor irrigation system(s) to ensure that invasive exotic plants do not become established in areas that are/ or have been irrigated, and measures to remove any invasive exotic plants that become established.

11

Section 2.20 identifies invasive species issues and proposed conservation measures, including use of natives, and not using species on the California Invasive Plant Council list.

11

DOCUMENT SPECIFIC COMMENTS BY PAGE NUMBER

Page 2.9-3, '2.9 Water Quality and Storm Water Runoff, 2.9.2 Affected Environment, Beneficial Uses': The Mitigated ND/EA does not show the hydrologic subarea (HSA) numbers for the waterbodies affected by the project, and consequently, incorrectly identifies several beneficial uses for Soledad Canyon (HSA 906.10) and Los Penasquitos Creek (HSA 906.10). The beneficial uses listed in the Mitigated ND/EA need correction.

1

1

The HU and HA numbers have been added to Section 2.9.2. Beneficial use listings have been corrected.

Page 2.9-12, '2.9.4 Avoidance, Minimization, and/or Mitigation Measures, Treatment BMPs,' paragraph 3: It is anticipated that the project will be required to meet Caltrans' statewide Municipal Separate Storm Sewer System (MS4) permit requirements and/or any updates. Stormwater treatment BMPs for the project should be sized to treat polluted runoff generated by the entire road at build out, which includes both the existing impervious area and the new impervious area, wherever feasible. If analysis indicates that bioswales and biostrips will not be able to treat the entire project, Caltrans must incorporate other approved treatment BMPs to assure that the entire road

2

2

The project would be in compliance with the current NPDES Permit (Order 99-06) and would be evaluated for compliance with the upcoming Caltrans NPDES Permit that is anticipated to be released in the near future. The project was evaluated for implementation of treatment to the Maximum Extent Practicable (MEP) as required by Caltrans NPDES Permit. The project would incorporate 15 biofiltration swales treating approximately equivalent to 100% of the new pavement added (4.75ha/11.74 acres). Please note that the project area is an existing facility and there are environmental, right of way, and drainage limitations for structural BMP implementation. The project evaluated all Caltrans approved treatment MPs in the Storm Water Data Report.

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at build out of the project is treated. Furthermore, the San Diego Water Board urges Caltrans to size treatment BMPs for future roadway expansion(s). Caltrans should reserve sufficient right-of-way to accommodate the treatment controls needed for future expansion.

Response on previous page.

Page 2.9-13, '2.9.4 Avoidance, Minimization, and/or Mitigation Measures, Maintenance BMPs':
 The Mitigated ND/EA should describe the maintenance BMPs to be implemented for graded habitats including but not limited to weed control, plant replacement, runoff prevention, inspection and maintenance, slope stabilization and repair. These maintenance BMPs (especially weed control) are important because the project disturbs soil, increases exposure of the area to invasive exotic plant propagules, increases excess runoff (from stormwater, irrigation water, and seepage water), and increases invasive exotic weed recruitment and propagation. It is important that all project alternatives provide maintenance BMPs, including regular inspection and maintenance of graded habitat to remove invasive exotic weeds (see photo above showing tamarisk invading Caltrans right-of-way) to ensure that the beneficial uses of the rivers and streams within the San Diego Region are protected.



Caltrans right-of-way with large Tamarisk trees producing seeds which are continually introduced into the river below. Post-construction maintenance weeding is needed on a regular basis for Tamarisk control. Photo by Linda Pardy 10-24-2010.



Tamarisk flowering.
 Photo by Linda Pardy 10-24-2010



Downstream, Tamarisk is in the river.
 Photo by Linda Pardy 10-24-2010.

2

3

As outlined in Section 2.6.4, this project would incorporate a landscape plan that includes drought-tolerant and sustainable palettes. Plant selection and spacing addresses a number of issues, including but not limited to plant establishment for weed control, erosion control, slope stabilization, etc.

Ms. Shay Lynn Harrison
Caltrans District 11
I-5/Genesee Ave Interchange Reconstruction Project
October 27, 2010
- 15 -

Pages 2.9-1 thru 2.9-14, 'Water Quality and Storm Water Runoff': Metals (including chromium, copper, lead, nickel, and zinc) have the potential to enter waterbodies through aerial transport and dry deposition of particulates from vehicles driving on freeways.

The San Diego Water Board Clean Water Act, 401 water quality certifications for roadway projects require the use of post-construction BMPs that treat storm water runoff, and meet the maximum extent practicable (MEP) performance standard. The water quality certification requirements will likely include that post-construction BMPs be designed to meet at least a 80% efficiency removal rate for total metals, and at least an 80% efficiency rate for total suspended solids (TSS/sediments). Also, BMPs for roadways must be designed to remove oil and grease, pathogens, and trash to the MEP. In addition, the 401 water quality certification will call for no net increase in nutrient concentrations from the BMPs.¹¹

We welcome the opportunity to work with you to make this project an example of environmental sustainability in California. We are available for further consultation to discuss project alternatives that may be required to avoid, minimize, and adequately mitigate for impacts to waters of the State. If we may clarify any of our comments or be of further assistance, please contact Ms. Linda Pardy at 858 627-3932 or LPardy@waterboards.ca.gov.

Respectfully,



CHIARA CLEMENTE
Senior Environmental Scientist

CMC:llp

Attachments:

Attachment 1 - Urban Development: Potential Water Quality Impacts and Required Analyses.

Attachment 2 - Low Impact Development References.

Attachment 3 - Terrestrial Habitat Connectivity Related to Wetland, Riparian, and other Aquatic Resources.

¹¹ State Route (SR)-125 South Toll Road (File No. 99C-133)

4

Pollutants such as various metals from brake pads are discussed in Section 2.9.3 along with the means of helping to control them. In addition, Caltrans has been an active member of the Brake Pad Partnership and has been contributing funds for research to find alternative material to reduce excess copper impacts. Also, Caltrans continues to research new innovative treatment methods through ongoing research and applied studies. For this project, BMPs would be implemented to the maximum extent practicable to address potential impacts.

Ms. Shay Lynn Harrison
Caltrans District 11
Interstate 5 North Coast Corridor Project

Urban Transportation Development:
Potential Water Quality Impacts and Required Analyses

October 28, 2010

cc: Mr. Tim Dillingham
California Department of Fish and Game
4949 Viewridge Avenue
San Diego, CA 92123-1662
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INTRODUCTION

This Attachment consists of a table and a diagram showing how urban development can affect water quality, and the information needed to predict and manage the impacts. Pollution pathways are described and diagrammed at the level of detail at which potential effects can be analyzed and management measures applied. The table and diagram are described (and in electronic version hyperlinked) below.

Watersheds are complex natural systems in which physical, chemical, and biologic components interact to create and maintain the beneficial uses of water on which society's well being and economy depend. Similarly, disturbances to natural watershed dynamics caused by urban development degrade water quality through a complex of interrelated causes and effects. Unmanaged, these pollution pathways ultimately destroy the physical, chemical, and biological integrity of the watersheds in which they occur, diminishing or destroying the beneficial uses.

The table and diagram are:

Table 1, Potential Effects of Urban Development on Beneficial Uses and Required Analyses outlines the causes of water quality degradation caused by urban development, provides literature citations for each of the effects, and identifies for each effect the project-specific information needed to assess and mitigate its adverse impact to water quality.

Figure 1, Potential Effects of Urban Transportation Development on Beneficial Uses flowcharts the causes and effects listed in Table 1. It begins on the left with three activities which are associated with urbanization: filling, construction (active construction and post-construction phases), and channelization. Figure 1 ends on the right with the resulting impaired beneficial uses and the potential for increased maintenance and property damage. In between are intermediate processes. Cause-and-effect relationships are shown by arrows.

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California Regional Water Quality Control Board, San Diego Region

POTENTIAL EFFECTS OF URBAN TRANSIT DEVELOPMENT ON BENEFICIAL USES

This diagram shows how urban transit development can affect beneficial uses of water.

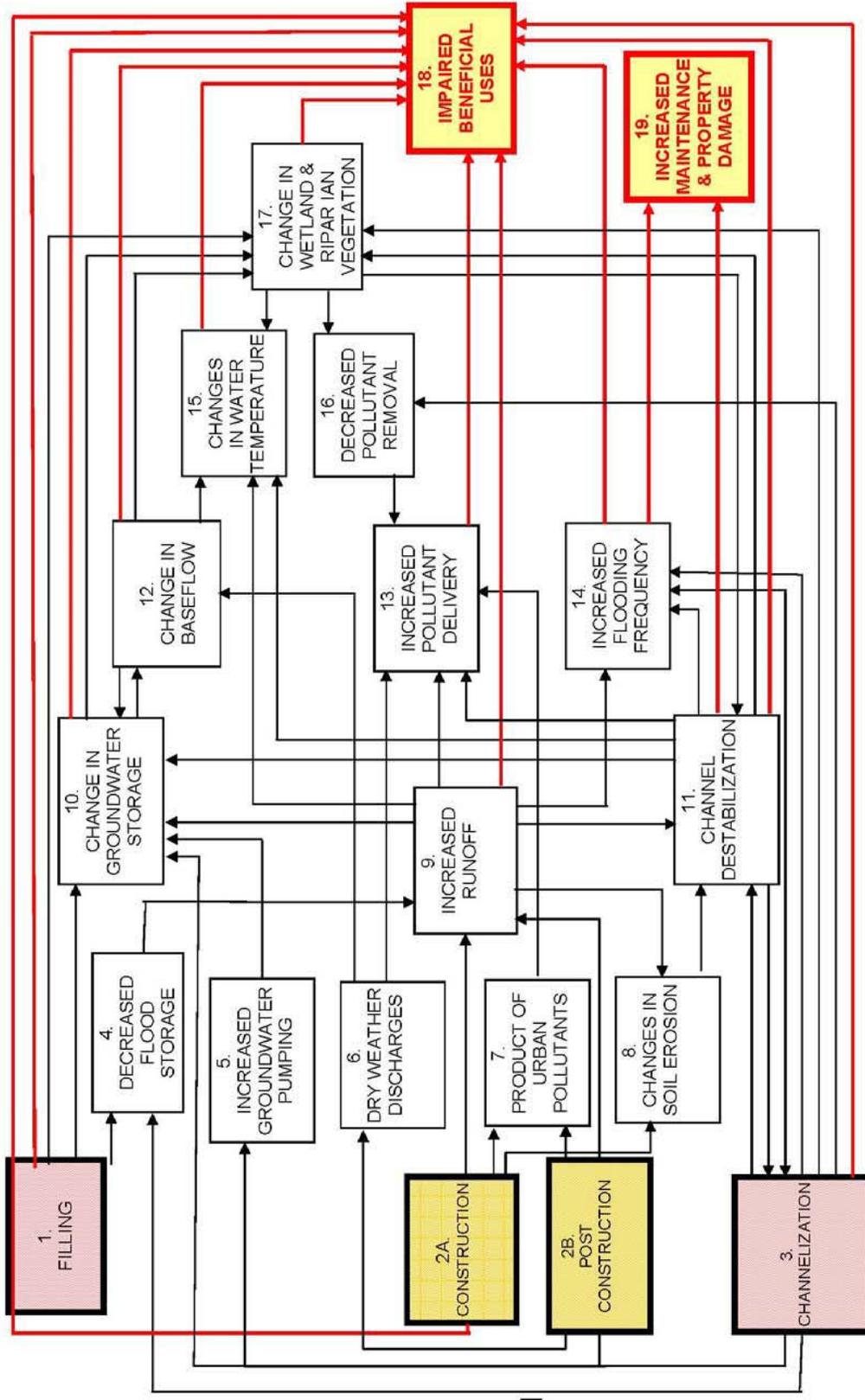


Figure 1

ATTACHMENT 1 - TABLE 1
POTENTIAL EFFECTS OF URBAN TRANSPORTATION DEVELOPMENT ON BUS AND ROD ANALYSES

| TABLE 1 Potential Effects of Urban Transportation Development on Beneficial Uses and Required Analyses | |
|--|---|
| <p>Urban transportation development degrades water quality through a complex of interrelated causes and effects.</p> <p>How to Use this Table. Table 1 outlines the pollution pathways potentially associated with urban development, provides literature citations for each cause-and-effect-relationship, and identifies the information needed to assess and manage potential effects on a project-specific basis. The pollution pathways are described at the level of detail at which project-specific potential effects can be analyzed and management measures applied. The same analysis can also be applied more broadly at a general level, e.g., to urban development that would be authorized under a land-use general plan. This Table is comprised of three worksheet sub-tables described below. (In the electronic version of this table, the sub-tables are accessed via tabs at the bottom of the page).</p> <p>The "Potential Water Quality Impacts and Required Analyses" worksheet displays the potential causes and effects (in the "Cause" and "Effect" columns respectively) of water quality degradation associated with urban development, and the information needed to assess and manage project-specific effects (the "Needed Analysis" column). Because of the complex nature of watershed dynamics, many "effects" are also "causes" along the pollution pathways, and the number in square brackets listed with each "effect" cross-reference to its enumerated place in the "Cause" column. Additionally, each of the "effects" is footnoted, and the footnote number refers to the associated note in the "Notes" sub-table.</p> <p>A related flow-chart diagram (Figure 1, "Potential Effects of Urban Transportation Development on Beneficial Uses") graphically displays these cause-and-effect relationships.</p> <p>The "Notes" worksheet displays the summary literature citations for each of the "effects" in the "Potential Water Quality Impacts..." sub-table, keyed to the numeric footnotes in the "Effects" column.</p> <p>The "References" worksheet displays the full literature citations, indexed by author.</p> | |
| CAUSE | EFFECT |
| <p>1. FILL & EXCAVATION</p> <p>A. Decreased Flood Storage. [4] Fill or excavation in wetlands, riparian areas, or other waters of the state, reducing capacity to retain runoff.¹</p> <p>B. Change in Groundwater Storage. [10] Fill and excavation can decrease groundwater recharge and cause lower water tables by changing soil percolation characteristics and reducing the area of standing water in recharge basins.² Linear excavation (e.g., for utility lines) can act as a conduit to drain groundwater and locally lower water tables.</p> <p>C. Change in Wetland and Riparian Vegetation. [17] Fill and excavation can bury or remove vegetation and can change site features to prevent reestablishment of characteristic species.</p> | <p>NEEDED ANALYSES</p> <p>1) Quantify reduced flood storage in each affected basin. 2) Identify mitigation.</p> <p>1) Quantify groundwater response to changes in percolation. 2) Identify locations where linear alignments could act to deplete shallow aquifers. 3) Identify mitigation.</p> <p>1) Identify and map types and areal extents of affected vegetation. 2) Identify mitigation.</p> |

ATTACHMENT 1 - TABLE 1
POTENTIAL EFFECTS OF URBAN TRANSPORTATION DEVELOPMENT ON BUS AND ROD ANALYSES

| CAUSE | EFFECT | NEEDED ANALYSES |
|---|--|---|
| | <p>D. Impaired Beneficial Uses. [18] Fill can directly impair beneficial uses by reducing water area and changing hydrology, geomorphology, substrate, and other waterbody characteristics. In addition, projects which fragment habitat and reduce wildlife movement along riparian and other corridors can degrade remaining patches of wetlands and other habitat by changing their physical characteristics and by isolating and exposing small populations of plants and animals, resulting in local or regional extinctions.³</p> | <p>1) Document types, areal extents, and (for drainage features) lengths of affected waters. 2) Characterize and map at project-area and regional scales existing wetlands, along with riparian corridors and other water features supporting habitat connectivity. 3) Identify effects of fill on terrestrial and aquatic habitat connectivity (refer to Enclosure 3). 4) Identify watershed-level effects on pollutant removal and flood retention. 5) Identify mitigation.</p> |
| <p>2A. CONSTRUCTION</p> <p>Clearing, grading, and construction of structures and facilities.</p> | <p>A. Production of Urban Pollutants. [7] Construction can produce pollutants through improper use and disposal of toxic construction materials.</p> <p>B. Change in Soil Erosion. [8] Active construction can dramatically increase soil erosion by exposing and destabilizing soils. Erosion is compounded by the increased runoff typically accompanying construction.⁶</p> <p>C. Increased Runoff. [9] Construction can increase both the total and peak volume of stormwater runoff by removing vegetation, compacting soil, exposing dense subsoil, creating steep graded slopes, and eliminating terrain depressions and ephemeral and intermittent drainages that would naturally slow the movement of stormwater.⁸</p> | <p>1) Identify mitigation for inclusion in stormwater pollution prevention plan.</p> <p>1) Identify location and extent of planned grading. Display proximity and slope relationships to receiving drainages. 2) Document erodibility of soils and subsoils in areas proposed for grading. 3) Quantify amount and duration of increased sediment loadings to each affected drainage. 4) Identify mitigation.</p> <p>1) Quantify total and peak volumes of increased runoff for each affected drainage 2) Identify mitigation.</p> |
| | <p>D. Impaired Beneficial Uses. [18] Projects which fragment habitat and reduce wildlife movement along riparian and other corridors can degrade remaining patches of wetlands and other habitat by changing their physical characteristics and by isolating and exposing small populations of plants and animals, resulting in local or regional extinctions.¹¹</p> | <p>1) Characterize and map at project-area and regional scales existing wetlands, along with riparian corridors and other water features supporting habitat connectivity. 2) Identify effects of construction on terrestrial and aquatic habitat connectivity (refer to Enclosure 3). 3) Identify mitigation.</p> |
| <p>2B. POST-CONSTRUCTION</p> <p>Ongoing effects of constructed environment.</p> | <p>A. Dry weather discharge. [6] Construction can cause dry-season "nuisance" runoff from activities such as landscape irrigation,⁵ sidewalk and vehicle washing, and basement dewatering.</p> <p>B. Increased Groundwater Pumping. [5] Construction can cause increased groundwater pumping for domestic or landscape use.⁴</p> | <p>1) Characterize volumes, seasonality, and other pertinent characteristics of "nuisance" flows for each affected drainage.</p> <p>1) Quantify and map locations of increased pumping.</p> |

ATTACHMENT 1 - TABLE 1
POTENTIAL EFFECTS OF URBAN TRANSPORTATION DEVELOPMENT ON BUS AND ROD ANALYSES

| CAUSE | EFFECT | NEEDED ANALYSES |
|---|--|--|
| 3. CHANNELIZATION Engineered changes in channel structure or morphology to stabilize banks, prevent flooding, or increase flow conveyance. | <p>C. Production of Urban Pollutants. [7] After construction, urban areas can generate pesticides, nutrients, oxygen-demanding substances, heavy metals, petroleum hydrocarbons, bacteria, viruses, and other pollutants from activities such as landscape care and vehicle operation and maintenance.⁷</p> <p>D. Change in Soil Erosion. [8] After construction, erosion can be reduced to below natural levels because soils are covered with buildings and pavement, and runoff is routed through storm drains.⁸</p> <p>E. Increased Runoff. [9] After construction, maintained landscapes and impervious surfaces such as roofs and streets increase total and peak runoff. The increased flows move quickly over paved surfaces and are collected, concentrated, and further accelerated in storm drain systems. The combination of increased flows and more efficient transport causes a higher, "flashy", more rapidly peaking and falling hydrograph, especially for smaller, more frequent floods.⁹</p> <p>A. Decreased Flood Storage. [4] Channelization can reduce flood storage within a basin by restricting flows to the active channel, thereby preventing detention of floodwater in backwaters and on the adjacent floodplain.⁴</p> <p>B. Change in Groundwater Storage. [10] Lining channel bottoms can change groundwater storage by reducing percolation and groundwater recharge.¹⁰ Deepening natural channels can drain adjacent shallow water tables.¹⁴</p> <p>C. Channel Destabilization. [11] Channelization can cause channel destabilization by changing the balance between the stream's flow, sediment load, and channel form. Destabilization tends to affect entire stream systems. For example, channelization can concentrate and synchronize peak flows from tributary streams, causing increased channel erosion both above and below the channelized reach. The eroded sediment is then deposited downstream when the flow slows down, where it may initiate further destabilization.¹⁵</p> | <p>1) Quantify projected increase in pollution production in each affected basin.</p> <p>2) Identify mitigation.</p> <p>1) Quantify reduction of natural sediment delivery rates to each affected basin.</p> <p>2) Identify mitigation.</p> <p>1) Quantify project-induced changes in total and peak runoff rates to each affected drainage.</p> <p>2) Identify mitigation.</p> <p>1) Quantify and map reductions in flood storage in each affected basin.</p> <p>2) Identify mitigation.</p> <p>1) Quantify and map locations of reduction in recharge rates.</p> <p>2) Quantify effects on channelization on shallow water tables and associated wetlands.</p> <p>3) Identify mitigation.</p> <p>1) Quantify basin-level hydrologic and fluvial geomorphic effects of channelization in each affected drainage.</p> <p>2) Identify mitigation.</p> |
| | | <p>4. DECREASED FLOOD STORAGE</p> <p>A. Increased Runoff. [9] Reduced flood storage on the floodplain and in channels, swales, wetlands, backwaters, and other natural depressions increases and accelerates runoff.²²</p> <p>A. Change in Groundwater Storage. [10] Increased groundwater pumping can lower water tables locally or in distant donor basins.^{23, 24}</p> |
| 4. INCREASED GROUNDWATER PUMPING | <p>D. Increased Flooding Frequency. [14] Constricted channels (e.g., in leveed sections) can cause water to back up, resulting in localized upstream flooding. Rapid passage of floodwaters through "improved" channels can increase flooding downstream by concentrating and synchronizing tributary peaks.¹⁶</p> <p>E. Decreased Pollutant Removal. [16] Channelization can decrease natural pollutant removal by reducing instream structural complexity and turbulent-flow aeration, increasing flow velocity, reducing overbank flow, and by causing change in vegetation.¹⁷</p> <p>F. Change in Wetland and Riparian Vegetation. [17] Channelization and associated maintenance can directly destroy wetland and riparian vegetation and can change site features to prevent reestablishment of characteristic species.¹⁸</p> <p>G. Impaired Beneficial Uses. [18] Channelization and associated maintenance can directly impair beneficial uses by reducing waterbody area, increasing stream velocity, disrupting riffle and pool sequences, cover, and other structural features; changing substrate, cutting off nutrient inputs to and from backwaters and riparian wetlands, dewatering upstream reaches, and reducing aesthetic and recreational value. Reduced overbank flooding can adversely affect reproduction of riparian vegetation and wetland and riparian functions.¹⁹ Channelization can inhibit the movement of fish, other aquatic biota, and wildlife, and thus isolate and reduce the viability of populations up and downstream.²⁰ Construction of channels can introduce sediment, nutrients, and toxics into the water column.²¹</p> | <p>1) Quantify basin-level hydrologic effect of channelization on each affected basin, including changes in flood return frequencies.</p> <p>2) Identify mitigation.</p> <p>1) Map waters lost to channelization in each affected drainage and characterize type, areal extent, and pollutant removal value.</p> <p>2) Quantify effect on pollutant loadings to each affected waterbody and downstream receiving waters.</p> <p>3) Identify mitigation.</p> <p>1) Map and identify types and areas of affected vegetation.</p> <p>2) Identify mitigation.</p> <p>1) Identify direct and indirect effects of proposed channelization projects on beneficial uses.</p> <p>2) Characterize and display at project-area and regional scales existing wildlands, along with riparian corridors and other water features supporting habitat connectivity.</p> <p>3) Identify effects of channelization on terrestrial and aquatic habitat connectivity.</p> <p>4) Identify mitigation.</p> <p>1) Quantify total and peak volumes of increase runoff for each affected drainage.</p> <p>2) Identify mitigation.</p> <p>1) Quantify and map locations of project-induced changes in groundwater levels.</p> <p>2) Identify mitigation.</p> |

ATTACHMENT 1 - TABLE 1
POTENTIAL EFFECTS OF URBAN TRANSPORTATION DEVELOPMENT ON BUS AND ROD ANALYSES

| CAUSE | EFFECT | NEEDED ANALYSES |
|---|--|--|
| 3. CHANNELIZATION Engineered changes in channel structure or morphology to stabilize banks, prevent flooding, or increase flow conveyance. | <p>C. Production of Urban Pollutants. [7] After construction, urban areas can generate pesticides, nutrients, oxygen-demanding substances, heavy metals, petroleum hydrocarbons, bacteria, viruses, and other pollutants from activities such as landscape care and vehicle operation and maintenance.⁷</p> <p>D. Change in Soil Erosion. [8] After construction, erosion can be reduced to below natural levels because soils are covered with buildings and pavement, and runoff is routed through storm drains.⁸</p> <p>E. Increased Runoff. [9] After construction, maintained landscapes and impervious surfaces such as roofs and streets increase total and peak runoff. The increased flows move quickly over paved surfaces and are collected, concentrated, and further accelerated in storm drain systems. The combination of increased flows and more efficient transport causes a higher, "flashy", more rapidly peaking and falling hydrograph, especially for smaller, more frequent floods.⁹</p> <p>A. Decreased Flood Storage. [4] Channelization can reduce flood storage within a basin by restricting flows to the active channel, thereby preventing detention of floodwater in backwaters and on the adjacent floodplain.⁴</p> <p>B. Change in Groundwater Storage. [10] Lining channel bottoms can change groundwater storage by reducing percolation and groundwater recharge.¹⁰ Deepening natural channels can drain adjacent shallow water tables.¹⁴</p> <p>C. Channel Destabilization. [11] Channelization can cause channel destabilization by changing the balance between the stream's flow, sediment load, and channel form. Destabilization tends to affect entire stream systems. For example, channelization can concentrate and synchronize peak flows from tributary streams, causing increased channel erosion both above and below the channelized reach. The eroded sediment is then deposited downstream when the flow slows down, where it may initiate further destabilization.¹⁵</p> | <p>1) Quantify projected increase in pollution production in each affected basin.</p> <p>2) Identify mitigation.</p> <p>1) Quantify reduction of natural sediment delivery rates to each affected basin.</p> <p>2) Identify mitigation.</p> <p>1) Quantify project-induced changes in total and peak runoff rates to each affected drainage.</p> <p>2) Identify mitigation.</p> <p>1) Quantify and map reductions in flood storage in each affected basin.</p> <p>2) Identify mitigation.</p> <p>1) Quantify and map locations of reduction in recharge rates.</p> <p>2) Quantify effects on channelization on shallow water tables and associated wetlands.</p> <p>3) Identify mitigation.</p> <p>1) Quantify basin-level hydrologic and fluvial geomorphic effects of channelization in each affected drainage.</p> <p>2) Identify mitigation.</p> |
| | | <p>4. DECREASED FLOOD STORAGE</p> <p>A. Increased Runoff. [9] Reduced flood storage on the floodplain and in channels, swales, wetlands, backwaters, and other natural depressions increases and accelerates runoff.²²</p> <p>A. Change in Groundwater Storage. [10] Increased groundwater pumping can lower water tables locally or in distant donor basins.^{23, 24}</p> |

ATTACHMENT 1 - TABLE 1
POTENTIAL EFFECTS OF URBAN TRANSPORTATION DEVELOPMENT ON BUS and ROD ANALYSES

| CAUSE | EFFECT | NEEDED ANALYSES |
|--|---|---|
| 6. DRY WEATHER DISCHARGE | <p>A. Change in Baseflow. [12] Dry weather runoff from urban activities can increase dry-period streamflows.²⁴</p> <p>B. Increased Pollutant Delivery. [13] Dry weather runoff can carry the pollutants generated by the activity causing the flow, e.g., pesticides, nutrients, and petrochemicals from landscape maintenance and cleaning sidewalks and vehicles. Collection of polluted dry weather flows in catch basins may result in shock loadings when it is displaced by subsequent storm flows.²⁶</p> | <p>1) Quantify hydrologic effects of dry weather flows on the baseflow of each affected drainage.</p> <p>2) Identify mitigation.</p> |
| 7. PRODUCTION OF URBAN POLLUTANTS | <p>A. Increased Pollutant Delivery. [13] Increased production of urban pollutants can cause increased delivery of pollutants to surface and groundwater.²⁶</p> | <p>1) Quantify and characterize pollutant loadings from each affected drainage.</p> <p>2) Identify mitigation.</p> |
| 8. CHANGE IN SOIL EROSION | <p>A. Channel Destabilization. [11] Changes in upland soil erosion can destabilize stream channels by changing the amount of sediment carried into the stream. The stream may then erode or aggrade its channel to balance its available energy with the changes in its sediment load.</p> <p>1. Increased sediment from construction causes channel aggradation, changing stream cross sections and redirecting flows.²⁷</p> <p>2. Decreased sediment from a paved watershed can cause channel incision and/or side-cutting. The effect may be compounded by increased runoff from the paved watershed. Aggradation may occur downstream where the flow slows and deposits the eroded sediment, which may deflect flows against the channel banks and cause further bank erosion.²⁸</p> | <p>1) Conduct geomorphologic analysis of channel response to increases in construction-related sediment.</p> <p>2) Conduct geomorphologic analysis of channel response to long-term reductions in sediment delivery to each affected drainage.</p> <p>3) Identify mitigation.</p> <p>Note: Sediment as a pollutant is considered in No. 7, "Production of Urban Pollutants".</p> |
| 9. INCREASED RUNOFF | <p>A. Change in Soil Erosion. [8] Increased runoff can dramatically increase soil erosion by causing greater runoff velocities which more effectively displace and carry soil particles. Construction-related soil destabilization can compound the effect.²⁹</p> <p>B. Change in Groundwater Storage. [4] Increased runoff can reduce groundwater recharge and lower water tables, since water draining from impervious surface is unable to percolate to groundwater at that location.³⁰</p> | <p>1) Quantify increases in sheet and gully erosion resulting from increased runoff.</p> <p>2) Identify mitigation.</p> |
| 10. CHANGE IN GROUNDWATER STORAGE | <p>A. Change in Baseflow. [12] Changes in water table level can cause changes in the dry weather baseflow of streams fed by groundwater.³⁰</p> <p>B. Change in Wetland and Riparian Vegetation. [17] A lowered water table can dry up wetlands, stress or kill mature riparian vegetation, and reduce or eliminate seedling survival.³¹</p> | <p>1) Quantify for each affected drainage the changes in baseflow associated with lowered water tables and map locations.</p> <p>2) Identify mitigation.</p> <p>1) Identify types and areas of wetlands and riparian areas that would be affected by expected lowering of shallow water tables and map locations.</p> <p>2) Identify mitigation.</p> |
| C. Channel Destabilization. [11] | <p>Increased peak runoff can destabilize channels by increasing the flow velocity and erosive power of the stream. Head cutting, incision and/or widening of the channel, and associated slope failures can result. Reduced sediment input as a result of change in soil erosion rates can compound the effect.³² In small streams, increased runoff may also dislodge logs and other channel features that help to define the channel.³²</p> | <p>1) Quantify channel geomorphic response to increased runoff for each affected drainage.</p> <p>2) Identify mitigation.</p> |
| D. Increased Pollutant Delivery. [13] | <p>Increased runoff increases pollutant delivery because it can more effectively carry particulate and soluble pollutants to receiving waters. Increased flow velocity reduces contact time with soil and vegetation that might otherwise remove pollutants.³³</p> | <p>1) Quantify types and quantities of increased pollutant loadings to each affected drainage.</p> <p>2) Identify mitigation.</p> |
| E. Increased Flooding Frequency. [14] | <p>Increased runoff and greater transport efficiency result in higher peak flows from storms of a given return period.³⁴</p> | <p>1) Quantify basin level hydrologic effect of increased runoff on each affected basin, including changes in flood return frequencies.</p> <p>2) Identify mitigation.</p> |
| F. Change in Water Temperature. [15] | <p>Increased runoff from urban areas can raise the temperature of receiving waters because runoff from impervious surfaces is often warmer than runoff from pervious surfaces or subsurface flow.³⁵</p> | <p>1) Model increase in water temperature along stream profile of each affected drainage.</p> <p>2) Identify mitigation.</p> |
| G. Impaired Beneficial Uses. [18] | <p>Increased runoff can impair habitat values by flushing fish and invertebrates out of streams.³⁶ Increasing water level fluctuations and the velocity of flows entering wetlands,³⁷ and causing salinity changes in estuaries and other nearshore marine waters.</p> | <p>1) Identify direct effects of increased flow on aquatic biota, hydrologic regimes of adjacent wetlands, and salinity of marine receiving waters for each affected drainage.</p> <p>2) Identify mitigation.</p> |

ATTACHMENT 1 - TABLE 1
POTENTIAL EFFECTS OF URBAN TRANSPORTATION DEVELOPMENT ON BUS and ROD ANALYSES

| CAUSE | EFFECT | NEEDED ANALYSES |
|--|---|---|
| 6. DRY WEATHER DISCHARGE | <p>A. Change in Baseflow. [12] Dry weather runoff from urban activities can increase dry-period streamflows.²⁴</p> <p>B. Increased Pollutant Delivery. [13] Dry weather runoff can carry the pollutants generated by the activity causing the flow, e.g., pesticides, nutrients, and petrochemicals from landscape maintenance and cleaning sidewalks and vehicles. Collection of polluted dry weather flows in catch basins may result in shock loadings when it is displaced by subsequent storm flows.²⁶</p> | <p>1) Quantify hydrologic effects of dry weather flows on the baseflow of each affected drainage.</p> <p>2) Identify mitigation.</p> |
| 7. PRODUCTION OF URBAN POLLUTANTS | <p>A. Increased Pollutant Delivery. [13] Increased production of urban pollutants can cause increased delivery of pollutants to surface and groundwater.²⁶</p> | <p>1) Quantify and characterize pollutant loadings from each affected drainage.</p> <p>2) Identify mitigation.</p> |
| 8. CHANGE IN SOIL EROSION | <p>A. Channel Destabilization. [11] Changes in upland soil erosion can destabilize stream channels by changing the amount of sediment carried into the stream. The stream may then erode or aggrade its channel to balance its available energy with the changes in its sediment load.</p> <p>1. Increased sediment from construction causes channel aggradation, changing stream cross sections and redirecting flows.²⁷</p> <p>2. Decreased sediment from a paved watershed can cause channel incision and/or side-cutting. The effect may be compounded by increased runoff from the paved watershed. Aggradation may occur downstream where the flow slows and deposits the eroded sediment, which may deflect flows against the channel banks and cause further bank erosion.²⁸</p> | <p>1) Conduct geomorphologic analysis of channel response to increases in construction-related sediment.</p> <p>2) Conduct geomorphologic analysis of channel response to long-term reductions in sediment delivery to each affected drainage.</p> <p>3) Identify mitigation.</p> <p>Note: Sediment as a pollutant is considered in No. 7, "Production of Urban Pollutants".</p> |
| 9. INCREASED RUNOFF | <p>A. Change in Soil Erosion. [8] Increased runoff can dramatically increase soil erosion by causing greater runoff velocities which more effectively displace and carry soil particles. Construction-related soil destabilization can compound the effect.²⁹</p> <p>B. Change in Groundwater Storage. [4] Increased runoff can reduce groundwater recharge and lower water tables, since water draining from impervious surface is unable to percolate to groundwater at that location.³⁰</p> | <p>1) Quantify increases in sheet and gully erosion resulting from increased runoff.</p> <p>2) Identify mitigation.</p> <p>1) Map locations of and quantify losses of recharge and water table response.</p> <p>2) Identify mitigation.</p> |

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POTENTIAL EFFECTS OF URBAN TRANSPORTATION DEVELOPMENT ON BUS AND ROD ANALYSES

| CAUSE | EFFECT | NEEDED ANALYSES |
|------------------------------------|--|--|
| | <p>C. Impaired Beneficial Uses. [18] A. lowered water table can impair water supply and other beneficial uses which use groundwater. Seawater intrusion is possible in coastal areas.⁴¹ A aquifer compaction and subsidence can also occur.⁴² Wetland and riparian areas can be dewatered, harming associated vegetation and habitats.⁴³</p> | <p>1) Identify effects of expected water table lowering on water supply and other beneficial uses and map locations. 2) Identify mitigation.</p> |
| 11. CHANNEL DESTABILIZATION | <p>A. Channelization. [3] Channel erosion can threaten property and structures, leading to placement of riprap or other engineered stabilization of critical sections.⁴⁵</p> <p>B. Change in Groundwater Storage. [10] Channel incision can dewater shallow aquifers adjacent to the channel.⁴⁶</p> <p>C. Increased Pollutant Delivery. [13] Channel erosion can result in increased suspended solids and turbidity in the water column.⁴⁷</p> <p>D. Increased Flooding Frequency. [14] Channel aggradation can cause local flooding by diverting flows and decreasing a stream's flow capacity.⁴⁸</p> <p>E. Change in Water Temperature. [15] Bank erosion and aggradation can increase water temperature by creating a broader channel with shallow flows, increased water surface relative to flow volume, and a smaller proportion of shaded water surface. As a result, summer water temperatures and daily and seasonal temperature fluctuations tend to be greater.⁴⁹</p> <p>F. Change in Wetland and Riparian Vegetation. [17] Channel destabilization can encroach on riparian wetlands and undermine streamside vegetation.⁵⁰</p> <p>G. Impaired Beneficial Uses. [18] Channel destabilization can reduce or eliminate habitat, recreation, esthetic values, and other uses by affecting deep pools, pool-riffle ratios, undercut banks, substrate suitability, and other structural features.⁵¹</p> | <p>1) Identify stream reaches in which project-induced channel destabilization may require channelization. 2) Identify mitigation.</p> <p>1) Identify and map stream reaches in which project-induced stream incision may dewater shallow aquifers. 2) Identify mitigation.</p> <p>1) Identify and map stream reaches subject to project-induced destabilization, quantify changes in channel dimension, and volume of eroded material for each affected basin. 2) Identify mitigation.</p> <p>1) Identify and map stream reaches in which project-induced channel destabilization may cause aggradation and associated flooding. 2) Identify mitigation.</p> <p>1) Identify and map stream reaches in which project-induced destabilization can increase water temperature. 2) Identify mitigation.</p> <p>1) Identify, characterize, and map wetland and riparian areas subject to encroachment by channel destabilization. 2) Identify mitigation.</p> <p>1) Identify, characterize, and map stream reaches in which channel destabilization can directly impair beneficial uses. 2) Identify mitigation.</p> |

ATTACHMENT 1 - TABLE 1
POTENTIAL EFFECTS OF URBAN TRANSPORTATION DEVELOPMENT ON BUS AND ROD ANALYSES

| CAUSE | EFFECT | NEEDED ANALYSES |
|---|--|--|
| | <p>H. Increased Maintenance and Property Damage. [19] Channel erosion can undermine streamside buildings, bridges, utility crossings, and other property. Aggradation can bury diversion structures and other infrastructure and may require removal to maintain flow capacity.</p> | <p>1) Identify and map stream reaches in which destabilization may cause increased maintenance and property damage. 2) Identify mitigation.</p> |
| 12. CHANGE IN BASEFLOW | <p>A. Change in Groundwater Storage. [10] Reduced stream baseflow can decrease groundwater recharge by reducing wetted area and the amount of water available for recharge in stream channels.⁵²</p> <p>B. Change in Water Temperature. [15] Decreased baseflow, typically resulting from change in groundwater storage, can cause elevated and fluctuating stream temperature because groundwater usually enters the stream at cool, stable temperatures.⁵³</p> <p>C. Change in Wetland and Riparian Vegetation. [17] Decreased stream baseflow can cause riparian vegetation to shift to upland species.⁵⁴</p> <p>D. Impaired Beneficial Uses. [18] 1. Decreases in the amount or duration of baseflow can impair habitat quality by eliminating aquatic and riparian habitat area, reducing flow velocities, and otherwise disrupting the life cycles of plants and animals which are dependent on water.⁵⁵ 2. Increases in baseflow resulting from dry weather discharge can impair waterbodies such as seasonal wetlands, vernal pools and intermittent streams which are naturally defined by seasonal water availability.</p> | <p>1) Identify and map affected stream reaches. 2) Quantify losses of recharge and water table response. 3) Identify mitigation.</p> <p>1) Identify and map affected stream reaches. 2) Quantify temperature effects along stream profile. 3) Identify mitigation.</p> <p>1) Characterize and map affected riparian areas. 2) Identify mitigation.</p> <p>1) Identify and map affected waterbody segments. 2) Characterize and quantify changes in baseflow. 3) Identify direct effects on beneficial uses 4) Identify mitigation.</p> |
| 13. INCREASED POLLUTANT DELIVERY | <p>A. Impaired Beneficial Uses. [18] Urban pollutants can impair many beneficial uses, e.g., water supply, recreation, fish and wildlife habitat, and shellfish production.⁵⁶</p> | <p>1) Identify direct effects of increased pollutant loadings on beneficial uses in each affected waterbody segment. 2) Identify mitigation.</p> |
| 14. INCREASED FLOODING FREQUENCY | <p>A. Channelization. [3] Increased flooding can lead to channelization of the critical section to more efficiently pass flood flows.⁵⁷</p> <p>B. Impaired Beneficial Uses. [18] Increased flooding can impair habitat,⁵⁸ water supplies, navigation, and other beneficial uses.</p> | <p>1) Identify stream reaches in which project-induced flooding may require channelization. 2) Identify mitigation.</p> <p>1) Identify stream reaches in which project-induced flooding may impair beneficial uses. 2) Identify mitigation.</p> |

ATTACHMENT 1 - TABLE 1
POTENTIAL EFFECTS OF URBAN TRANSPORTATION DEVELOPMENT ON BUS AND ROD ANALYSES

STATE WATER RESOURCES CONTROL BOARD -
URBAN DEVELOPMENT AND WATER QUALITY PROTECTION

ATTACHMENT 1 - TABLE 1
NOTES

| CAUSE | EFFECT | NEEDED ANALYSES |
|---|---|--|
| | <p>C. Increased Maintenance and Property Damage. [19] Increased flood frequency can result in more maintenance and flood damage.</p> <p>15. INCREASED WATER TEMPERATURE A. Impaired Beneficial Uses. [18] Increased water temperature can directly stress aquatic biota and can also affect other parameters associated with habitat quality, such as dissolved oxygen concentration and rate of chemical reactions.⁵⁹</p> <p>16. DECREASED POLLUTANT REMOVAL A. Increased Pollutant Delivery. [13] Less removal of pollutants by natural processes can result in greater concentrations of pollutants in receiving waters.⁶⁰</p> <p>17. CHANGE IN WETLAND AND RIPARIAN VEGETATION A. Channel Destabilization. [11] Loss of vegetation and its associated anchoring root masses can destabilize channel banks and other geomorphic features.⁶¹</p> <p>B. Change in Water Temperature. [15] Loss of riparian vegetation can increase maximum water temperature by exposing more water surface to the sun. Daily and seasonal temperature fluctuations also tend to be greater.⁶²</p> <p>C. Decreased Pollutant Removal. [16] Removal of vegetation adjacent to a waterbody can reduce removal of pollutants from the waterbody and from the overland flow draining to the waterbody.⁶³</p> <p>D. Impaired Beneficial Uses. [18] Loss of vegetation directly impairs the quality of aquatic and riparian habitat by reducing cover, structural diversity, and nutrient sources.⁶⁴ Removal of vegetation can also fragment and isolate remaining patches of habitat, resulting in decreased habitat value over large areas.⁶⁵</p> | <p>1) Identify stream reaches in which project-induced flooding may increase maintenance and property damage.</p> <p>2) Identify mitigation.</p> <p>1) Identify and map affected waterbody segments.</p> <p>2) Quantify temperature changes.</p> <p>3) Characterize effects on beneficial uses.</p> <p>4) Identify mitigation.</p> <p>1) Quantify effects to pollutant loadings for each affected waterbody.</p> <p>2) Identify mitigation.</p> <p>1) Characterize and map affected geomorphic features.</p> <p>2) Identify mitigation.</p> <p>1) Identify and map stream reaches in which loss of riparian vegetation can increase water temperature.</p> <p>2) Identify mitigation.</p> <p>1) Describe type, areal extent, and pollutant removal value of affected vegetation and map location.</p> <p>2) Identify mitigation.</p> <p>1) Identify affected waterbody segments.</p> <p>2) Characterize direct effects of vegetation loss on beneficial uses.</p> <p>3) Characterize and display at project-area and regional scales existing wildlands, along with riparian corridors and other water features supporting habitat connectivity.</p> <p>4) Identify effects of vegetation change on terrestrial and aquatic habitat connectivity.</p> <p>5) Identify mitigation.</p> |
| 18. IMPAIRED BENEFICIAL USES | Figure 1 - End point for water quality impairment. | |
| 19. INCREASED MAINTENANCE AND PROPERTY DAMAGE | Figure 1 - End point for maintenance and property damage effects. | |

NOTES

- ¹Terrene Institute 1994, pp.1- 26.
- USEPA 1993b, pp. 15-17.
- USEPA 1993a pp. 4-5 – 4-10.
- ²Ca SWRCB 1994a, p. 22
- Terrene Institute, 1994, p. 1.
- ³Knutson 1997, p. 71.
- US Fed Interag Str Rest Wk Gp 1998, pp. 2-80 - 2-82.
- Soule 1992.
- Noss and Cooperrider 1994, 33-34, 50-54, 59-62, 61-62.
- Saunders et al 1991.
- ⁴Dunne and Leopold 1978, p. 223.
- Kondolf and Curry 1996.
- ⁵Mount 1995, pp. 288, 290.
- ⁶Dunne and Leopold 1978, pp. 511, 516-17.
- USEPA 1993b, p.15-16.
- ⁷Knutson 1997, p. 70.
- USEPA 1993b, p. 15-16.
- Mount 1995, p. 288, 290.
- Ca SWRCB 1994b, P. 3.
- Schueler 1984.
- Schueler, 1995.
- USEPA 1993a pp. 4-5 – 4-10.
- ⁸Booth 1990.
- Arnold et al., 1982.
- Dunne and Leopold 1978, pp. 511, 516-518, 693.
- US Fed Interag Str Rest Wk Gp 1998, p. 3-24.
- Mount 1995, p. 288.
- Kondolf and Keller 1991.
- Klein 1979.
- Graf 1975.
- USEPA 1993a p. 4-5 – 4-10.
- ⁹Dunne and Leopold 1978, p. 517, 694.
- US Fed Interag Str Rest Wk Gp 1998, pp. 1-15, 2-12.
- USEPA 1993b, pp. 15, 17, 20.
- USEPA 1993a pp. 4-5 – 4-10.
- Terrene Institute 1994, pp.1, 26.
- ¹⁰Ca SWRCB 1994b, p. 3
- Knutson 1997, p.67.
- US Fed Interag Str Rest Wk Gp 1998, pp. 1-15, 2-12, 3-15, 3-22, 3-23.
- USEPA 1993b, p.3, 15, 29, 30.
- Dunne and Leopold 1978, pp. 275, 327, 687, 693, 695.
- Klein 1979.
- Hollis 1975.
- Graf 1975.
- Mount 1995, pp. 287-292.
- Kondolf and Keller 1991.
- Booth 1990.
- Arnold et al 1982.
- Schueler 1994.
- USEPA 1993a pp. 4-5 – 4-10.

STATE WATER RESOURCES CONTROL BOARD.
URBAN DEVELOPMENT AND WATER QUALITY PROTECTION

ATTACHMENT 1 - TABLE 1
NOTES

- ¹¹ Knutson 1997, p. 71.
- Soulé 1991.
- US Fed Interag Str Rest Wk Gp 1988, pp. 2-80 - 2-82.
- Soulé 1992.
- Noss and Cooperider 1994, 33-34, 50-54, 59-62, 61-62.
- Saunders et al 1991.
- ¹² USFWS 1982, p. 34.
- Mount 1995, p. 306.
- Arnold et al 1982.
- ¹³ USFWS 1982, p. 73.
- ¹⁴ Dunne and Leopold 1978, p. 404.
- USFWS 1982, p. 37.
- USEPA 1993a pp 6-4 - 6-6
- ¹⁵ Cal SWRCB 1984a, p. 31.
- USFWS 1982, pp. 19, 26-28, 34, 36, 100.
- Dunne and Leopold 1978, p. 404, 703, 707.
- Mount 1995, p. 287, 302, 305.
- USEPA 1993b.
- ¹⁶ Dunne and Leopold 1978, p. 404.
- Mount 1995, p. 287.
- Kondolf and Keller 1991.
- ¹⁷ USFWS 1982, p. 27.
- USEPA 1993a pp 6-4 - 6-6
- ¹⁸ USFWS 1982, pp. 32, 36, 46, 47, 54, 73.
- USEPA 1993a pp 6-4 - 6-6
- ¹⁹ Terrene Institute 1994, p. 4.
- US Fed Interag Str Rest Wk Gp 1988, p. 3-8.
- USFWS 1982, pp. 26-28, 32, 33, 45-63, 73, 96ff.
- Dunne and Leopold 1978, p. 707.
- Mount 1995, p. 308.
- USEPA 1993a pp 6-4 - 6-6
- ²⁰ USFWS 1982, p. 97.
- USEPA 1993a pp 6-4 - 6-6.
- Knutson 1997, p. 71.
- Soulé 1991.
- US Fed Interag Str Rest Wk Gp 1988, pp. 2-80 - 2-82.
- Soulé 1992.
- Noss and Cooperider 1994, 33-34, 50-54, 59-62, 61-62.
- Saunders et al 1991.
- ²¹ USFWS 1982, p. 37.
- Mount 1995, p. 308.
- ²² Mount 1995, p. 306.
- Arnold et al 1982.
- ²³ Kondolf and Curry 1988.
- ²⁴ Mount 1995, pp. 280.
- ²⁵ Mount 1995, p. 289.
- ²⁶ Knutson 1997, p. 70.
- Terrene Institute 1994, pp. 1-3.
- USFWS 1982, p. 43.
- US Fed Interag Str Rest Wk Gp 1988, p. 3-25.
- USEPA 1993(1) pp. 4-5 - 4-10.
- ²⁷ Dunne and Leopold 1978, p. 687, 687.
- Mount 1995, pp. 288, 305.
- Terrene Institute 1994, p. 2.
- Graf 1975.

STATE WATER RESOURCES CONTROL BOARD.
URBAN DEVELOPMENT AND WATER QUALITY PROTECTION

ATTACHMENT 1 - TABLE 1
NOTES

- ²⁸ Dunne and Leopold 1978, p. 687, 687.
- Mount 1995, pp. 288, 305.
- Terrene Institute 1994, p. 2.
- US Fed Interag Str Rest Wk Gp 1988, p. 3-25.
- Arnold et al 1982.
- ²⁹ Dunne and Leopold 1978, pp. 511-513.
- ³⁰ Ca SWRCB 1984b, p. 2.
- US Fed Interag Str Rest Wk Gp 1988, pp. 1-15, 3-24.
- USEPA 1993b, pp. 3, 17, 29, 30.
- Terrene Institute 1994, p. 1.
- Dunne and Leopold 1978, p. 275, 277.
- Klein 1979.
- USEPA 1993a pp. 4-5 - 4-10.
- ³¹ USEPA 1993b, pp. 3, 30.
- Ca SWRCB 1984a, p. 31.
- Ca SWRCB 1984b, p. 4.
- Knutson 1997, pp. 67, 70.
- US Fed Interag Str Rest Wk Gp 1988, pp. 3-24, 3-25.
- Dunne and Leopold 1978, p. 277, 685, 687, 689.
- Mount 1995, pp. 287.
- Kondolf and Keller 1991.
- Booth 1990.
- Arnold et al 1982.
- Klein 1979.
- Graf 1975.
- Schueler 1994.
- USEPA 1993a pp. 4-5 - 4-10.
- ³² Booth 1990.
- Patton 1981, cited in Arnold et al 1982.
- ³³ Knutson 1997, p. 70.
- Terrene Institute, 1994, p. 1.
- USEPA 1993b, p. 15, 32.
- ³⁴ Ca SWRCB 1984a, p. 31.
- Ca SWRCB 1984b, p. 3.
- Dunne and Leopold 1978, pp. 276-77, 695.
- USEPA 1993b, p. 17.
- Mount 1995, p. 206-291.
- Booth 1990.
- Kondolf and Keller 1991.
- Arnold et al 1982.
- Klein 1979.
- Schueler 1994. USEPA 1993a pp. 4-5 - 4-10.
- ³⁵ Ca SWRCB 1984b, p. 4.
- Terrene Institute 1994, p. 4.
- US Fed Interag Str Rest Wk Gp 1988, p. 3-27.
- Knutson 1997, pp. 70, 70-71.
- Schueler 1994.
- USEPA 1993a pp. 4-5 - 4-10.
- ³⁶ Klein 1979.
- Borchardt and Statzner 1990.
- ³⁷ USEPA 1993b, pp. 30, 35-38.
- ³⁸ USEPA 1993a pp. 4-5 - 4-10
- ³⁹ Ca SWRCB 1984b, p. 3.
- USEPA 1993b, pp. 3, 29, 30.
- US Fed Interag Str Rest Wk Gp 1988, pp. 1-15, 3-24.
- Dunne and Leopold 1978, pp. 225, 277.
- USFWS 1982, p. 34.
- USEPA 1993b, p. 17, 30.
- Klein 1979.
- USEPA 1993a pp. 4-5 - 4-10.

| ATTACHMENT 1 - TABLE 1 NOTES | ATTACHMENT 1 - TABLE 1 NOTES |
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| <p>STATE WATER RESOURCES CONTROL BOARD - URBAN DEVELOPMENT AND WATER QUALITY PROTECTION</p> <p>⁴⁰ USFWS 1982, p. 73. Kondolf and Curry 1986.</p> <p>⁴¹ Dunne and Leopold 1978, p. 225</p> <p>⁴² Dunne and Leopold 1978, p. 227-229.</p> <p>⁴³ USEPA 1993b, p. 30. USEPA 1993a pp 6-4 – 6-6</p> <p>⁴⁴ Ca SWRCB 1994a, p. 31. Dunne and Leopold 1978, p. 404. Mount 1995, p. 305. USEPA 1993b, p.30. USEPA 1993a pp.38, 100. Arnold et al 1982.</p> <p>⁴⁵ Dunne and Leopold 1978, p. 703. Mount 1995, p. 287. USEPA 1993a pp. 4-5 – 4-10.</p> <p>⁴⁶ Ca SWRCB 1994a, p. 31</p> <p>⁴⁷ US Fed Interag Str Rest Wk Gp 1998, pp. 3-24, 3-25. Dunne and Leopold 1978, pp. 694-695, 697.</p> <p>⁴⁸ Mount 1995, p. 305.</p> <p>⁴⁹ Knutson 1997, p. 71. Klein 1979.</p> <p>⁵⁰ Ca SWRCB 1994b, p. 3. US Fed Interag Str Rest Wk Gp 1998, p.3-24 – 3-25. USFWS 1982, p. 100. Knutson 1997, p. 70.</p> <p>⁵¹ Ca SWRCB 1994a, p. 31. Knutson 1997, p. 70. US Fed Interag Str Rest Wk Gp 1998, p. 3-26. USEPA 1993b, p.3. USFWS 1982, p. 55-57 Klein 1979. Borchardt and Stutzner 1990. Schueler 1994.</p> <p>⁵² USFWS 1982, p. 66.</p> <p>⁵³ Klein 1979.</p> <p>⁵⁴ USEPA 1993b, p.37. Klein 1979.</p> <p>⁵⁵ USEPA 1993b, p.30, 37. Klein 1979.</p> <p>⁵⁶ Ca SWRCB 1994b, p. 4. USEPA 1993b, pp 15, 32, 37, 38. Borchardt and Stutzner 1990. USEPA 1993a pp. 4-5 – 4-10.</p> <p>⁵⁷ Mount 1995, pp. 287, 305.</p> <p>⁵⁸ USEPA 1993b, pp.36-38. Schueler 1994.</p> | <p>STATE WATER RESOURCES CONTROL BOARD - URBAN DEVELOPMENT AND WATER QUALITY PROTECTION</p> <p>⁵⁹ Terrene Institute 1994, p. 4. USFWS 1982, pp.39, 56. ⁶⁰ Ca SWRCB 1994a, p. 22.</p> <p>⁶¹ Terrene Institute 1994, p.26. US Fed Interag Str Rest Wk Gp 1998, pp.3-14, 3-16. USFWS 1982, pp.54, 73. Knutson 1997, p.69. Kondolf and Curry 1986.</p> <p>⁶² Terrene Institute 1994, p.26. USFWS 1982, pp. 39, 54. Knutson 1997, pp. 69, 71. US Fed Interag Str Rest Wk Gp 1998, pp. 3-16, 3-25. Mount 1995, p.308. Klein 1979. USEPA 1993a pp. 4-5 – 4-10.</p> <p>⁶³ Ca SWRCB 1994a, p. 22. Knutson 1997, p. 69. Terrene Institute 1994, p. 26. US Fed Interag Str Rest Wk Gp 1998, pp. 2-9, 3-27. USFWS 1982, pp. 54, 62.</p> <p>⁶⁴ Ca SWRCB 1994a, p.22. Knutson 1997, pp.19-38, 69. USFWS 1982, p.54.</p> <p>⁶⁵ Burke 1995, pp. 1365-1369 Dood 1988, pp. 331-339 Finley 1997, pp. 1060-1069 Hilly 2004, pp. 126-135 Royal 2000, pp. 175-1782 Knutson 1997, p. 32, 71. National Research Council 2001, p. 42 Nature Conservancy 2000, p. 10 Noes 1994, pp. 33-34, 50-54, 59-62 Parnesan 2003, pp. 37-42 Pounds 2004, pp. 107-109 Root 2003, pp. 57-60 Saunders 1991, pp. 18-32 Semlitsch 1997, pp. 1113-1119 Semlitsch 1998, pp. 1129-1133 Soule 1991, pp. 313-323 Soule 1992, pp. 39-47 US Fed Interag Str Rest Wk Gp 1998, pp. 2-80 - 2-82.</p> |

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ATTACHMENT 2

Low-Impact Development References

Low-impact (LID) development generally involves more compact development that:

- minimizes generation of urban pollutants;
- preserves the amenity and other values of natural waters;
- maintains natural waters, drainage paths, landscape features and other water-holding areas to promote stormwater retention and groundwater recharge;
- designs communities and landscaping to minimize stormwater generation, runoff, and concentration; promote groundwater recharge; and reduce water demand;
- promotes water conservation and re-use.

The following documents are among many that provide more specific guidance in LID.

Bay Area Stormwater Management Agencies Association. Start at the Source. 1999. Online: http://www.cleanwaterprogram.org/uploads/SAS-TOC_Howto.pdf

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ATTACHMENT 3

ATTACHMENT 3

State Water Resources Control Board

Terrestrial Habitat Connectivity Related To Wetland, Riparian and Other Aquatic Resources,

ATTACHMENT 3

Terrestrial Habitat Connectivity as Related To Wetland, Riparian, and Other Aquatic Resources

"Habitat connectivity" refers to the need for plant and animal populations to have some mobility over the landscape, i.e., to avoid becoming "isolated" or "disjunct."¹ A large body of research has demonstrated that such "isolated" populations face a high probability of eventual extinction, even if their immediate habitats are spared.² In general, the smaller such an isolated population, the more quickly it will die out. Urban development typically fragments habitat by creating artificial landscapes which are movement barriers for most species. Unless mitigation measures are taken, isolated, non-viable populations are created as buildings, roads, and landscaping cut off lines of movement.

In the context of wetlands, "habitat connectivity" refers to three related phenomena:

- a. The need of some animals to have access to both wetland and upland habitats at different parts of their life cycle. Some wetland animals, e.g., some amphibians and turtles, require access at different seasons and/or at different life stages to both wetland and to nearby upland. Preserving the wetland but not access to upland habitat will locally exterminate such species.³
- b. The ecological relationship between separate wetlands. Some wetland communities and their associated species comprise networks of "patches" throughout a landscape. Wetland plants and animals are adapted to the presence of wetland complexes within a watershed and are dependent on moving among the wetlands within the complex, either regularly or in response to environmental stressors such as flood or drought, local food shortage, predator pressure, or influx of pollution. Removing one such water from the complex will reduce the biological quality of the rest, and at some point the simplified wetland complex will be incapable of supporting at least some of the species, even though some wetlands remain.⁴
- c. The role wetlands and riparian corridors play in allowing larger-scale movements. Some strategically located wetlands and continuous strips of riparian habitat along streams facilitate connectivity at watershed and regional scales for terrestrial as well as aquatic and amphibious species.

As noted above, habitat connectivity is critical to biodiversity maintenance, and will become more so because of global warming. Significant range shifts and other responses to global warming have already occurred. The ability of biotic populations to move across the landscape may be critical to their survival in coming decades.⁵



San Diego County Archaeological Society, Inc.
Environmental Review Committee

24 October 2010

To: Ms. Shay Lynn M. Harrison, Chief
Environmental Analysis, Branch C
California Department of Transportation, District 11
4050 Taylor Street, MS 242
San Diego, California 92110

Subject: Draft Mitigated Negative Declaration
I-5/Genesee Interchange Reconstruction Project

Dear Ms. Harrison:

I have reviewed the subject DMND on behalf of this committee of the San Diego County Archaeological Society.

Based on the information contained in the DMND, we agree that the project is unlikely to result in any adverse impacts to cultural resources. The mitigation measures specified in Section 2.7.4, while well-intentioned, are unlikely to come into play, as construction workers are not trained to recognize cultural material, will probably not be in a physical position to spot it, and would potentially slow work on the project if they did. And while they might recognize major concentrations of human remains, smaller, isolated items, such as teeth, could easily be missed. That said, leaving those mitigation measures in does no harm.

SDCAS appreciates being included in the environmental review process for this project.

Sincerely,

James W. Royle, Jr., Chairman
Environmental Review Committee

cc: SDCAS President
File

P.O. Box 81106 • San Diego, CA 92138-1106 • (658) 538-0935

1

The mitigation measures outlined in Section 2.7.4 were coordinated with the Caltrans Environmental Construction Liaison and the Resident Engineer on all Environmental Commitments. These individuals, as well as all construction workers, are given sensitivity training about recognizing things "out of the ordinary", instructed to leave items in place, and given the names and numbers of the individuals they need to notify if they do see something. This training is given prior to the start of a project and is repeated for any new worker. It is Caltrans policy not to use the construction stage as a discovery period but when cultural material is encountered during construction, work would be diverted to another area until the nature and significance of the item(s) can be discerned. If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities would cease in any area or nearby areas suspected to overlie remains, and the County Coroner contacted. Pursuant to Public Resources Code Section 5097.98, if the remains are thought to be Native American, the coroner would notify the Native American Heritage Commission who would then notify the Most Likely Descendant (MLD). At this time, the person who discovered the remains would contact the Caltrans District Senior Environmental Planner for Cultural Resources, so that they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.

1



A Sempra Energy utility®

Dashiell S. Meeks, AICP
Senior Environmental Specialist
8315 Century Park Court
CP21E
San Diego, CA 92123
(T) 858-637-3711 (F) 858-637-3700

October 25, 2010

California Department of Transportation, District 11
Attention: Shay Lynn Harrison, Chief, Environmental Analysis
4050 Taylor Street, MS 242
San Diego, CA 92110

Subject: SDG&E Comments on the "Interstate 5/Genesee Avenue Interchange Reconstruction Project" Initial Study with Proposed Mitigation Negative Declaration/Environmental Assessment

Dear Ms. Harrison:

On page 2.4-2 of the subject document, it states that "The overhead 69-kV power transmission line would be relocated to the overcrossing structure (SDG&E would file and action with the Public Utilities Commission (PUC)." As that statement indicates, SDG&E is regulated by the Public Utilities Commission of the State of California (CPUC). The CPUC's General Order 131-D states that "...no electric public utility... shall begin construction...modification...alteration...or addition to an existing electric...power...line without first complying with the provisions of this General Order."

In part, the purpose of the General Order is to be responsive to the requirements of the California Environmental Quality Act (CEQA). The minor relocation/replacement of the 69kV power line required to accommodate this project may qualify for an exemption to the General Order's "Permit to Construct" (PTC), which otherwise may take upwards of 18-24 months to obtain.

One of the exemptions to the PTC is for "power lines or substations to be relocated or constructed which have undergone environmental review pursuant to CEQA, as part of a larger project, and for which the final CEQA document (Environmental Impact Report (EIR) or Negative Declaration) finds no significant unavoidable environmental impacts caused by the proposed line or substation."

We feel that this draft of the proposed MND/EA has the potential to satisfy the terms of the aforementioned exemption if certain clarifications are evident in the document, which include, but is not limited to:

- 2a** - a- An accurate description of the work to be accomplished to relocate and/or replace SDG&E facilities;
- 2b** - b- A discussion of the significance of environmental impacts attributable to the relocation and/or replacement of SDG&E facilities; and
- 2c** - c- A discussion of mitigation actions that are planned to reduce identified significant or potentially significant environmental impacts to a "less than significant" level; and
- 2d** - d- A statement, under each CEQA environmental factor, such as Aesthetics, Air Quality, Biological Resources, Cultural Resources, Green House Gases, etc.) that explicitly states that impacts to the specific environmental factor, due to this SDG&E project, would be less than significant.

1 Caltrans has added further information to show that evaluation of possible environmental impacts due to relocation of the overhead power lines into conduits within the new Genesee structure has concluded that there are no substantive environmental impacts. A table with utilities impacts has been added to the appendices.

- 2a** (See response to SDG&E Comment 1)
- 2b** (See response to SDG&E Comment 1)
- 2c** (See response to SDG&E Comment 1)
- 2d** (See response to SDG&E Comment 1)

Page 2 of 2

3

On page S-8 of the subject document, it states that "Caltrans and the construction contractor would coordinate with utility providers during construction to finalize utility relocation and/or removal efforts." Just to clarify, we would like to work with you and your staff, **before construction on SDG&E's utilities commences**, to modify the subject document to help improve the likelihood that this environmental document could be cited as satisfying the terms of the GO131-D exemption to a PTC mentioned earlier.

Please call me if you'd like to discuss this in more detail. Thank you for your consideration.

Sincerely,



Dashiell S. Meeks, PE, AICP
Senior Environmental Specialist
Environmental Services Department
San Diego Gas and Electric Company
(858) 637-3711

Mary Jo Borak, CPUC
Estela de Llanos, SDG&E
David Emerson, SDG&E
Rebecca Giles, SDG&E
Nicholas Sher, CPUC
Allen Trial, SDG&E

3

Again, thank you for this comment. Caltrans has met with SDG&E and will continue to coordinate efforts to address the GO131-D exemption.

STATE OF CALIFORNIA - BUSINESS, TRANSPORTATION AND HOUSING AGENCY

DEPARTMENT OF TRANSPORTATION

DISTRICT 11
4050 TAYLOR STREET, M.S. 242
SAN DIEGO, CA 92110
PHONE (619) 688-0190
FAX (619) 688-4258
TTY 711



David Butler, Recorder/County Clerk

SEP 23 2010
BY **L. Kesian** DEPUTY



Arnold Schwarzenegger, Governor
Flex your power!
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FILED IN THE OFFICE OF THE COUNTY CLERK

San Diego County on SEP 23 2010

Received on OCT 2 8 2010

Returned to agency on OCT 2 8 2010

Deputy **L. Kesian**

11-SD-5
KP R46.1/R49.1
PM R28.6/R30.5
Genesee Ave IC Reconstruction
1100000012 (EA 022330)

County Clerk
County of San Diego
1600 Pacific Highway, Suite 260
San Diego, CA 92101

Subject: Notice of Intent to Adopt Mitigated Negative Declaration, Notice of Availability of Initial Study / Environmental Assessment, and Notice of Opportunity for Public Hearing for I-5/Genesee Interchange Reconstruction Project

The California Department of Transportation (Caltrans), District 11 has prepared an Initial Study (IS)/Environmental Assessment (EA) with proposed Mitigated Negative Declaration (MND) for the proposed project to reconstruct the Interstate 5 (I-5)/Genesee Avenue Interchange in the City of San Diego. Project limits along I-5 are from Post mile (PM) R28.6 to R30.5 and would include replacement of the existing overcrossings at Genesee Avenue and Voigt Drive; ramp widening at Genesee and at Sorrento Valley Road interchanges; construction of I-5 auxiliary lanes; realignment of Gilman Drive; and various measures to improve pedestrian and bicycle safety.

Enclosed for your review is a compact disc (CD) of the IS/EA with proposed MND. This document describes the purpose and need for the project; the existing environment that could be affected by the project; potential impacts that would result from construction of the project; and the proposed avoidance, minimization and mitigation measures. The IS/EA and proposed MND were prepared in accordance with federal and state laws and regulations including the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA).

Caltrans is transmitting this IS/EA as the National Environmental Policy Act (NEPA) lead agency under the provisions of the Memorandum of Understanding (MOU) between the Federal Highway Administration and the California Department of Transportation Concerning the State of California's Participation in the Surface Transportation Project Delivery Pilot Program, which became effective on July 1, 2007. The MOU was signed pursuant to Section 6005 of the 2005 Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), which allows the Secretary of Transportation to assign, and the state of California to assume, responsibility for FHWA's responsibilities under other federal environmental laws. As this project is covered by the Pilot Program MOU, FHWA has assigned, and Caltrans has assumed FHWA responsibility for environmental review, consultation, and coordination on this project. Please direct all correspondence on this project to Caltrans staff.

Please see clerk to view CD

"Caltrans improves mobility across California"

County Clerk
September 23, 2010
Page 2

The document is currently in public circulation, and interested members of the public may review it at the Caltrans District 11 offices, located at 4050 Taylor Street in San Diego; and during regular library hours at the University Community Branch Library, 4155 Governor Drive, San Diego. The IS/EA is also available online at www.dot.ca.gov/dist11/envir.htm or at www.keepsandiego-moving.com

If requested by an interested agency or a member of the public, a public hearing will be conducted. Please send written comments on the document to Caltrans District 11 by the **October 25, 2010** deadline via postal mail to:

Ms. Shay Lynn M. Harrison, Chief
Environmental Analysis, Branch C
California Department of Transportation, District 11
4050 Taylor Street, MS 242
San Diego, CA 92110

If you have any questions, please feel free to contact me (619) 688-0190.
Sincerely,

SHAY LYNN M. HARRISON, Chief
Environmental Analysis, Branch C

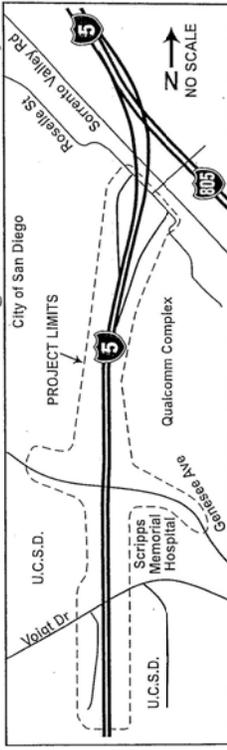
SL/md/ec

Enclosures: CD of IS/EA and Proposed MND; Public Notice

c: Lam Nguyen, Interim Deputy District Director, Environmental, Caltrans District 11
Arturo Jacobo, Project Manager, Caltrans District 11

"Caltrans improves mobility across California"

Caltrans **Public Notice**
 Notice of Intent to Adopt Mitigated Negative Declaration and Availability of Initial Study / Environmental Assessment Notice of Opportunity for Public Hearing
Interstate 5/Genesee Avenue Interchange Reconstruction Project



WHAT'S BEING PLANNED? The California Department of Transportation (Caltrans) District 11 is proposing to reconstruct the Interstate 5 (I-5) interchange at Genesee Avenue in the City of San Diego. Project limits along I-5 are from Postmile (PM) R28.6 to R30.5. Work would include replacement of the existing overcrossings at Genesee Avenue and Voigt Drive with wider structures that would accommodate additional lanes, including bicycle lanes. Work would also include ramp widening at Genesee and Sorrento Valley Road interchanges, construction of I-5 auxiliary lanes, realignment of Gilman Drive, and various measures to improve pedestrian and bicycle safety. The proposed project would require minor encroachments upon a floodplain, wetlands, riparian areas, and various scrub brush communities. The project is being evaluated to ensure that all practicable measures would be taken to avoid or minimize harm to these natural communities.

WHY THIS NOTICE? Pursuant to the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA), Caltrans has studied the effects this project may have on the environment. Studies show the project would not significantly affect the quality of the environment with incorporation of avoidance, minimization, and mitigation measures. These studies and conclusions are discussed in the Initial Study / Environmental Assessment (IS/EA) prepared for the project. This notice is to advise you of the preparation of a Proposed Mitigated Negative Declaration (MND) and availability of the IS/EA for your review. The comment period is from **September 23 to October 25, 2010.**

WHAT'S AVAILABLE? The IS/EA with the Proposed MND and Technical Reports are available for review from 8:00 a.m. to 4:00 p.m. at the Caltrans District 11 Office at 4050 Taylor St., San Diego; during regular library hours at the University Community Branch Library located on 4155 Governor Dr. in San Diego, and on the Caltrans District 11 website at <http://www.dot.ca.gov/dist11/> or <http://www.keepsandiegomoving.com>.

WHERE YOU COME IN: Do you have any comments or concerns regarding the IS/EA or proposed MND? Please submit your comments in writing no later than October 25, 2010, to: Ms. Shay Lynn M. Harrison, Chief, Environmental Analysis Branch C, Caltrans District 11, 4050 Taylor Street, MS 242, San Diego, CA 92110; or via e-mail to: Shay.Lynn.Harrison@dot.ca.gov

OPPORTUNITY FOR A PUBLIC HEARING: If requested by an interested agency or member of the general public, a public hearing will be conducted.

CONTACT/SPECIAL ACCOMMODATIONS: For more information about this project or for individuals who require documents in alternative formats, please contact Caltrans District 11 Public Information Office at 619-688-6670. TDD users may contact the California Relay Service TDD line at 1-800-735-2929 or Voice Line at 1-800-735-2922, or you may dial 711.

No response required.

LIST OF PREPARERS

CHAPTER 4.0 – LIST OF PREPARERS

The following persons participated in preparation of the Initial Study/ Environmental Assessment (IS/EA) and its associated technical studies:

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Affinis

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Scientific Resources Associated

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CHAPTER 5.0

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CHAPTER 5.0 – DISTRIBUTION LIST

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Attn: Susan Wynn

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LIST OF REFERENCES

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Association of Environmental Planners

- 2007 How to Analyze GHG Emissions and Global Climate change in CEQA Documents. March 5.

California Air Resources Board (ARB)

- 2011 Ambient Air Quality Standards.
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California Department of Conservation, Division of Mines and Geology

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California Department of Water Resources

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California Native Plant Society (CNPS)

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City of San Diego (City)

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- 1997a MSCP Subarea Plan.
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APPENDIX A

LETTERS FROM NATIONAL OCEANIC AND
ATMOSPHERIC ADMINISTRATION AND
U.S. FISH AND WILDLIFE SERVICE



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Region
501 West Ocean Boulevard, Suite 4200
Long Beach, California 90802-4213

OCT 21 2005

F/SWR4:RSH

Mr. Charles Stoll
Deputy District Director, Environmental
California Department of Transportation
District 11, MS-46
P.O. Box 85406
San Diego, California 92186-5406

Dear Mr. Stoll:

NOAA's National Marine Fisheries Service has reviewed the I-5 High Occupancy Vehicle Extension Project and Genesee Ave./I-5 Interchange Project. We concur with your determination that these two projects are independent of the larger Corridor Project. As such, we believe permitting of both of these projects may proceed ahead of the Corridor Project.

Sincerely,

Valerie L. Chambers
Assistant Regional Administrator
for Habitat Conservation

cc: COE - Los Angeles (Stephanie Hall)
USFWS - Carlsbad (John DiGregoria)
EPA - San Francisco (Connell Dunning)





United States Department of the Interior



FISH AND WILDLIFE SERVICE

Ecological Services
Carlsbad Fish and Wildlife Office
6010 Hidden Valley Road
Carlsbad, California 92011

In Reply Refer To:

FWS-SDG-08B0205-08SL0196

MAR 1 12008

Chris White
Environmental Resource Studies
California Department of Transportation
4050 Taylor Street
San Diego, California 92110

Subject: Request for Information on Endangered and Threatened Species in the Vicinity of the Proposed Interstate 5/Genesee Avenue Interchange Reconstruction Project, San Diego County, California.

Dear Mr. White:

This letter is in response to your letter dated November 19, 2007, concerning federally endangered and threatened species that may occur in and around the proposed Interstate 5/Genesee Avenue Interchange Reconstruction Project. To assist you in evaluating the potential occurrence of these species within the areas of interest, we are providing the enclosed list.

Section 7 of the Endangered Species Act of 1973 (Act), as amended, requires Federal agencies to consult with the U.S. Fish and Wildlife Service should it be determined that their actions may affect federally listed threatened or endangered species. Section 9 of the Act prohibits the "take" (e.g., harm, harassment, pursuit, injury, kill) of federally listed wildlife. "Harm" is further defined to include habitat modification or degradation where it kills or injures wildlife by impairing essential behavioral patterns including breeding, feeding, or sheltering. Take incidental to otherwise lawful activities can be authorized under sections 7 (Federal consultations) and 10 (habitat conservation plans) of the Act.

If a proposed project is authorized, funded, or carried out by a Federal agency and may affect a listed species, then the Federal agency must consult with us on behalf of the applicant, pursuant to section 7 of the Act. During the section 7 process, measures to avoid and minimize project effects to listed species and their habitat will be identified and incorporated into a biological opinion that includes an incidental take statement that authorizes incidental take by the Federal agency and applicant.

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IN AMERICA** 

We do not have site-specific information for this area. Therefore, we recommend that you seek assistance from a biologist familiar with the habitat conditions and associated species in and around the project site to assess the actual potential for direct, indirect and cumulative impacts likely to result from the proposed activity.

Should you have any questions regarding this letter or your responsibilities under the Act, please call Mr. Patrick Gower of my staff at (760) 431-9440.

Sincerely,



Therese O'Rourke
Assistant Field Supervisor

Enclosure

**Federally Listed Species
Which Occur or May Occur on or Near Proposed Interstate 5/Genesee Avenue Interchange
Reconstruction Project, San Diego County, California**

Plants

| | | |
|--------------------------|---|---|
| coastal dunes milk-vetch | <i>Astragalus tener var. titi</i> | E |
| San Diego ambrosia | <i>Ambrosia pumila</i> | E |
| Encinitas baccharis | <i>Baccharis vanessae</i> | T |
| Del Mar manzanita | <i>Arctostaphylos glandulosa ssp. crassifolia</i> | E |
| thread-leaved brodiaea | <i>Brodiaea filifolia</i> | T |

Birds

| | | |
|--------------------------------|---|---|
| California gnatcatcher | <i>Polioptila californica californica</i> | T |
| light-footed clapper rail | <i>Rallus longirostris levipes</i> | E |
| western snow plover | <i>Charadrius alexandrinus nivosus</i> | T |
| southwestern willow flycatcher | <i>Empidonax traillii extimus</i> | E |
| least Bell's vireo | <i>Vireo bellii pusillus</i> | E |

E: endangered

T: threatened

APPENDIX B

BIOLOGICAL OPINION



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services
Carlsbad Fish and Wildlife Office
6010 Hidden Valley Road, Suite 101
Carlsbad, California 92011



In Reply Refer To:
FWS-SDG-08B0205-11F0246

MAR 23 2011

Ms. Kim Smith, Chief
California Department of Transportation - District 11
Environmental Resource Studies
4050 Taylor Street
San Diego, California 92110

Attention: Susan Scatolini, Associate Environmental Planner

Subject: Formal Section 7 Consultation for the Interstate 5/Genesee Avenue Interchange
Reconstruction Project, San Diego County, California

Dear Ms. Smith:

This document transmits our biological opinion based on our review of the proposed Interstate 5 (I-5)/Genesee Avenue Interchange Reconstruction Project and its potential effects on the federally threatened coastal California gnatcatcher (*Poliophtila californica californica*, "gnatcatcher"), in accordance with section 7 of the Endangered Species Act of 1973 (Act), as amended (16 U.S.C. 1531 *et seq.*). The California Department of Transportation (Caltrans) has assumed the Federal Highway Administration's (FHWA) responsibilities under the Act for this consultation in accordance with Sections 6004 and 6005 of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) 2005, as described in the National Environmental Policy Act (NEPA) Delegation Pilot Program Memorandum of Understanding between FHWA and Caltrans (effective July 1, 2007) and codified in Renewed 23 U.S.C. 326 and 23 U.S.C. 327. We initiated consultation to address the effects of the proposed project on the gnatcatcher on November 5, 2010, the date we received your request.

The federally endangered least Bell's vireo (*Vireo bellii pusillus*, "vireo") is known to occur in habitat adjacent to the Pardee (Deer Canyon) property, where restoration will occur to offset the impacts of the I-5/Genesee Avenue Interchange Project. Conservation measures (enclosed) have been incorporated into the Deer Canyon restoration project to avoid and minimize impacts to the vireo. Based on Caltrans' commitment to implement these measures, we concur with your determination that the proposed project is not likely to adversely affect the vireo. Therefore, the vireo is not addressed further in this formal consultation.



This biological opinion is based on information provided in 1) *Interstate 5/Genesee Avenue Interchange Reconstruction Biological Assessment* (Caltrans 2009); 2) *Interstate 5/Genesee Avenue Interchange Reconstruction Project Initial Study with Proposed Mitigated Negative Declaration / Environmental Assessment* (Caltrans 2010); and 3) other information available in our files. The complete project file addressing this consultation is maintained at the Carlsbad Fish and Wildlife Office (CFWO).

The project purpose is to accommodate increased traffic flows and meet vertical clearance requirements for the I-5/Genesee Avenue interchange overcrossing. For this, the project will replace the existing I-5/Genesee Avenue 4-lane overcrossing with a 6-lane overcrossing that is wider, longer, and higher than the existing structure and will include a sidewalk on the north side of the bridge. An earthen buttress will also be incorporated into the project grading limits north of Genesee Avenue and west of I-5 to stabilize an ancient landslide underneath the southbound Genesee Avenue off-ramp. The project includes auxiliary lanes in both directions on I-5 between the Genesee Avenue ramps and the adjacent ramps for La Jolla Village Drive and Sorrento Valley Road. One standard lane and high-occupancy vehicle (HOV) bypass lane with a ramp meter will be added at the Sorrento Valley Road southbound on-ramp. One additional lane will be added to the Sorrento Valley Road northbound off-ramp. The construction of the auxiliary lanes between Genesee Avenue and La Jolla Village Drive will require replacement of the Voigt Drive overcrossing. The Voigt Drive overcrossing will be lowered, lengthened, and widened and will include bike lanes and sidewalks. The changes to the overcrossing configuration at Voigt Drive will conflict with the existing alignment of Gilman Drive. Therefore, the project includes realignment of Gilman Drive and modifications to its intersection with Voigt Drive.

The Multiple Species Conservation Program (MSCP) establishes a comprehensive habitat conservation planning program that provides for a streamlined process to minimize and mitigate habitat loss and the incidental take of covered species in association with specific activities covered by the program. The MSCP encompasses a 900-square mile (mi) [2,331-square kilometer (km)] area in southwestern San Diego County and includes the City of San Diego (City), 10 additional city jurisdictions, and unincorporated portions of the County of San Diego. On July 18, 1997, our agency, the U.S. Fish and Wildlife Service (Service), issued a section 10(a)(1)(B) permit ("incidental take permit") to the City for their Subarea Plan under the broader MSCP. The proposed project is located within the City's Subarea Plan boundary.

The City's Subarea plan established a Multi-Habitat Planning Area (MHPA) to be conserved to provide the necessary habitat to support the future viability of San Diego's unique biodiversity. The City's Subarea Plan allows limited impacts to the MHPA for essential public projects, including circulation element roads such as Genesee Avenue. Consistent with the requirements of the City's Subarea Plan, the project has been designed to minimize impacts to the MHPA. The project will result in permanent impacts to 1.1 hectares (ha) [2.8 acres (ac)] of the MHPA and temporary impacts to 0.2 ha (0.6 ac) of the MHPA. To offset impacts to the MHPA, the project will restore, preserve and manage 9.07 ha (22.41 ac) of land within the City's MHPA on

the Deer Canyon property. This includes 5.4 ha (13.4 ac) of Diegan coastal sage scrub, 1.42 ha (3.51 ac) southern willow scrub, and 2.25 ha (5.5 ac) non-native grassland. The City has agreed to own and manage the Deer Canyon property with an endowment that will be paid by Caltrans in accordance with the requirements of the *TransNet Memorandum of Agreement among the San Diego Association of Governments ("SANDAG")*, the *California Department of Fish and Game ("CDFG")*, the *California Department of Transportation ("Caltrans")*, and the *United States Fish & Wildlife Service ("USFWS")* (collectively "the signatories") regarding the mitigation for transportation projects under the TransNet Extension Ordinance Environmental Mitigation Program (TransNet MOA). The TransNet MOA specifies that funds will be allocated for acquisition, restoration and enhancement, and monitoring and management of conservation lands.

There is suitable habitat for gnatcatchers within the project impact area. During protocol surveys in 2007, seven pairs, two of which had fledglings, and three individual gnatcatchers were observed within and adjacent to the Biological Study Area for the project. The project will impact habitat occupied by one pair of gnatcatchers and potentially used by a second pair of gnatcatchers. The project will result in permanent impacts to 1.5 ha (3.7 ac) Diegan Coastal Sage Scrub (DCSS), 0.4 ha (1.0 ac) Disturbed DCSS, and 0.3 ha (0.7 ac) Coyote Brush Scrub. The project will result in temporary impacts to 0.3 ha (0.8 ac) DCSS, 0.1 ha (0.3 ac) Disturbed DCSS 0.1 ha (0.3 ac), and 0.1 ha (0.2 ac) Coyote Brush Scrub.

The gnatcatcher is a covered species under the City's Subarea Plan, and the City's incidental take permit authorizes take of gnatcatcher for projects consistent with their Subarea Plan. The Service concurs with your agency's determination that the proposed project may affect gnatcatcher. We have also determined that the project, including the proposed conservation measures (enclosed), is consistent for impacts to gnatcatcher with the City's Subarea Plan and its associated implementation agreement and permit.

The status of the gnatcatcher and the effects of implementing the City's Subarea Plan under the MSCP were previously addressed in our biological opinion for the City's Subarea Plan dated June 6, 1997. In this biological opinion, we concluded that the level of anticipated take in the City's Subarea Plan area boundary was not likely to result in jeopardy to the gnatcatcher. Given that the proposed action is consistent with the City's Subarea Plan, we do not anticipate any adverse effects to the gnatcatcher that were not previously evaluated in the biological opinion for City's Subarea Plan will occur. No incidental take of gnatcatcher beyond that anticipated in the biological opinion for the HCP will occur. Therefore, it is our conclusion that implementation of the proposed project will not result in jeopardy to the gnatcatcher.

By this consultation, we are extending to Caltrans the take coverage for gnatcatcher (incorporated herein by reference) already provided to the City through their incidental take permit for their Subarea Plan. Extension of take coverage to Caltrans under the City's Subarea Plan is limited to the proposed project as described in this biological opinion and as provided in

Ms. Kim Smith (FWS-SDG-08B0205-11F0246)

4

the incidental take statement of our biological opinion for the City's Subarea Plan dated June 6, 1997. Thus, Caltrans' consultation obligations under the Act for gnatcatcher have been met.

This concludes formal consultation on the proposed action. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: 1) the amount or extent of incidental take is exceeded; 2) new information reveals effects of the proposed action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; 3) the agency action is subsequently modified in a manner that causes an effect to listed species or critical habitat that was not considered in this opinion; or 4) a new species is listed or critical habitat is designated that may be affected by the proposed action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

We appreciate your coordination on this project. Should you have any questions regarding this biological opinion, please contact Sally Brown of my staff at (760) 431-9440, extension 278.

Sincerely,



Jim A. Bartel

Field Supervisor



ENCLOSURE

Conservation measures to avoid and minimize potential adverse effects to the coastal California gnatcatcher (*Polioptila californica californica*) and least Bell's vireo (*Vireo bellii pusillus*, "vireo") from the I-5 Genesee Interchange Reconstruction Project and Deer Canyon Restoration/Enhancement Project

Caltrans has committed to implement the following conservation measures to avoid and minimize potential adverse effects to the gnatcatcher and vireo and to support a determination by the U.S. Fish and Wildlife Service (Service) that the project: 1) is consistent with the City of San Diego's Subarea Plan and its associated implementation agreement and Endangered Species Act (Act) section 10(a)(1)(B) permit for gnatcatcher and 2) is not likely to adversely affect the vireo.

1. Permanent and temporary impacts to gnatcatcher habitat totaling 2.7 ha (6.7 ac) will be offset through restoration and preservation of 5.4 ha (13.4 ac) of Diegan coastal sage scrub at the Pardee (Deer Canyon) property. Temporary impacts will be offset the same as permanent impacts because revegetation of these areas is anticipated to be temporary, as documented in Conservation Measure 3 below.
2. Caltrans will submit a final restoration/enhancement plan for the Deer Canyon property to the Service's Carlsbad Fish and Wildlife Office (CFWO) for approval prior to initiating project impacts. The final plan will be based on the *Compensatory Wetland/Upland Mitigation Plan for Deer Canyon* (Caltrans, January 18, 2011). In addition to the measures proposed in the draft plan, the final plan will include the following information and conditions:
 - a. All final specifications and topographic-based grading, planting and irrigation plans (with 1-foot contours for wetlands and 10-foot contours for uplands). All wetland mitigation areas will be graded to the same elevation as adjacent existing U.S. Army Corps of Engineers jurisdictional areas, and will be left in a rough grade state with micro topographic relief (including channels for wetlands) that mimics natural topography. All upland habitat creation/restoration/enhancement sites will be prepared for planting by decompacting the top soil in a way that mimics natural upland habitat top soil to the maximum extent practicable while maintaining slope stability. Planting and irrigation will not be installed until the CFWO has approved of upland habitat restoration/creation site grading. All planting will be installed in a way that mimics natural plant distribution, and not in rows;
 - b. Planting palettes (plant species, size and number/acre) and seed mix (plant species and pounds/acre). The plant palette proposed in the draft plans will include native species specifically associated with the habitat type(s). Unless otherwise approved by the CFWO, only locally native species (no cultivars) obtained from San Diego County will be used;

- c. Container plant survival will be a minimum of 80 percent of the initial plantings for the first 5 years. If survival is less than 80 percent, the reason for poor plant survival will be evaluated in coordination with the CFWO. At the first and second anniversary of plant installation, all dead plants will be replaced unless their function has been replaced by natural recruitment;
- d. A final implementation schedule that indicates when all habitat impacts, as well as creation/restoration/enhancement grading, planting and irrigation will begin and end. Habitat creation/restoration/enhancement grading, planting and irrigation will be completed during the concurrent or next planting season (i.e., late fall to early spring, or later in irrigated areas) after finishing grading within the creation/restoration/enhancement area. Any temporal loss of habitat caused by delays in creation/restoration/enhancement will be offset through habitat preservation/creation/restoration/enhancement as determined in coordination with the CFWO, unless the delays were caused by unforeseeable circumstances or were beyond the reasonable control of the project proponent;
- e. Five years of success criteria for wetland and upland restoration/enhancement areas including: separate percent cover criteria for herbaceous understory, shrub midstory, and tree overstory for wetland creation; a total of 75-100 percent absolute cover for wetland and 40-65 percent absolute cover for upland; evidence of natural recruitment of multiple species for all habitat types; 0 percent coverage for Cal-IPC List A and B species, and no more than 10 percent coverage for other exotic/weed species;
- f. A minimum 5 years of maintenance and monitoring of restoration/enhancement areas, unless success criteria are met earlier and all artificial water has been off for at least two years. Monitoring will include protocol surveys for coastal gnatcatcher and vireo;
- g. A qualitative and quantitative vegetation monitoring plan with a map of proposed sampling locations. Photo points will be used for qualitative monitoring and stratified-random sampling will be used for all quantitative;
- h. Contingency measures in the event of restoration/enhancement failure;
- i. Annual mitigation maintenance and monitoring reports will be submitted to the CFWO after the maintenance and monitoring period and no later than January 1 of each year;
- j. If maintenance of a wetland restoration/enhancement area potentially occupied by vireos is necessary between March 15 and September 15, a biologist¹ will survey for vireos within the creation/restoration/enhancement area, access paths to it, and other areas susceptible to disturbances by creation/restoration/enhancement site maintenance. Surveys will consist of three visits separated by 2 weeks starting April 10 of each

¹ The biologist for this measure should be experienced in vireo biology and ecology.

maintenance/monitoring year. Restoration work will be allowed to continue on the site during the survey period. However, if vireos are found during any of the visits, the project proponent will notify and coordinate with the CFWO to identify measures to avoid and/or minimize effects to the vireo (e.g., nests and an appropriate buffer will be flagged by the biologist and avoided by the maintenance work);

- k. If maintenance of a coastal sage scrub creation/restoration/enhancement area is necessary between February 15 and August 31, a biologist² will survey for gnatcatchers within the creation/restoration/enhancement area, access paths to it, and other areas susceptible to disturbances by site maintenance. Surveys will consist of three visits separated by 2 weeks starting March 1 of each maintenance/monitoring year. Work will be allowed to continue on the site during the survey period. However, if gnatcatchers are found during any of the visits, the project proponent will notify and coordinate with the CFWO to identify measures to avoid and/or minimize effects to the gnatcatcher (e.g., nests and an appropriate buffer will be flagged by the biologist and avoided by the maintenance work);
3. Both permanent impact areas that are not paved (i.e., cut and fill slopes) and temporary impact areas will be temporarily revegetated with native species after construction. Diegan Coastal Sage Scrub (DCSS) and coyote brush scrub areas will be restored by hydroseeding with a DCSS plant palette. Non-native grassland will be restored by hydroseeding with a native grassland and forb palette. This revegetation will be considered temporary for at least 10 years after project construction until future widening of I-5 is completed, at which time the final I-5 fill slopes and temporary impact areas will be permanently revegetated with native species. Revegetation with native species as described above will be completed by Caltrans with the understanding that no further off site measures will be required to offset impacts within these areas resulting from future I-5 widening. However, after each future construction project, the I-5 fill slope and temporary impact areas will be revegetated with native species.
 4. Bioswales will be planted with appropriate species as determined by the storm water pollution prevention professional. Slopes adjacent to developed urban areas will be vegetated with native and drought tolerant non-invasive species selected by a biologist² and landscape architect. Interchanges located in urban areas will be landscaped with native or ornamental non-invasive species.
 5. Caltrans will prepare a restoration plan for the temporary impact areas and cut and fill slopes northwest of the I-5 Genesee Interchange. The plan will be submitted to the CFWO for review and approval at least 60 days prior to initiating project impacts. This plan will include the following conditions and information:

² The biologist for this measure should be experienced in gnatcatcher biology and ecology.

- a. A detailed description of restoration methods, slope stabilization, and erosion control, criteria for restoration to be considered successful, and monitoring protocol(s). Following the completion of construction activities, the restoration plan will be implemented for a minimum of 5 years, unless success criteria are met earlier and all artificial water has been off for at least 2 years;
 - b. Revegetated areas will have temporary irrigation and will be planted with native container plants and seeds selected by a biologist². The revegetated areas will also be maintained to control invasive weeds until success criteria have been met.
 - c. Special care will be taken during transport, use, and disposal of soils containing invasive weed seeds to ensure that invasive weeds are not spread into new areas by the project. All heavy equipment will be washed and cleaned of debris prior to entering a new area to minimize the spread of invasive weeds;
 - d. Duff from areas with coastal sage scrub and chaparral will be saved to aid in revegetating slopes with native species;
 - e. Rare plants will be salvaged where practicable for use in revegetation efforts;
 - f. Landscaping should not use plants that require intensive irrigation, fertilizers, or pesticides adjacent to preserve areas, and water runoff from landscaped areas should be directed away from adjacent native habitats and contained and/or treated within the development footprint;
 - g. A list of species to be included in the landscaping; and
 - h. Any planting stock to be brought onto the project site for landscape or habitat creation/restoration/enhancement will be first inspected by a qualified pest inspector to ensure it is free of pest species that could invade natural areas, including but not limited to, Argentine ants (*Iridomyrmex humil*), fire ants (*Solenopsis invicta*) and other insect pests. Any planting stock found to be infested with such pests will not be allowed on the project site or within 91.4 meters (m) [300 feet (ft)] of natural habitats unless documentation is provided to the CFWO that these pests already occur in natural areas around the project site. The stock will be quarantined, treated, or disposed of according to best management principles in a manner that precludes invasions into natural habitats;
6. Existing vegetation on the Deer Canyon property will be cleared between September 16 and March 14 to avoid the vireo nesting season;
 7. If grading of the Deer Canyon property cannot be completed prior to the breeding season of the vireo, monitoring for the vireo and noise levels within the habitat adjacent to the Pardee

site will be completed. If noise levels are above 60 dBA, a plywood wall will be constructed between the vireo habitat and grading activities to reduce the noise to below 60 dBA within the habitat;

8. A perpetual biological conservation easement or other conservation mechanism acceptable to the Service will be recorded over the areas preserved, restored, and/or enhanced by the project at the Deer Canyon Property. The conservation mechanism will specify that no easements or activities (e.g., fuel modification zones, public trails, drainage facilities, walls, maintenance access roads) that will result in soil disturbance and/or vegetation removal will be allowed within the biological conservation easement areas. Caltrans anticipates that they will not be able to place the conservation easement or other conservation mechanism for the Deer Canyon property prior to initiating project impacts; however, annual reports will be provided on its status until the conservation mechanism has been placed.
9. Caltrans will prepare a perpetual long-term management, maintenance and monitoring plan (e.g., HMP) for the Deer Canyon property. The HMP will include, but not be limited to, the following: method of protecting the resources in perpetuity (e.g., conservation easement), monitoring schedule, measures to prevent human and exotic species encroachment, funding mechanism, and contingency measures should problems occur. The City of San Diego has agreed to own and manage the Deer Canyon property with a management endowment that will be paid by Caltrans, in accordance with the requirements of the TransNet MOA. Caltrans will establish a non-wasting endowment in an amount approved by the Service based on a Property Analysis Record (PAR; Center for Natural Lands Management ©1998) or similar cost estimation method to secure the ongoing funding for the perpetual long-term management, maintenance and monitoring of the biological conservation easement area by an entity approved by the Service. Caltrans will submit a draft HMP including a description of perpetual management, maintenance and monitoring actions and the PAR or other cost estimation results for the non-wasting endowment to the Service for approval. Caltrans will submit the final HMP to the Service and transfer the funds for the non-wasting endowments to the appropriate management entities. Caltrans anticipates that they will not be able to prepare the HMP and transfer the funds for the non-wasting endowment prior to initiating project impacts; however, annual reports will be provided on their status until the final HMP has been provided and the endowment funds have been transferred.
10. The clearing and grubbing of native habitats for the I-5/Genesee Interchange Reconstruction Project will occur from September 1 to February 14 to avoid the gnatcatcher breeding season [or sooner than September 1 if a biologist³ approved by the CFWO ("Project Biologist") demonstrates to the satisfaction of the CFWO that all nesting is complete]. Caltrans will submit the biologist's name, address, telephone number, and

³ The designated project biologist for this measure should be experienced in gnatcatcher biology and ecology.

work schedule on the project to the CFWO at least 5 working days prior to initiating project impacts.

11. The Project Biologist will be on site during: a) initial clearing and grubbing; and b) weekly during project construction within 152.4 m (500 ft) of offsite gnatcatcher habitat to ensure compliance with all conservation measures. The Project Biologist will be familiar with the habitats, plants, and wildlife in the project area to ensure that issues relating to biological resources are appropriately and lawfully managed. The biologist will perform the following duties:
 - a. Perform a minimum of three focused surveys, on separate days, to determine the presence of gnatcatchers in the project impact footprint. Surveys will begin a maximum of 30 days prior to performing vegetation clearing/grubbing and one survey will be conducted the day immediately prior to the initiation of remaining work. If any gnatcatchers are found within the project impact footprint, the Project Biologist will direct construction personnel to begin vegetation clearing/grubbing in an area away from the gnatcatchers. In addition, the Project Biologist will walk ahead of clearing/grubbing equipment to flush birds towards areas of coastal sage scrub to be avoided. It will be the responsibility of the Project Biologist to ensure that gnatcatchers will not be injured or killed by vegetation clearing/grubbing. The Project Biologist will also record the number and location of gnatcatchers disturbed by vegetation clearing/grubbing. Caltrans will notify the CFWO at least 7 days prior to vegetation clearing/grubbing to allow the CFWO to coordinate with the Project Biologist on bird flushing activities;
 - b. Oversee installation of and inspect the construction fencing and erosion control measures within or up-slope of adjacent native habitat areas a minimum of once per week to ensure that any breaks in the fence or erosion control measures are repaired immediately;
 - c. Periodically monitor the work area to ensure that work activities do not generate excessive amounts of dust;
 - d. Train all contractors and construction personnel on the biological resources associated with the projects and ensure that training is implemented by construction personnel. At a minimum, training will include: 1) the purpose for resource protection; 2) a description of the sensitive resources and their habitats; 3) the conservation measures that should be implemented during project construction to conserve the sensitive resources, including strictly limiting activities, vehicles, equipment, and construction materials to the fenced project footprint to avoid sensitive resource areas in the field (i.e., avoided areas delineated on maps or on the project site by fencing); 4) environmentally responsible construction practices; 5) the protocol to resolve conflicts that may arise at any time during the construction process; and 6) the general provisions

of the Act, the need to adhere to the provisions of the Act, and the penalties associated with violating the Act;

- e. Halt work, if necessary, and confer with the CFWO to ensure the proper implementation of species and habitat protection measures. The Project Biologist will report any violation to the CFWO within 24 hours of its occurrence;
 - f. Submit monthly email reports (including photographs of impact areas) to Caltrans and the CFWO during clearing of gnatcatcher habitat and project construction. The monthly reports will document that authorized impacts were not exceeded and general compliance with all conditions. The reports will also outline the location of construction activities, the type of construction that occurred, and equipment used. These reports will specify numbers, locations, and sex of gnatcatchers (if observed), observed gnatcatcher behavior (especially in relation to construction activities), and remedial measures employed to avoid and minimize impacts to gnatcatchers. Raw field notes should be available upon request by the CFWO; and
 - g. Submit a final report to the CFWO within 120 days of project completion that includes: photographs of habitat areas that were to be avoided, and other relevant summary information documenting that authorized impacts were not exceeded and that general compliance with all conservation measures was achieved. As-built construction drawings with an overlay of habitat that was impacted and avoided will be provided as well once they have been completed.
12. All lighting, including night lighting for project construction, installed in the vicinity of the Multiple Habitat Planning Area (MHPA), native vegetation communities, and other open space will be directed away or shielded to prevent light overspill. Streetlights will be low-intensity and shielded to minimize illumination of the adjacent MHPA. Night lighting of construction areas will be of the lowest illumination necessary for human safety, selectively placed, shielded and directed away from natural habitats;
13. Caltrans will temporarily fence (with orange plastic snow fence) the limits of project impacts (including construction staging areas and access routes) to prevent additional habitat impacts. Fencing will be installed in a manner that does not impact habitats to be avoided and such that it is clearly visible to personnel on foot and operating heavy equipment and will be maintained throughout the construction period to preclude human entry into the MHPA. Fencing will be installed in a manner that does not impact avoided habitats. No construction activities, materials, or equipment will be permitted outside the fenced project footprint. Caltrans will submit to the CFWO for approval, at least 5 days prior to initiating project impacts (except for impacts resulting from clearing to install temporary fencing), the final plans for initial clearing and grubbing of habitat and project construction. These final plans will include photographs that show the fenced limits of impact and all areas to be impacted or avoided. If work occurs beyond the fenced or

demarcated limits of impact, all work will cease until the problem has been remedied to the satisfaction of the CFWO. Any impacts that occur beyond the approved fenced area will be offset in consultation with the CFWO. Temporary construction fencing will be removed upon project completion.

14. Drainage from the construction area and new and proposed developed areas in and adjacent to the preserve will not drain directly into the MHPA. Topography of the site is such that MHPA lands directly adjacent to the project are at a higher elevation. The project will use vegetated bioswales to treat road runoff prior to discharge into receiving waterbodies. The use of structural and non-structural Best Management Practices and the restriction of grading and paving activity during significant rain events will reduce potential impacts associated with construction. The project design will comply with the Standard Urban Stormwater Management Plan and Municipal Stormwater Permit criteria of the State Water Resources Control Board and the Clean Water Act section 401 Water Quality Certification issued by the Regional Water Quality Control Board for the Project. Erosion and sediment control devices used for the proposed project, including fiber rolls and bonded fiber matrix, will be made from biodegradable materials such as jute, with no plastic mesh, to avoid creating a wildlife entanglement hazard.
15. Uses in or adjacent to the MHPA should be designed to minimize noise impacts. Gnatcatchers that occupy habitats adjacent to the existing I-5 freeway are subjected to existing noise and vibration and continue to occupy the habitat. Ambient noise levels range from 61.1 dB(A) L_{eq} and 66.4 dB(A) L_{eq} . Once construction is complete, project operations are anticipated to result in a minimal increase in existing noise levels of 2 dB(A) or less. To minimize construction noise impacts to nesting gnatcatchers, all pile driving for the project that will occur near habitats that support gnatcatchers will be conducted between September 1 and February 14 to avoid the gnatcatcher breeding season (or sooner than September 1 if the Project Biologist demonstrates to the satisfaction of the CFWO that all nesting is complete).
16. Caltrans will ensure that the following conditions will be implemented during project construction.
 - a. Contractors and construction personnel will strictly limit their activities, vehicles, equipment, and construction materials to the fenced project footprint;
 - b. The project site will be kept as clean of debris as possible. All food-related trash items will be enclosed in sealed containers and regularly removed from the site;
 - c. Pets of project personnel will not be allowed on the project site;
 - d. All equipment maintenance, staging, and dispensing of fuel, oil, coolant, or any other such activities will occur within the fenced project impacts limits. The changing of oil,

refueling, and other actions that could result in a release of a hazardous substance will be restricted to designated areas that are a minimum of 30.5 m (100 ft) from any drainages. Such designated areas will be surrounded with berms, sandbags, or other barriers to further prevent the accidental spill of fuel, oil, or chemicals. Any accidental spills will be immediately contained, cleaned up, and properly disposed;

- e. Impacts from fugitive dust will be avoided and minimized through watering and other appropriate measures; and
- f. Cut and fill will be balanced within the project or the construction contractor will identify the source or disposal location. All spoils and material disposal will be disposed of properly.

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APPENDIX C

CORRESPONDENCE WITH
NATIVE AMERICAN HERITAGE COMMISSION



July 2, 2004

Ms. Carol Gaubatz
Program Analyst
Native American Heritage Commission
915 Capitol Mall, Room 364
Sacramento, California 95814

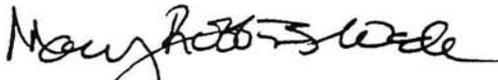
Reference: I-5/Genesee Interchange (Affinis Job No. 1894)

Ms. Gaubatz:

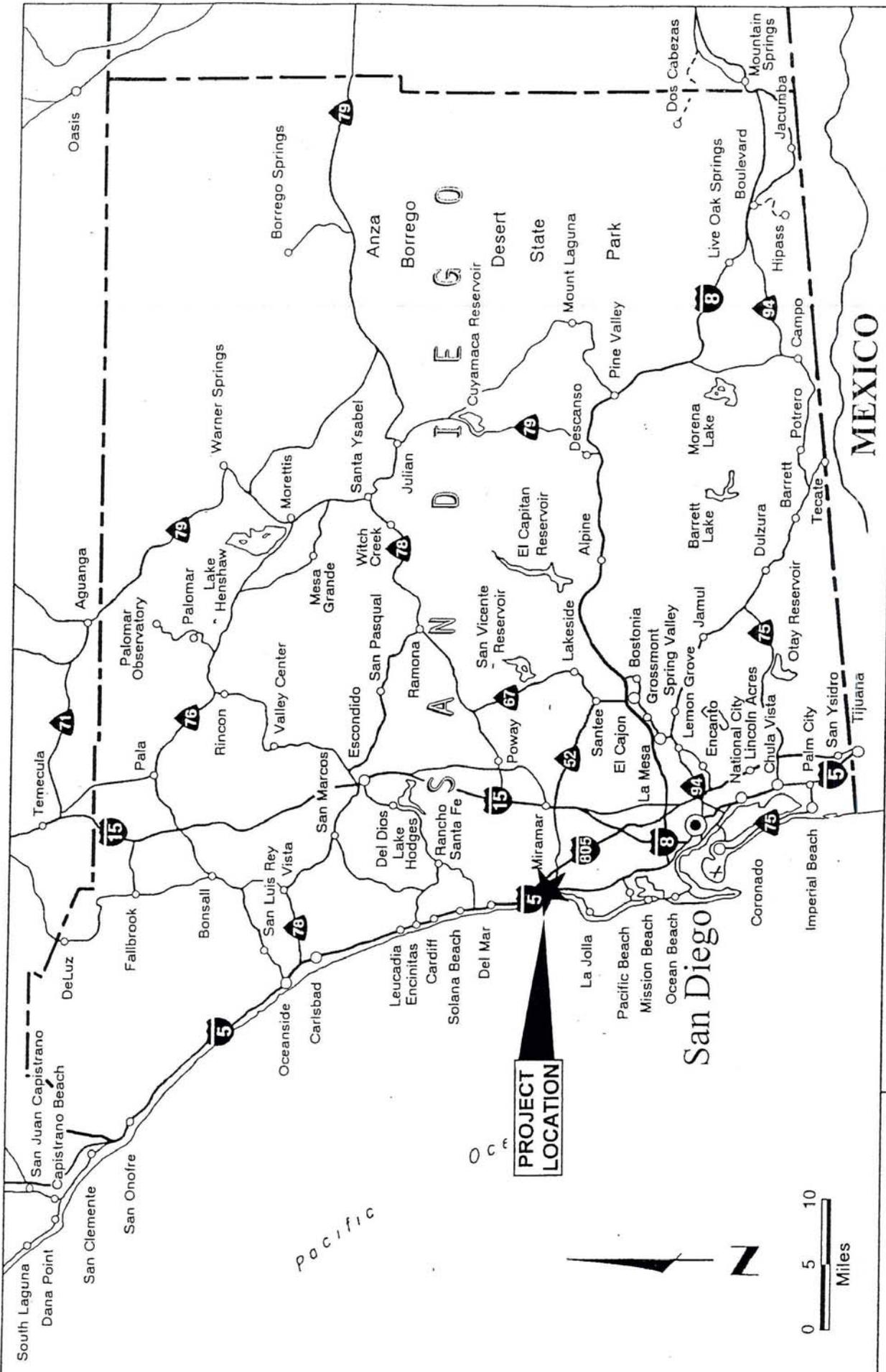
Affinis is conducting a survey of cultural resources for roadway improvements in the Torrey Pines area of San Diego, near La Jolla and Sorrento Valley in westernmost San Diego County. The records searches indicate sites recorded within the study area, although not in the project footprint. Field work for the project has not yet been conducted. The Native American community has not yet been contacted for this project, but we will make an effort to solicit their input. We would like to request that the Commission conduct a Sacred Lands File Check for the project area. Attached are maps showing the project vicinity and specific project area. Thank you.

If you have any questions about the archaeological project, I can be reached at (619) 441-0144, extension 18.

Sincerely,



Mary Robbins-Wade, RPA
Director of Cultural Resources



Affinis
 Shadow Valley Center
 847 Jamacha Road
 El Cajon, CA 92019

Regional location in San Diego County

Figure 1

Study Area
boundary

PE



NATIVE AMERICAN HERITAGE COMMISSION

.915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-4082
Fax (916) 657-5380
Web Site www.nahc.ca.gov



July 15, 2004

Mary Robbins-Wade
Affinis
847 Jamacha Road
El Cajon, CA 92019

Sent by Fax: 619-441-6421
Number of Pages: 4

RE: Proposed I-5/Genesee Interchange (Affinis Job no. 1894), San Diego County

Dear Ms. Robbins-Wade:

A record search of the sacred lands file has failed to indicate the presence of Native American cultural resources in the immediate project area. The absence of specific site information in the sacred lands file does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Enclosed is a list of Native Americans individuals/organizations who may have knowledge of cultural resources in the project area. The Commission makes no recommendation or preference of a single individual, or group over another. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated, if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate organization tribe or group. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at (916) 653-6251.

Sincerely,

A handwritten signature in cursive script, appearing to read "Carol Gaubatz".

Carol Gaubatz
Program Analyst

NATIVE AMERICAN CONTACTS
San Diego County
July 15, 2004

Barona Group of the Capitan Grande
 Clifford LaChappa, Chairperson
 1095 Barona Road Diegueno
 Lakeside, CA 92040
 (619) 443-6612

Barona Group of the Capitan Grande
 Sue Thomas, Tribal Administrator
 1095 Barona Road Diegueno
 Lakeside, CA 92040
 (619) 443-6612

Barona Group of the Capitan Grande
 Clifford LaChappa, Chairperson
 1095 Barona Road Diegueno
 Lakeside, CA 92040
 (619) 443-6612

Ewiiapaayp Tribal Office
 Harlan Pinto, Chairperson
 PO Box 2250 Kumeyaay
 Alpine, CA 91903-2250
 wmicklin@leaningrock.net
 (619) 445-6315 - voice
 (619) 445-9126 - fax

Barona Group of the Capitan Grande
 Lucille Richard, EPA Specialist
 1095 Barona Road Diegueno
 Lakeside, CA 92040
 (619) 443-6612

Ewiiapaayp Tribal Office
 James Robertson, Cultural Resources Coordinator
 PO Box 2250 Kumeyaay
 Alpine, CA 91903-2250
 jrobertson@leaningrock.net
 (619) 445-6315 - voice
 (619) 445-9126 - fax

Barona Group of the Capitan Grande
 Steve Banegas, Cultural Resources Coordinator
 1095 Barona Road Diegueno
 Lakeside, CA 92040
 (619) 443-6612

Ewiiapaayp Tribal Office
 Michael Garcia, Environmental Coordinator
 PO Box 2250 Kumeyaay
 Alpine, CA 91903-2250
 michaelg@leaningrock.net
 (619) 445-6315 - voice
 (619) 445-9126 - fax

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Genesee Interchange (Affinis Job No. 1894), San Diego County.

NATIVE AMERICAN CONTACTS
San Diego County
July 15, 2004

| | | | |
|--|----------|---|-------------------|
| Wampanoag Tribal Office Micklin, Tribal Administrator PO Box 2250 Alpine, CA 91903-2250 mmicklin@leaningrock.net (619) 445-6315 - voice (619) 445-9126 - fax | Kumeyaay | Kumeyaay Cultural Repatriation Committee Steve Banegas, Spokesperson 1095 Barona Road Lakeside, CA 92040 (619) 443-6612 (619) 443-0681 FAX | Diegueno/Kumeyaay |
|--|----------|---|-------------------|

| | | | |
|---|----------|---|----------|
| Mesa Grande Band of Mission Indians Rebecca Osuna 1040 East Parkway, Suite A Escondido, CA 92025 (760) 747-8581 (760) 747-8568 Fax | Diegueno | Mesa Grande Band of Mission Indians Howard Maxcy, Chairperson P.O Box 270 Santa Ysabel, CA 92070 (760) 782-3818 (760) 782-9092 Fax | Diegueno |
|---|----------|---|----------|

| | | | |
|---|-------------------|--|----------|
| San Juan Indian Village Leon Acevedo, Chairperson PO Box 612 San Juan, CA 91935 (619) 669-4785 Fax: (619) 669-4817 | Diegueno/Kumeyaay | San Pasqual Band of Mission Indians Allen E. Lawson, Chairperson PO Box 365 Valley Center, CA 92082 (760) 749-3200 (760) 749-3876 Fax | Diegueno |
|---|-------------------|--|----------|

| | | | |
|---|-------------------|--|----------|
| Kumeyaay Cultural Historic Committee Leon Christman 6 Viejas Grade Road Alpine, CA 92001 (619) 445-0385 | Diegueno/Kumeyaay | Santa Ysabel Band of Diegueno Indians Brandie Taylor, Tribal Administrator PO Box 130 Santa Ysabel, CA 92070 brandietaylor@yahoo.com (760) 765-0845 (760) 765-0320 Fax | Diegueno |
|---|-------------------|--|----------|

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This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Genesee Interchange (Affinis Job No. 1894), San Diego County.

July 5, 2007

Mr. Dave Singleton
Program Analyst
Native American Heritage Commission
915 Capitol Mall, Room 364
Sacramento, California 95814
fax (916) 657-5390

Via Facsimile

Reference: I-5/Genesee (Affinis Job No. 2207)

Mr. Singleton:

Affinis is conducting a survey of cultural resources for roadway improvements along I-5 and Genesee in the Torrey Pines and Sorrento Valley areas of western San Diego County. The project is in an unsectioned portion of Township 15 South, Range 3 West, on the USGS 7.5' Del Mar and La Jolla quadrangles. Attached are maps showing the project vicinity and specific project area.

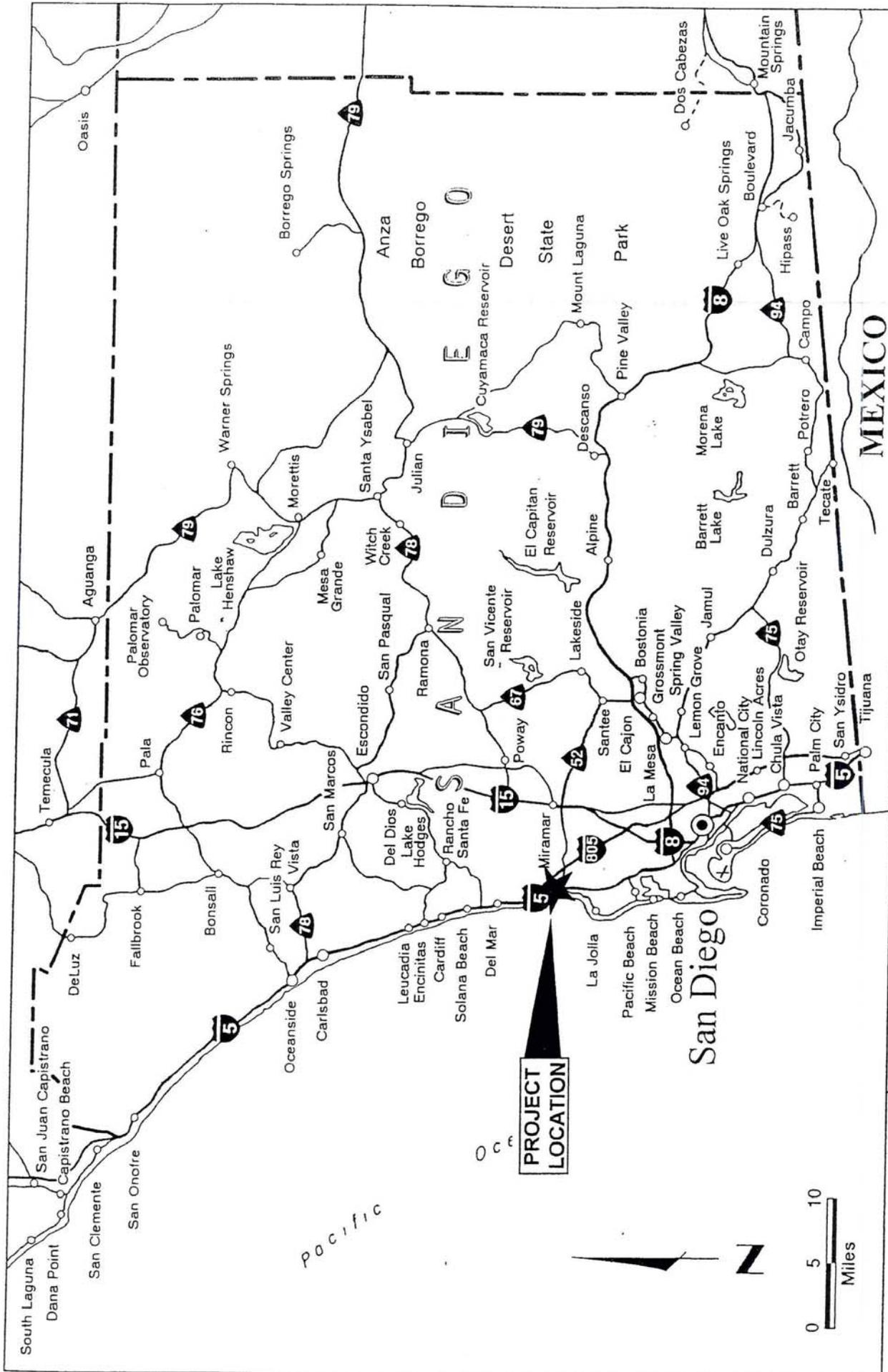
Two sites have been recorded within the study area, both of which have been destroyed by development. We requested a Sacred Lands File Check for this project area in July 2004, and Carol Gaubatz indicated that no cultural resources were on file for the project area. We would like to request a new check, in case any resources have been listed since our previous request. We have not yet contacted the Native American community, but we will do so, and we will coordinate monitoring with Clint Linton.

If you have any questions, I can be reached at (619) 441-0144, extension 18 or by e-mail at mary@affinis.net. Thank you.

Sincerely,



Mary Robbins-Wade, RPA
Director of Cultural Resources



Affinis
 Shadow Valley Center
 847 Jamacha Road
 El Cajon, CA 92019

Regional location in San Diego County

Figure 1

NATIVE AMERICAN HERITAGE COMMISSION

515 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-6251
Fax (916) 657-5390
Web Site www.nahc.ca.gov
e-mail: ds_nahc@pacbell.net



July 9, 2007

Mary Robbins-Wade, RPA
Director of Cultural Resources
Affins Environmental Services
847 Jamacha Road
El Cajon, CA 92019-3206

Sent by FAX: 619-441-6421
Number of pages: 3

Re: Proposed Interstate Highway 5 (I-5) and Genesee in the Torrey Pines and Sorrento Valley Areas, San Diego County.

Dear Ms. Robbins-Wade:

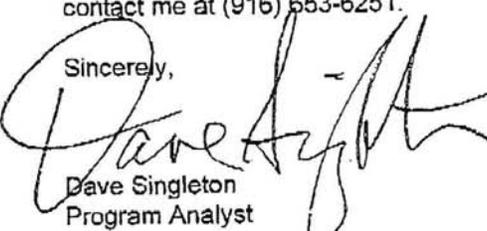
The Native American Heritage Commission was able to perform a record search of its Sacred Lands File (SLF) for the affected project area. The SLF failed to indicate the presence of Native American cultural resources in the immediate project area. The absence of specific site information in the Sacred Lands File does not guarantee the absence of cultural resources in any 'area of potential effect (APE).'

Early consultation with Native American tribes in your area is the best way to avoid unanticipated discoveries once a project is underway. Enclosed are the nearest tribes that may have knowledge of cultural resources in the project area. A List of Native American contacts are attached to assist you. The Commission makes no recommendation of a single individual or group over another. It is advisable to contact the person listed; if they cannot supply you with specific information about the impact on cultural resources, they may be able to refer you to another tribe or person knowledgeable of the cultural resources in or near the affected project area (APE).

Lack of surface evidence of archeological resources does not preclude the existence of archeological resources. Lead agencies should consider avoidance, as defined in Section 15370 of the California Environmental Quality Act (CEQA) when significant cultural resources could be affected by a project. Also, Public Resources Code Section 5097.98 and Health & Safety Code Section 7050.5 provide for provisions for accidentally discovered archeological resources during construction and mandate the processes to be followed in the event of an accidental discovery of any human remains in a project location other than a 'dedicated cemetery. Discussion of these should be included in your environmental documents, as appropriate.

If you have any questions about this response to your request, please do not hesitate to contact me at (916) 653-6251.

Sincerely,


Dave Singleton
Program Analyst

Attachment: Native American Contact List

PS: Thank you for the history on site!

Native American Contacts
San Diego County
July 9, 2007

San Pasqual Band of Mission Indians
 Allen E. Lawson, Chairperson
 PO Box 365 Diegueno
 Valley Center , CA 92082
 (760) 749-3200
 (760) 749-3876 Fax

Mesa Grande Band of Mission Indians
 Mark Romero, Chairperson
 P.O Box 270 Diegueno
 Santa Ysabel , CA 92070
 mesagrandeband@msn.com
 (760) 782-3818
 (760) 782-9092 Fax

Sycuan Band of the Kumeyaay Nation
 Danny Tucker, Chairperson
 5459 Sycuan Road Diegueno/Kumeyaay
 El Cajon , CA 92021
 dsilva@sycuan-nsn.gov
 619 445-2613
 619 445-1927 Fax

Kumeyaay Cultural Heritage Preservation
 Paul Cuero
 36190 Church Road, Suite 5 Diegueno/ Kumeyaay
 Campo , CA 91906
 (619) 478-9046
 (619) 478-9505
 (619) 478-5818 Fax

Viejas Band of Mission Indians
 Bobby L. Barrett, Chairperson
 PO Box 908 Diegueno/Kumeyaay
 Alpine , CA 91903
 daguilar@viejas-nsn.gov
 (619) 445-3810
 (619) 445-5337 Fax

Kwaaymii Laguna Band of Mission Indians
 Carmen Lucas
 P.O. Box 775 Diegueno -
 Pine Valley , CA 91962
 (619) 709-4207

Kumeyaay Cultural Historic Committee
 Ron Christman
 56 Viejas Grade Road Diegueno/Kumeyaay
 Alpine , CA 92001
 (619) 445-0385

Kumeyaay Cultural Repatriation Committee
 Steve Banegas, Spokesperson
 1095 Barona Road Diegueno/Kumeyaay
 Lakeside , CA 92040
 (619) 443-6612
 (619) 443-0681 FAX

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This list is only applicable for contacting local Native American with regard to cultural resources for the proposed Interstate Highway 5 (I-5) and Genesee in the Torrey Pines and Sorrento Valley areas of western San Diego County, California for which Sacred Lands File searches were requested.

Native American Contacts

San Diego County

July 9, 2007

Santa Ysabel Band of Diegueno Indians
Devon Reed Lomayevsa, Esq, Tribal Attorney
PO Box 701 Diegueno
Santa Ysabel , CA 92070
drlomayevsa@verizon.net
(760) 765-0845
(760) 765-0320 Fax

Clint Linton
P.O. Box 507 Diegueno/Kumeyaay
Santa Ysabel , CA 92070
(760) 803-5694
cjlinton73@aol.com

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This list is only applicable for contacting local Native American with regard to cultural resources for the proposed Interstate Highway 5 (I-5) and Genesee in the Torrey Pines and Sorrento Valley areas of western San Diego County, California for which Sacred Lands File searches were requested.

APPENDIX D

CEQA CHECKLIST

Environmental Checklist Form

Supporting documentation of all CEQA checklist determinations is provided in Chapter 2 of this IS/EA. Documentation of “No Impact” determinations is provided at the beginning of Chapter 2. Discussion of all impacts, avoidance, minimization, and/or compensation measures under the appropriate topic headings in Chapter 2.

1. Project title: Interstate 5 (I-5)/Genesee Avenue Interchange Reconstruction Project
2. Lead agency name and address: Caltrans District 11
4050 Taylor Street
San Diego, CA 92110
3. Contact person and phone number: Shay Lynn Harrison, Caltrans District 11
(619) 688-0190
4. Project location: I-5 corridor between the La Jolla Village Drive northbound on-ramp/southbound off-ramp to the south at KP R46.1 (PM R28.6) and the Sorrento Valley Road interchange to the north at KP R49.1 (PM R30.5), as well as segments of Genesee Avenue, Voigt Drive, and Gilman Drive in the City of San Diego
5. Project sponsor's name and address: Caltrans District 11
Contact: Shay Lynn Harrison
4050 Taylor Street
San Diego, CA 92110
6. General plan designation: Public Facilities/Institutional, Industrial, and Open Space
7. Zoning:
 - RS-1-14 (Residential-Single Unit [planned or future urbanizing]; 1 dwelling unit per minimum 5,000-square-foot lot)
 - CO-1-2 (Commercial Office; mix of office and residential that serves as an employment center)
 - CV-1-1 (Commercial Visitor; mix of large-scale, visitor serving uses, and residential)
 - IP-1-1 (Industrial-Park; research and development uses with some limited manufacturing)
 - RS-1-7 (Residential-Single Unit; 1 dwelling unit per minimum 5,000-square-foot lot)
 - IL-3-1 (Industrial-Light; mix of light industrial, office, and commercial uses)
8. Description of project (Describe the whole action involved, including but not limited to later phases of the project, and any secondary, support, or off-site features necessary for its implementation. Attach additional sheets if necessary.): Reconstruction of the Interstate 5/Genesee Avenue interchange and related improvements to the freeway, on- and off-ramps, and the Voigt Drive overcrossing, and realignment of a portion of Gilman Drive, from KP R46.1 (PM R28.6) to R49.1 (PM R30.5)
9. Surrounding land uses and setting: Briefly describe the project's surroundings: The Project site is located in a developed area, with a relatively small amount of vacant developable land. Within the immediate vicinity of the Project site, existing land use patterns generally consist of business/industrial park and institutional uses (hospitals, UCSD) north of La Jolla Village Drive and mixed-use, multi-family residential, and commercial retail development south of La Jolla Village Drive.
10. Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement.): California Coastal Commission, City of San Diego

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

- | | | |
|--|---|---|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture Resources | <input type="checkbox"/> Air Quality |
| <input type="checkbox"/> Biological Resources | <input type="checkbox"/> Cultural Resources | <input type="checkbox"/> Geology /Soils |
| <input type="checkbox"/> Hazards & Hazardous Materials | <input type="checkbox"/> Hydrology / Water Quality | <input type="checkbox"/> Land Use / Planning |
| <input type="checkbox"/> Mineral Resources | <input type="checkbox"/> Noise | <input type="checkbox"/> Population / Housing |
| <input type="checkbox"/> Public Services | <input type="checkbox"/> Recreation | <input type="checkbox"/> Transportation/Traffic |
| <input type="checkbox"/> Utilities / Service Systems | <input type="checkbox"/> Mandatory Findings of Significance | |

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial evaluation:

- I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature *Shay Lynn M. Harrison* Date 9/9/10
Printed Name Shay Lynn M. Harrison For _____

Issues:

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|--|--------------------------------|---|------------------------------|-------------------------------------|
| I. AESTHETICS -- Would the project: | | | | |
| a) Have a substantial adverse effect on a scenic vista? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Substantially degrade the existing visual character or quality of the site and its surroundings? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d) Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| II. AGRICULTURE RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project: | | | | |
| a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Conflict with existing zoning for agricultural use, or a Williamson Act contract? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland, to non-agricultural use? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|--|--------------------------------|---|-------------------------------------|-------------------------------------|
| <p>III. AIR QUALITY -- Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:</p> | | | | |
| a) Conflict with or obstruct implementation of the applicable air quality plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| d) Expose sensitive receptors to substantial pollutant concentrations? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| e) Create objectionable odors affecting a substantial number of people? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <p>IV. BIOLOGICAL RESOURCES -- Would the project:</p> | | | | |
| a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|--|--------------------------------|---|------------------------------|-------------------------------------|
| IV. BIOLOGICAL RESOURCES -- | | | | |
| Would the project: | | | | |
| c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| V. CULTURAL RESOURCES -- | | | | |
| Would the project: | | | | |
| a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d) Disturb any human remains, including those interred outside of formal cemeteries? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|--|--------------------------------|---|-------------------------------------|-------------------------------------|
| VI. GEOLOGY AND SOILS -- Would the project: | | | | |
| a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving: | | | | |
| i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42. | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| ii) Strong seismic ground shaking? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| iii) Seismic-related ground failure, including liquefaction? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| iv) Landslides? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| b) Result in substantial soil erosion or the loss of topsoil? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|--|--------------------------------|---|-------------------------------------|-------------------------------------|
| VII. HAZARDS AND HAZARDOUS MATERIALS -- Would the project: | | | | |
| a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d) Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|--|--------------------------------|---|-------------------------------------|-------------------------------------|
| VII. HAZARDS AND HAZARDOUS MATERIALS (cont.) -- Would the project: | | | | |
| h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| VIII. HYDROLOGY AND WATER QUALITY -- Would the project: | | | | |
| a) Violate any water quality standards or waste discharge requirements? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|---|--------------------------------|---|-------------------------------------|-------------------------------------|
| VIII. HYDROLOGY AND WATER QUALITY (cont.) -- Would the project: | | | | |
| f) Otherwise substantially degrade water quality? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| j) Inundation by seiche, tsunami, or mudflow? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| IX. LAND USE AND PLANNING - Would the project: | | | | |
| a) Physically divide an established community? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Conflict with any applicable habitat conservation plan or natural community conservation plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|---|--------------------------------|---|-------------------------------------|-------------------------------------|
| X. MINERAL RESOURCES -- Would the project: | | | | |
| a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| XI. NOISE – Would the project result in: | | | | |
| a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|--|--------------------------------|---|------------------------------|-----------|
|--|--------------------------------|---|------------------------------|-----------|

XII. POPULATION AND HOUSING –
Would the project:

- | | | | | |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

XIII. PUBLIC SERVICES

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

- | | | | | |
|--------------------------|--------------------------|--------------------------|-------------------------------------|-------------------------------------|
| Fire protection? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Police protection? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Schools? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Parks? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Other public facilities? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|---|--------------------------------|---|-------------------------------------|-------------------------------------|
| XIV. RECREATION -- | | | | |
| a) Would the project 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? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Does the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| XV. TRANSPORTATION/TRAFFIC -- | | | | |
| Would the project: | | | | |
| a) Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) 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? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e) Result in inadequate emergency access? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|--|--------------------------------|---|-------------------------------------|-------------------------------------|
| XV. TRANSPORTATION/TRAFFIC (cont.) -- Would the project: | | | | |
| f) Result in inadequate parking capacity? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| XVI. UTILITIES AND SERVICE SYSTEMS -- Would the project: | | | | |
| a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) 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? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e) Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|--|--------------------------------|---|-------------------------------------|-------------------------------------|
| XVI. UTILITIES AND SERVICE SYSTEMS (cont.) -- Would the project: | | | | |
| g) Comply with federal, state, and local statutes and regulations related to solid waste? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| XVII. MANDATORY FINDINGS OF SIGNIFICANCE -- | | | | |
| a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

APPENDIX E

TITLE VI POLICY STATEMENT

DEPARTMENT OF TRANSPORTATION

OFFICE OF THE DIRECTOR

1120 N STREET

P. O. BOX 942873

SACRAMENTO, CA 94273-0001

PHONE (916) 654-5266

FAX (916) 654-6608

TTY (916) 653-4086

*Flex your power!
Be energy efficient!*

August 25, 2009

**TITLE VI
POLICY STATEMENT**

The California State Department of Transportation under Title VI of the Civil Rights Act of 1964 and related statutes, ensures that no person in the State of California shall, on the grounds of race, color, national origin, sex, disability, or age, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity it administers.

A handwritten signature in blue ink that reads "Randell H. Iwasaki".

RANDELL H. IWASAKI

Director

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APPENDIX F

ENVIRONMENTAL COMMITMENTS RECORD

ENVIRONMENTAL COMMITMENTS RECORD

In order to be sure that all of the avoidance, minimization, and measures identified in this document are executed at the appropriate times, the following program would be implemented.

The program would follow a three-phase sequence: design of the project, construction, and post-construction/maintenance activities. During design and preparation of the contract plans, there would be a periodic environmental review to make sure that the mitigation measures and other commitments are incorporated into the final project plans, specifications, and cost estimates. A check would be made to determine that Caltrans has received all necessary resource agency permits and that any additional conditions as specified in the permits also are included in the contract plans.

Prior to construction, field engineers and contract staff would hold meetings with Caltrans environmental division specialist who would identify environmental commitments and explain their background and importance. A preliminary environmental monitoring plan and schedule of field reviews by environmental staff for the duration of construction would be developed. The Resident field engineer would keep a list of names of environmental specialists who have expertise for the various environmental concerns, which may arise during construction activities. The contractor's Storm Water Pollution Prevention Plan would also be reviewed periodically during construction. Environmental staff would determine if environmental obligations or commitments to other agencies would be affected or if new impacts may result to ensure that compliance with these obligations is fulfilled and would review any proposed changes to the original contract plans. Project files would be maintained by Caltrans' environmental branch to document field reviews, monitoring reports, and actions taken to address changes in the construction contract.

After construction is completed, the executed measures would be maintained. Their effectiveness will be determined through timely monitoring by Caltrans environmental and landscape specialists, and Caltrans environmental engineering coordinator. Highway maintenance personnel would check that all drainage facilities, erosion control devices, irrigation systems, and other installations related to environmental commitments function as intended. Plantings would undergo an appropriate period of maintenance to ensure establishment and plant materials will be replaced as necessary. The project environmental analyst would have a continuing coordination role during the final design and construction monitoring. A monitoring form, the Environmental Commitment Record (ECR), would be used as a checklist to track each measure or task, and to make sure that completion of all commitments during future phases of the project are completed. The proposed ECR appears on the following pages. The ECR identifies the appropriate staff and Caltrans branch responsible for making sure that each measure is completed. The columns Action Taken, Task Completed, Remarks, and Environmental Compliance are blank at this stage; these columns would be filled out in the future as each of the measures and commitments are implemented.

**ENVIRONMENTAL COMMITMENTS RECORD
I-5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION PROJECT**

Chief, Environmental Analysis
Shay Lynn Harrison
Phone: (619) 688-0190
Date: September 2010

File: 11-SD-OJ
KP: R46.1/R49.1
EA: 022330

| Task and Brief Description | Responsible Branch/Staff | Timing/Phase | Action Taken to Comply with Task | Task Completed | Remarks | Environmental Compliance |
|-----------------------------------|---|----------------------|----------------------------------|----------------|---------|--------------------------|
| DESIGN KICKOFF | Project Management/and Project Delivery | Beginning of Phase I | | | | |
| ENVIRONMENTAL PS&E REVIEW MEETING | Project Management/ Environmental | PS&E circulation | | | | |
| PRE-CONSTRUCTION MEETING | Project Management/ Resident Engineer | Contract Award | | | | |
| PRE-JOB MEETING | Project Management/ Construction | Construction | | | | |
| MID-CONSTRUCTION MEETING | Project Management/ Construction | Construction | | | | |
| DESIGN FEATURES MEMORANDUM | Project Management/ Construction | Post Construction | | | | |
| ENVIRONMENTAL COMPLIANCE REVIEW | Project Management/ Construction | Safety Review | | | | |

**ENVIRONMENTAL COMMITMENTS RECORD (cont.)
I-5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION PROJECT**

| Task and Brief Description | Responsible Branch/Staff | Timing/Phase | Action Taken to Comply with Task | Task Completed | Remarks | Environmental Compliance |
|---|--------------------------|--------------|----------------------------------|----------------|---------|--------------------------|
| TRAFFIC AND TRANSPORTATION/PEDESTRIAN AND BICYCLE FACILITIES | | | | | | |
| The Project Traffic Management Plan (TMP) would be implemented to minimize construction-related effects to traffic and transportation/ pedestrian and bicycle facilities. | | Construction | | | | |
| VISUAL/AESTHETICS | | | | | | |
| <p>A comprehensive landscape concept plan would be developed and implemented. This plan would be consistent with corridor wide design themes developed by the office of the District 11 Landscape Architect, and would include:</p> <ul style="list-style-type: none"> • Drought-tolerant and sustainable landscape palettes. • Trees planted between the freeway traveler's viewpoint and retaining walls more than 3 m (10 ft) tall, where feasible. • Vine planting sufficient to cover 90 percent of retaining walls within five years to reduce the visual impact of the walls and to act as a graffiti deterrent. • Median oleanders would be replaced where they cannot be preserved. • Slopes graded to 2:1 or flatter to sustain landscape planting and irrigation. Grading design and operations would include techniques such as slope rounding, slope sculpting, and variable gradients to mimic the appearance of natural topography. Steeper slopes may be possible if they are serrated and contain benches wide enough to accept plants from 15-gallon containers. | | Construction | | | | |

**ENVIRONMENTAL COMMITMENTS RECORD (cont.)
I-5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION PROJECT**

| Task and Brief Description | Responsible Branch/Staff | Timing/Phase | Action Taken to Comply with Task | Task Completed | Remarks | Environmental Compliance |
|--|---------------------------------|---------------------|---|-----------------------|----------------|---------------------------------|
| VISUAL/AESTHETICS (cont.) Bicycle lanes, pedestrian lighting, wider sidewalks and other urban amenities on the local street sections of structures would be consistent with local Community Plan guidelines and the corridor wide design themes. | | Construction | | | | |
| Lighting and signage attachments would occur at pilasters or be incorporated in other architectural features and be consistent with corridor-wide design themes developed by the office of the District 11 Landscape Architect. | | Construction | | | | |
| Visible sections of retaining walls would receive color and texture treatments consistent with corridor wide design themes developed by the office of the District 11 Landscape Architect. | | Construction | | | | |
| Structure design would be enhanced with architectural features consistent with corridor wide design themes developed by the office of the District 11 Landscape Architect. | | Construction | | | | |
| Retaining walls would be designed to visibly blend with graded slopes using techniques such as slope rounding, slope sculpting, and variable gradients to mimic the appearance of natural topography when feasible. | | Construction | | | | |
| Enhanced landscape plantings, including more densely spaced vines, a wider variety of vines, some with seasonal color, and more trees would be planted in front of the walls, where possible. | | Construction | | | | |

**ENVIRONMENTAL COMMITMENTS RECORD (cont.)
I-5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION PROJECT**

| Task and Brief Description | Responsible Branch/Staff | Timing/Phase | Action Taken to Comply with Task | Task Completed | Remarks | Environmental Compliance |
|---|--------------------------|--------------|----------------------------------|----------------|---------|--------------------------|
| CULTURAL RESOURCES | | | | | | |
| If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area would be diverted until a qualified archaeologist can assess the nature and significance of the find. | | Construction | | | | |
| If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities would cease in any area or nearby area suspected to overlie remains, and the County Coroner contacted. Pursuant to Public Resources Code Section 5097.98, if the remains are thought to be Native American, the coroner would notify the Native American Heritage Commission who would then notify the Most Likely Descendant (MLD). The person who discovered the remains would contact Caltrans District Senior Environmental Planner for Cultural Resources, so that they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable. | | Construction | | | | |
| HYDROLOGY AND FLOODPLAIN | | | | | | |
| Appropriate sizing and location of proposed and (where applicable) existing drainage facilities (i.e., through upgrading currently inadequate facilities) would be used. | | Construction | | | | |
| Appropriately sized energy dissipation structures would be used at all drainage outlets to reduce flow velocities prior to discharge. | | Construction | | | | |
| Project encroachment into mapped floodplains would be minimized. | | Construction | | | | |

**ENVIRONMENTAL COMMITMENTS RECORD (cont.)
I-5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION PROJECT**

| Task and Brief Description | Responsible Branch/Staff | Timing/Phase | Action Taken to Comply with Task | Task Completed | Remarks | Environmental Compliance |
|---|--------------------------|--------------|----------------------------------|----------------|---------|--------------------------|
| HYDROLOGY AND FLOODPLAIN (cont.) | | | | | | |
| Existing curb and pavement grades would be matched for proposed improvements within floodplains. | | Construction | | | | |
| WATER QUALITY AND STORMWATER RUNOFF | | | | | | |
| Existing vegetation would be preserved wherever feasible, and the installation of new impervious surfaces would be limited to the minimum amount necessary to achieve the Project objectives and conform to applicable design standards. | | Construction | | | | |
| Off-site flows from the southern watershed would be maintained at pre-construction levels through reducing the associated time of concentration (i.e., by proposed construction/upgrade of drainage facilities), the use of vegetated swales and other unlined drainage channels (which provide infiltration capacity; see below for additional discussion of the proposed swales), and a proposed minor diversion of flow from the southern to the northern watershed. | | Construction | | | | |
| Off-site flows from the northern watershed would increase by approximately five percent as a result of the Project, with this increase minimized to the maximum extent practicable (MEP) through the proposed use of unlined drainage channels and vegetated swales as noted above. Detention facilities are not proposed as part of the Project design due to space limitation and feasibility considerations. | | Construction | | | | |

**ENVIRONMENTAL COMMITMENTS RECORD (cont.)
I-5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION PROJECT**

| Task and Brief Description | Responsible Branch/Staff | Timing/Phase | Action Taken to Comply with Task | Task Completed | Remarks | Environmental Compliance |
|--|--------------------------|--------------|----------------------------------|----------------|---------|--------------------------|
| WATER QUALITY AND STORMWATER RUNOFF (cont.) | | | | | | |
| The erosive velocities of post-development runoff in all unlined channels would be evaluated during the Plans, Specifications, and Estimate (PS&E) phase of the Project to ensure that long-term erosion/sedimentation effects are minimized to the MEP. Specific measures that may be used to address this potential concern include relocation/resizing of drainage facilities, and replacing/upgrading riprap armoring and splash pads in applicable locations. | | Construction | | | | |
| All transitions from channels to culverts would be designed to encompass smooth surfaces to reduce turbulence and scour. | | Construction | | | | |
| All drainage outlets would include energy dissipation structures, such as riprap aprons or concrete pads, to reduce flow velocities and associated erosion potential. | | Construction | | | | |
| Applicable slopes would include flow and erosion control measures such as brow ditches, slope drains and appropriate landscaping (e.g., native and/or drought-tolerant varieties). | | Construction | | | | |
| Fifteen vegetated swales (bioswales) encompassing approximately 0.73 ha (1.80 ac) would be installed at the Project site to treat flows from approximately 12.4 ha (30.6 ac; including 4.75 ha [1.74 ac] of new impervious area). | | Construction | | | | |

**ENVIRONMENTAL COMMITMENTS RECORD (cont.)
I-5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION PROJECT**

| Task and Brief Description | Responsible Branch/Staff | Timing/Phase | Action Taken to Comply with Task | Task Completed | Remarks | Environmental Compliance |
|---|---------------------------------|---------------------|---|-----------------------|----------------|---------------------------------|
| WATER QUALITY AND STORMWATER RUNOFF (cont.) | | | | | | |
| The proposed swales would be subject to applicable maintenance requirements, pursuant to Section C.23 of the Caltrans Storm Water Quality Handbook Maintenance Staff Guide, including but not limited to biannual inspections for vegetation management (e.g., removal of woody or excess vegetation), trash and debris removal, erosion/ sedimentation remediation, and removal of ponded water or other vectors problems. | | Post-Construction | | | | |
| Stenciling would be used on storm drain inlets along local surface streets to assist in educating the public about storm water runoff pollution. (i.e., "no dumping" text and/or icons to discourage the illegal discharge of contaminants into the storm drain system). | | Construction | | | | |
| Maintenance BMPs including vegetation/irrigation management (e.g., weed control, plant replacement, runoff prevention, and inspection/maintenance), slope stabilization inspection and repair (e.g., drainage facility repair), regular inspection/maintenance of drainage facilities (e.g., sediment removal), and street sweeping would be performed. | | Construction | | | | |
| Grading would be in compliance with seasonal restrictions during the rainy season (October 1 to April 30) for applicable locations/conditions. Disturbed soil areas would be limited during the rainy season to ensure BMP implementation and limit potential for discharges. | | Construction | | | | |

**ENVIRONMENTAL COMMITMENTS RECORD (cont.)
I-5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION PROJECT**

| Task and Brief Description | Responsible Branch/Staff | Timing/Phase | Action Taken to Comply with Task | Task Completed | Remarks | Environmental Compliance |
|--|---------------------------------|---------------------|---|-----------------------|----------------|---------------------------------|
| WATER QUALITY AND STORMWATER RUNOFF (cont.) | | | | | | |
| Phased grading schedules would be used to limit the area subject to erosion at any given time. | | Construction | | | | |
| Existing vegetation and slopes would be preserved wherever feasible. | | Construction | | | | |
| Work and associated construction-related impacts in live streams and environmentally sensitive areas would be minimized. | | Construction | | | | |
| Impacts and erosion potential on slopes would be minimized through measures such as using retaining walls; rounding and shaping slopes to reduce concentrated flows; reusing native soils and/or soil amendments to enhance revegetation success and slope stability; minimizing slope grades to foster revegetation; and using benches, terraces and/or slope drains to control runoff. | | Construction | | | | |
| Permanent BMPs would be installed as early as feasible to provide additional protection during construction. | | Construction | | | | |
| Erosion control/ stabilizing measures such as temporary fiber rolls and temporary hydroseding (or other plantings) would be used in appropriate areas (e.g., along slope faces/bottoms). | | Construction | | | | |

**ENVIRONMENTAL COMMITMENTS RECORD (cont.)
I-5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION PROJECT**

| Task and Brief Description | Responsible Branch/Staff | Timing/Phase | Action Taken to Comply with Task | Task Completed | Remarks | Environmental Compliance |
|---|---------------------------------|---------------------|---|-----------------------|----------------|---------------------------------|
| WATER QUALITY AND STORMWATER RUNOFF (cont.) | | | | | | |
| Sediment controls would be implemented to protect the construction site perimeter and prevent off-site sediment transport. Implement other BMPs, such as temporary drainage inlet protection, silt fences, temporary fiber rolls, temporary gravel bags, street sweeping/vacuuming, energy dissipators, temporary construction entrance, protect sediment stockpiles, and temporary concrete washouts. | | Construction | | | | |
| Sampling/analysis and monitoring/reporting programs would be implemented per applicable requirements in the National Pollutant Discharge Elimination System (NPDES) General Construction Permit, Caltrans Statewide NPDES Permit, and Section 8.4.1 of the Caltrans Statewide Stormwater Management Plan (SWMP, Caltrans 2003a). Specifically, the SWMP includes protocols for inspection, reporting and remediation of potential construction-related water quality concerns, including erosion and sedimentation. | | Construction | | | | |
| Appropriate training would be provided for personnel responsible for BMP installation and maintenance. | | Construction | | | | |
| Project construction would be in compliance with local dust control requirements. | | Construction | | | | |
| Permanent landscaping would be installed as soon as feasible during or after construction. | | Construction | | | | |
| Additional BMPs would be implemented as necessary to ensure adequate erosion and sediment control. | | Construction | | | | |

**ENVIRONMENTAL COMMITMENTS RECORD (cont.)
I-5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION PROJECT**

| Task and Brief Description | Responsible Branch/Staff | Timing/Phase | Action Taken to Comply with Task | Task Completed | Remarks | Environmental Compliance |
|---|---------------------------------|---------------------|---|-----------------------|----------------|---------------------------------|
| WATER QUALITY AND STORMWATER RUNOFF (cont.) | | | | | | |
| Grading operations would be restricted during wet weather and use sediment control devices downstream of grading activities. | | Construction | | | | |
| Properly spaced, labeled and sealed containers; raised (e.g., on pallets), covered, and/or enclosed facilities; and appropriate containment structures would be used for all hazardous materials storage (including temporary storage). | | Construction | | | | |
| Adequate separation for storage of incompatible materials (e.g., chlorine and ammonia) would be provided. | | Construction | | | | |
| Accurate and up-to-date written inventories and labels would be maintained for all stored hazardous materials. | | Construction | | | | |
| Specific hazardous material storage, vehicle/equipment maintenance, and vehicle/equipment fueling areas would be designated; berms, ditches, and/or impervious liners (or other applicable methods) would be used to provide a containment volume of 1.5 times the volume of stored/used materials and prevent discharge in the event of a spill in such areas. | | Construction | | | | |
| Storage of hazardous materials near drains would be avoided, and warning signs would be placed in areas of hazardous material use or storage and along drainages and storm drains (or other appropriate locations) to avoid inadvertent hazardous material disposal. | | Construction | | | | |
| All construction equipment and vehicles would be properly maintained. | | Construction | | | | |

**ENVIRONMENTAL COMMITMENTS RECORD (cont.)
I-5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION PROJECT**

| Task and Brief Description | Responsible Branch/Staff | Timing/Phase | Action Taken to Comply with Task | Task Completed | Remarks | Environmental Compliance |
|---|---------------------------------|---------------------|---|-----------------------|----------------|---------------------------------|
| WATER QUALITY AND STORMWATER RUNOFF (cont.) | | | | | | |
| Solid waste management efforts such as proper containment and disposal of construction debris (e.g., use of watertight dumpsters and daily trash collection/removal) and street sweeping would be implemented. | | Construction | | | | |
| Training for applicable employees in the proper use, handling, and disposal of hazardous materials, as well as appropriate action to take in the event of a spill, would be provided. | | Construction | | | | |
| Absorbent and clean-up materials would be stored in appropriate on-site locations where they are readily accessible. | | Construction | | | | |
| Portable wastewater facilities would be properly located and maintained. | | Construction | | | | |
| Recycled or less hazardous materials would be used wherever feasible. | | Construction | | | | |
| Regulatory agency telephone numbers and a summary guide of clean-up procedures would be posted in a conspicuous location at or near the job site trailer. | | Construction | | | | |
| Hazardous material use/ storage facilities and operations would be regularly (at least weekly) monitored and maintained to ensure proper working order. | | Construction | | | | |
| A Storm Water Sampling and Analysis Strategy program would be implemented pursuant to Caltrans and NPDES requirements. Specifically, this would include applicable requirements in the NPDES General Construction Permit, Caltrans Statewide NPDES Permit, Section 8.4.1 of the Caltrans Statewide SWMP, and the Caltrans Construction Site Storm Water Quality Sampling Guidance manual. | | Construction | | | | |

**ENVIRONMENTAL COMMITMENTS RECORD (cont.)
I-5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION PROJECT**

| Task and Brief Description | Responsible Branch/Staff | Timing/Phase | Action Taken to Comply with Task | Task Completed | Remarks | Environmental Compliance |
|---|---------------------------------|---------------------|---|-----------------------|----------------|---------------------------------|
| GEOLOGY/SOILS | | | | | | |
| Recommendations from the Project geotechnical analysis such as design criteria, construction methodologies, field observations/testing, and site-specific geotechnical analysis would be implemented. | | Construction | | | | |
| The Project would be in conformance with applicable regulatory requirements and industry standards. Such conformance would include appropriate Caltrans, NPDES, and City of San Diego requirements, as well as industry standards from sources including the UBC, Greenbook, and ASTM. | | Construction | | | | |
| PALEONTOLOGY | | | | | | |
| A qualified principal paleontologist (M.S. or Ph.D. in paleontology or geology familiar with paleontological procedures and techniques) would be retained to be present at pre-grading meetings to consult with grading and excavation contractors. | | Construction | | | | |
| A paleontological monitor, under the direction of the qualified principal paleontologist, would be on site to inspect cuts for fossils at all times during original grading involving sensitive geologic formations. As grading progresses, the qualified paleontologist and paleontological monitor would have the authority to reduce the scope of the monitoring program to an appropriate level if it is determined that the potential for impacts to paleontological resources are lower than anticipated. | | Construction | | | | |

**ENVIRONMENTAL COMMITMENTS RECORD (cont.)
I-5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION PROJECT**

| Task and Brief Description | Responsible Branch/Staff | Timing/Phase | Action Taken to Comply with Task | Task Completed | Remarks | Environmental Compliance |
|--|--------------------------|--------------|----------------------------------|----------------|---------|--------------------------|
| PALEONTOLOGY (cont.) | | | | | | |
| When fossils are discovered, the paleontologist (or paleontological monitor) would recover them. Construction work in these areas would be halted or diverted to allow recovery of fossil remains in a timely manner. | | Construction | | | | |
| During the monitoring and recovery phases, the paleontologist (or paleontological monitor) would routinely collect stratigraphic data to provide a stratigraphic context for any recovered fossils. | | Construction | | | | |
| Fossil remains collected during the monitoring and salvage portion of the mitigation program would be cleaned, repaired, sorted and cataloged. | | Construction | | | | |
| Prepared fossils, along with copies of all pertinent field notes, photos and maps, would then be deposited in a scientific institution with paleontological collections. | | Construction | | | | |
| A final report would be completed that outlines the results of the mitigation program. | | Construction | | | | |
| HAZARDOUS WASTE/MATERIALS | | | | | | |
| Contract specifications would include a line item for loading, transportation, and disposal of any contaminated soil and/or groundwater generated/encountered during Project construction. | | Construction | | | | |
| Bridge railing gaskets and any other materials found during construction containing asbestos-containing materials shall be handled using proper Health and Safety precautions, and the materials shall be properly disposed as hazardous waste according to federal, state, and local regulations. | | Construction | | | | |

**ENVIRONMENTAL COMMITMENTS RECORD (cont.)
I-5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION PROJECT**

| Task and Brief Description | Responsible Branch/Staff | Timing/Phase | Action Taken to Comply with Task | Task Completed | Remarks | Environmental Compliance |
|--|--------------------------|--------------|----------------------------------|----------------|---------|--------------------------|
| HAZARDOUS WASTE/MATERIALS (cont.) Asbestos-containing materials would be removed by a licensed asbestos abatement contractor. The certified asbestos consultant also would conduct abatement project planning, monitoring (including air monitoring), oversight, and reporting. Yellow paint striping on the Genesee Avenue overcrossing and portions of the roadway contain lead-based paint. If yellow paint striping or yellow thermoplastic paint stripe of pavement marking is removed by itself, it shall be contained and collected immediately so that it is not emitted into ambient air and shall be disposed of at a Class I Landfill facility. A licensed abatement contractor would remove lead-based paint under the oversight of a qualified contractor prior to removal and demolition of the painted materials. Treated wood waste must be managed as a non-hazardous designated waste by being disposed of at a landfill facility permitted to accept such wastes. | | Construction | | | | |
| | | Construction | | | | |
| | | Construction | | | | |

**ENVIRONMENTAL COMMITMENTS RECORD (cont.)
I-5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION PROJECT**

| Task and Brief Description | Responsible Branch/Staff | Timing/Phase | Action Taken to Comply with Task | Task Completed | Remarks | Environmental Compliance |
|---|--------------------------|--------------|----------------------------------|----------------|---------|--------------------------|
| <p>HAZARDOUS WASTE/MATERIALS (cont.) Because of the potential hazard from exposure of workers and the public to lead-contaminated soil and other potential hazards, a Certified Industrial Hygienist would prepare a site-specific Lead, Asbestos, and Treated Wood Compliance Plan prior to grading. In addition, site workers who may be potentially exposed to chemical hazards during the Project would have completed a training program meeting the requirements of 29 CFR 1910.120 and 8 CFR 1532.1 The plans developed by the Certified Industrial Hygienist would include a hazard analysis, and would describe dust-control measures, air monitoring, signage, work practices, emergency response plans, personal protective equipment, decontamination, and documentation.</p> | | Construction | | | | |
| <p>AIR QUALITY Water or dust palliative would be applied to exposed soil surfaces at the Project site as frequently as necessary to control fugitive dust emissions. Soil binder would be spread on any unpaved roads used for construction purposes, and all construction parking areas. Trucks would be washed off as they leave the Project site as necessary to control fugitive dust emissions. Track-out reduction measures such as gravel pads would be used at access points to minimize dust and mud deposits on roads affected by construction traffic.</p> | | Construction | | | | |
| | | Construction | | | | |
| | | Construction | | | | |
| | | Construction | | | | |
| | | Construction | | | | |

**ENVIRONMENTAL COMMITMENTS RECORD (cont.)
I-5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION PROJECT**

| Task and Brief Description | Responsible Branch/Staff | Timing/Phase | Action Taken to Comply with Task | Task Completed | Remarks | Environmental Compliance |
|--|--------------------------|--------------|----------------------------------|----------------|---------|--------------------------|
| AIR QUALITY (cont.) | | | | | | |
| Dust and mud that are deposited on paved, public roads due to construction activity and traffic would be removed to decrease particulate matter. | | Construction | | | | |
| Transported loads of soils and wet materials would be covered prior to transport, or adequate freeboard (space from the top of the material to the top of the truck) would be provided to reduce PM ₁₀ and deposition of particulate matter during transportation. | | Construction | | | | |
| Mulch or plant vegetation would be installed as soon as practical after grading to reduce windblown particulate in the area. | | Construction | | | | |
| Construction equipment and vehicles would be properly tuned and maintained. Low sulfur fuel would be used in all construction equipment as provided in California Code of Regulations Title 17, Section 93114. | | Construction | | | | |
| Equipment and materials storage areas would be located as far away from residential and park uses as practical. | | Construction | | | | |
| NOISE | | | | | | |
| The Project would be in compliance with Caltrans' Standard Specifications 7-1.011 (2006) Sound Control Requirements. "The contractor would comply with all local sound control and noise level rules, regulations and ordinances which apply to any work performed pursuant to the contract. Each internal combustion engine, used for any purpose on the job or related to the job, would be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine would be operated on the project without said muffler." | | Construction | | | | |

**ENVIRONMENTAL COMMITMENTS RECORD (cont.)
I-5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION PROJECT**

| Task and Brief Description | Responsible Branch/Staff | Timing/Phase | Action Taken to Comply with Task | Task Completed | Remarks | Environmental Compliance |
|---|--------------------------|--------------|----------------------------------|----------------|---------|--------------------------|
| NOISE (cont.) | | | | | | |
| Idling equipment would be turned off. | | Construction | | | | |
| A noise-control monitoring program would be implemented to limit the impacts. | | Construction | | | | |
| Noisier operations would be performed during the times least sensitive to receptors. | | Construction | | | | |
| NATURAL COMMUNITIES | | | | | | |
| Caltrans would temporarily fence (with orange plastic snow fence) the limits of Project impacts (including construction staging areas and access routes) to prevent additional habitat impacts. Fencing would be installed in a manner that does not impact habitats to be avoided and such that it is clearly visible to personnel on foot and operating heavy equipment and would be maintained throughout the construction period to preclude human entry into the Multi-Habitat Planning Area (MHPA). Fencing would be installed in a manner that does not impact avoided habitats. No construction activities, materials, or equipment would be permitted outside the fenced Project footprint. Caltrans would submit to the CFWO for approval, at least five days prior to initiating project impacts (except for impacts resulting from clearing to install temporary fencing), the final plans for initial clearing and grubbing of habitat and Project construction. These final plans would include photographs that show the fenced limits of impact and all areas to be impacted or avoided. If work occurs beyond the fenced or demarcated limits of impact, all work would cease until the problem has been remedied to the satisfaction of the CFWO. Any impacts | | Construction | | | | |

**ENVIRONMENTAL COMMITMENTS RECORD (cont.)
I-5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION PROJECT**

| Task and Brief Description | Responsible Branch/Staff | Timing/Phase | Action Taken to Comply with Task | Task Completed | Remarks | Environmental Compliance |
|---|--------------------------|------------------------------------|----------------------------------|----------------|---------|--------------------------|
| <p>NATURAL COMMUNITIES (cont.) that occur beyond the approved fenced area would be offset in consultation with the CFWO. Temporary construction fencing would be removed upon project completion. Caltrans would ensure that the following conditions would be implemented during project construction. a. Contractors and construction personnel would strictly limit their activities, vehicles, equipment, and construction materials to the fenced Project footprint; b. The Project site would be kept as clean of debris as possible. All food-related trash items would be enclosed in sealed containers and regularly removed from the site; c. Pets of Project personnel would not be allowed on the Project site; d. All equipment maintenance, staging, and dispensing of fuel, oil, coolant, or any other such activities would occur within the fenced project impacts limits. The changing of oil, refueling, and other actions that could result in a release of a hazardous substance would be restricted to designated areas that are a minimum of 30.5 m (100 ft) from any drainages. Such designated areas would be surrounded with berms, sandbags, or other barriers to further prevent the accidental spill of fuel, oil, or chemicals. Any accidental spills would be immediately contained, cleaned up, and properly disposed;</p> | | <p align="center">Construction</p> | | | | |

**ENVIRONMENTAL COMMITMENTS RECORD (cont.)
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| Task and Brief Description | Responsible Branch/Staff | Timing/Phase | Action Taken to Comply with Task | Task Completed | Remarks | Environmental Compliance |
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| <p>NATURAL COMMUNITIES (cont.)</p> <p>e. Impacts from fugitive dust would be avoided and minimized through watering and other appropriate measures; and</p> <p>f. Cut and fill would be balanced within the project or the construction contractor would identify the source or disposal location. All spoils and material disposal would be disposed of properly.</p> | | Construction | | | | |
| <p>Both permanent impact areas that are not paved (i.e., cut and fill slopes) and temporary impact areas would be temporarily revegetated with native species after construction. Diegan coastal sage scrub and coyote brush scrub areas would be restored by hydroseeding with a Diegan coastal sage scrub plant palette. Non-native grassland would be restored by hydroseeding with a native grassland and forb palette. This revegetation would be considered temporary for at least 10 years after Project construction until future widening of I-5 is completed, at which time the final I-5 fill slopes and temporary impact areas would be permanently revegetated with native species. Revegetation with native species as described above would be completed by Caltrans with the understanding that no further off site measures would be required to offset impacts within these areas resulting from future I-5 widening. However, after each future construction project, the I-5 fill slope and temporary impact areas would be revegetated with native species.</p> | | Post-Construction | | | | |

**ENVIRONMENTAL COMMITMENTS RECORD (cont.)
I-5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION PROJECT**

| Task and Brief Description | Responsible Branch/Staff | Timing/Phase | Action Taken to Comply with Task | Task Completed | Remarks | Environmental Compliance |
|--|--------------------------|--|----------------------------------|----------------|---------|--------------------------|
| <p>NATURAL COMMUNITIES (cont.) Caltrans would prepare a restoration plan for the temporary impact areas and cut and fill slopes northwest of the I-5/Genesee Interchange. The plan would be submitted to the Carlsbad Fish and Wildlife Office (CFWO) for review and approval at least 60 days prior to initiating Project impacts. This plan would include the following conditions and information:</p> <ul style="list-style-type: none"> a. A detailed description of restoration methods, slope stabilization, and erosion control, criteria for restoration to be considered successful, and monitoring protocol(s). Following the completion of construction activities, the restoration plan would be implemented for a minimum of five years, unless success criteria are met earlier and all artificial water has been off for at least two years; b. Revegetated areas would have temporary irrigation and would be planted with native container plants and seeds selected by a biologist. The revegetated areas would also be maintained to control invasive weeds until success criteria have been met. c. Special care would be taken during transport, use, and disposal of soils containing invasive weed seeds to ensure that invasive weeds are not spread into new areas by the Project. All heavy equipment would be washed and cleaned of debris prior to entering a new area to minimize the spread of invasive weeds; | | <p align="center">Pre-Construction</p> | | | | |

**ENVIRONMENTAL COMMITMENTS RECORD (cont.)
I-5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION PROJECT**

| Task and Brief Description | Responsible Branch/Staff | Timing/Phase | Action Taken to Comply with Task | Task Completed | Remarks | Environmental Compliance |
|---|--------------------------|------------------|----------------------------------|----------------|---------|--------------------------|
| <p>NATURAL COMMUNITIES (cont.)</p> <p>d. Duff from areas with coastal sage scrub and chaparral would be saved to aid in revegetating slopes with native species;</p> <p>e. Rare plants would be salvaged where practicable for use in revegetation efforts;</p> <p>f. Landscaping should not use plants that require intensive irrigation, fertilizers, or pesticides adjacent to preserve areas, and water runoff from landscaped areas should be directed away from adjacent native habitats and contained and/or treated within the development footprint;</p> <p>g. A list of species to be included in the landscaping; and</p> <p>h. Any planting stock to be brought onto the Project site for landscape or habitat creation/restoration/enhancement would be first inspected by a qualified pest inspector to ensure it is free of pest species that could invade natural areas, including but not limited to, Argentine ants (<i>Iridomyrmex humil</i>), fire ants (<i>Solenopsis invicta</i>), and other insect pests. Any planting stock found to be infested with such pests would not be allowed on the Project site or within 300 ft (91.4 m) of natural habitats unless documentation is provided to the CFWO that these pests already occur in natural areas around the project site. The stock would be quarantined, treated, or disposed of according to best management principles by qualified experts in a manner that precludes invasions into natural habitats.</p> | | Pre-Construction | | | | |

**ENVIRONMENTAL COMMITMENTS RECORD (cont.)
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| Task and Brief Description | Responsible Branch/Staff | Timing/Phase | Action Taken to Comply with Task | Task Completed | Remarks | Environmental Compliance |
|--|--------------------------|--------------|----------------------------------|----------------|---------|--------------------------|
| NATURAL COMMUNITIES (cont.) | | | | | | |
| Mitigation for temporary impacts to 0.4 ha (1.1 ac) of Diegan coastal sage scrub (including disturbed) would include (1) temporary revegetation on site by hydroseeding with a Diegan coastal sage scrub plant palette and (2) off-site creation of Diegan coastal sage scrub (at a 2:1 ratio). The slopes would be temporarily revegetated until the proposed I-5 North Coast Corridor project is implemented, at which time the final slopes would be permanently revegetated. | | Construction | | | | |
| Mitigation for permanent impacts to 1.9 ha (4.7 ac) of Diegan coastal sage scrub (including disturbed) is proposed at a 2:1 ratio with off-site creation of Diegan coastal sage scrub at the Pardee (Deer Canyon) Mitigation Parcel. | | Construction | | | | |
| Mitigation for temporary impacts to 0.1 ha (0.2 ac) of coyote brush scrub would include off-site creation of Diegan coastal sage scrub (at a 2:1 ratio) and temporary revegetation on site (at a 1:1 ratio) by hydroseeding with a Diegan coastal sage scrub plant palette. The slopes would be temporarily revegetated until the proposed I-5 North Coast Corridor project is implemented, at which time the final slopes would be permanently revegetated. | | Construction | | | | |
| Mitigation for permanent impacts to 0.3 ha (0.7 ac) of coyote brush scrub is proposed at a 2:1 ratio with off-site creation of Diegan coastal sage scrub at the Pardee (Deer Canyon) Mitigation Parcel. | | Construction | | | | |
| Temporary impact areas of non-native grassland would be hydroseeded with a native grassland and forb palette for erosion control measures. | | Construction | | | | |

**ENVIRONMENTAL COMMITMENTS RECORD (cont.)
I-5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION PROJECT**

| Task and Brief Description | Responsible Branch/Staff | Timing/Phase | Action Taken to Comply with Task | Task Completed | Remarks | Environmental Compliance |
|--|--------------------------|------------------|----------------------------------|----------------|---------|--------------------------|
| <p>NATURAL COMMUNITIES (cont.)</p> <p>restoration/creation site grading. All planting would be installed in a way that mimics natural plant distribution, and not in rows;</p> <p>b. Planting palettes (plant species, size, and number/acre) and seed mix (plant species and pounds/acre). The plant palette proposed in the draft plans would include native species specifically associated with the habitat type(s). Unless otherwise approved by the CFWO, only locally native species (no cultivars) obtained from San Diego County would be used;</p> <p>c. Container plant survival would be a minimum of 80 percent of the initial plantings for the first five years. If survival is less than 80 percent, the reason for poor plant survival would be evaluated in coordination with the CFWO. At the first and second anniversary of plant installation, all dead plants would be replaced unless their function has been replaced by natural recruitment;</p> <p>d. A final implementation schedule that indicates when all habitat impacts, as well as creation/restoration/enhancement grading, planting, and irrigation would begin and end. Habitat creation/restoration/enhancement grading, planting, and irrigation would be completed during the concurrent or next planting season (i.e., late fall to early spring, or later in irrigated areas) after finishing grading within the creation/restoration/enhancement area. Any</p> | | Pre-Construction | | | | |

**ENVIRONMENTAL COMMITMENTS RECORD (cont.)
I-5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION PROJECT**

| Task and Brief Description | Responsible Branch/Staff | Timing/Phase | Action Taken to Comply with Task | Task Completed | Remarks | Environmental Compliance |
|--|--------------------------|------------------|----------------------------------|----------------|---------|--------------------------|
| <p>NATURAL COMMUNITIES (cont.)</p> <p>temporal loss of habitat caused by delays in creation/restoration/enhancement would be offset through habitat preservation/creation/restoration/enhancement as determined in coordination with the CFWO, unless the delays were caused by unforeseeable circumstances or were beyond the reasonable control of the Project proponent; e. Five years of success criteria for wetland and upland restoration/enhancement areas including: separate percent cover criteria for herbaceous understory, shrub midstory, and tree overstory for wetland creation; a total of 75 to 100 percent absolute cover for wetland and 40 to 65 percent absolute cover for upland; evidence of natural recruitment of multiple species for all habitat types; 0 percent coverage for Cal-IPC List A and B species, and no more than 10 percent coverage for other exotic/weed species; f. A minimum five years of maintenance and monitoring of restoration/enhancement areas, unless success criteria are met earlier and all artificial water has been off for at least two years. Monitoring would include protocol surveys for coastal gnatcatcher and vireo; g. A qualitative and quantitative vegetation monitoring plan with a map of proposed sampling locations. Photo points would be used for qualitative monitoring and stratified-random sampling would be used for all quantitative;</p> | | Pre-Construction | | | | |

**ENVIRONMENTAL COMMITMENTS RECORD (cont.)
I-5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION PROJECT**

| Task and Brief Description | Responsible Branch/Staff | Timing/Phase | Action Taken to Comply with Task | Task Completed | Remarks | Environmental Compliance |
|--|--------------------------|--|----------------------------------|----------------|---------|--------------------------|
| <p>NATURAL COMMUNITIES (cont.)</p> <p>h. Contingency measures in the event of restoration/enhancement failure;</p> <p>i. Annual mitigation maintenance and monitoring reports would be submitted to the CFWO after the maintenance and monitoring period and no later than January 1 of each year;</p> <p>j. If maintenance of a wetland the restoration/enhancement area potentially occupied by vireos is necessary between March 15 and September 15, a qualified biologist would survey for vireos within the creation/restoration/enhancement area, access paths to it, and other areas susceptible to disturbances by creation/restoration/enhancement site maintenance. Surveys would consist of three visits separated by two weeks starting April 10 of each maintenance/monitoring year. Restoration work would be allowed to continue on the site during the survey period. However, if vireos are found during any of the visits, the Project proponent would notify and coordinate with the CFWO to identify measures to avoid and/or minimize effects to the vireo (e.g., nests and an appropriate buffer would be flagged by the biologist and avoided by the maintenance work); and</p> | | <p align="center">Pre-Construction</p> | | | | |

**ENVIRONMENTAL COMMITMENTS RECORD (cont.)
I-5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION PROJECT**

| Task and Brief Description | Responsible Branch/Staff | Timing/Phase | Action Taken to Comply with Task | Task Completed | Remarks | Environmental Compliance |
|---|--------------------------|------------------|----------------------------------|----------------|---------|--------------------------|
| <p>NATURAL COMMUNITIES (cont.) k. If maintenance of a coastal sage scrub creation/restoration/enhancement area is necessary between February 15 and August 31, a biologist would survey for gnatcatchers within the creation/restoration/enhancement area, access paths to it, and other areas susceptible to disturbances by site maintenance. Surveys would consist of three visits separated by two weeks starting March 1 of each maintenance/monitoring year. Work would be allowed to continue on the site during the survey period. However, if gnatcatchers are found during any of the visits, the Project proponent would notify and coordinate with the CFWO to identify measures to avoid and/or minimize effects to the gnatcatcher (e.g., nests and an appropriate buffer would be flagged by the biologist and avoided by the maintenance work).</p> | | Pre-Construction | | | | |
| <p>Existing vegetation on the Deer Canyon property would be cleared between September 16 and March 14 to avoid the vireo nesting season.</p> | | Construction | | | | |
| <p>If grading of the Deer Canyon property cannot be completed prior to the breeding season of the vireo, monitoring for the vireo and noise levels within the habitat adjacent to the Pardee site would be completed. If noise levels are above 60 dBA, a plywood wall would be constructed between the vireo habitat and grading activities to reduce the noise to below 60 dBA within the habitat.</p> | | Construction | | | | |

**ENVIRONMENTAL COMMITMENTS RECORD (cont.)
I-5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION PROJECT**

| Task and Brief Description | Responsible Branch/Staff | Timing/Phase | Action Taken to Comply with Task | Task Completed | Remarks | Environmental Compliance |
|---|--------------------------|--|----------------------------------|----------------|---------|--------------------------|
| <p>NATURAL COMMUNITIES (cont.) A perpetual biological conservation easement or other conservation mechanism acceptable to USFWS would be recorded over the areas preserved, restored, and/or enhanced by the Project at the Deer Canyon Property. The conservation mechanism would specify that no easements or activities (e.g., fuel modification zones, public trails, drainage facilities, walls, maintenance access roads) that would result in soil disturbance and/or vegetation removal would be allowed within the biological conservation easement areas. Caltrans anticipates that they would not be able to place the conservation easement or other conservation mechanism for the Deer Canyon property prior to initiating Project impacts; however, annual reports would be provided on its status until the conservation mechanism has been placed.</p> | | <p align="center">Construction</p> | | | | |
| <p>Caltrans would prepare a perpetual long-term management, maintenance, and monitoring plan (e.g., Habitat Management Plan [HMP]) for the Deer Canyon property. The HMP would include, but not be limited to, the following: method of protecting the resources in perpetuity (e.g., conservation easement), monitoring schedule, measures to prevent human and exotic species encroachment, funding mechanism, and contingency measures should problems occur. The City of San Diego has agreed to own and manage the Deer Canyon property with a management endowment that would be paid by Caltrans, in accordance with the requirements of the TransNet Memorandum of Agreement. Caltrans would establish a non-wasting endowment in an amount approved by USFWS</p> | | <p align="center">Pre-Construction</p> | | | | |

**ENVIRONMENTAL COMMITMENTS RECORD (cont.)
I-5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION PROJECT**

| Task and Brief Description | Responsible Branch/Staff | Timing/Phase | Action Taken to Comply with Task | Task Completed | Remarks | Environmental Compliance |
|---|--------------------------|------------------|----------------------------------|----------------|---------|--------------------------|
| <p>NATURAL COMMUNITIES (cont.) based on a Property Analysis Record (PAR: Center for Natural Lands Management ©1998) or similar cost estimation method to secure the ongoing funding for the perpetual long-term management, maintenance, and monitoring of the biological conservation easement area by an entity approved by USFWS. Caltrans would submit a draft HMP including a description of perpetual management, maintenance, and monitoring actions and the PAR or other cost estimation results for the non-wasting endowment to USFWS for approval. Caltrans would submit the final HMP to USFWS and transfer the funds for the non-wasting endowments to the appropriate management entities. Caltrans anticipates that they would not be able to prepare the HMP and transfer the funds for the non-wasting endowment prior to initiating Project impacts; however, annual reports would be provided on their status until the final HMP has been provided and the endowment funds have been transferred.</p> | | Pre-Construction | | | | |
| <p>Fugitive dust would be minimized through the application of water or chemical palliatives to activate construction areas and unpaved surfaces.</p> | | Construction | | | | |
| <p>Multiple Species Conservation Program (MSCP) areas of temporary impacts would be hydroseeded with a Diegan coastal sage scrub or native grassland and forb plant palette for temporary revegetation and would contain only native species.</p> | | Construction | | | | |
| <p>Invasive plant species would not be used in project landscaping.</p> | | Construction | | | | |

**ENVIRONMENTAL COMMITMENTS RECORD (cont.)
I-5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION PROJECT**

| Task and Brief Description | Responsible Branch/Staff | Timing/Phase | Action Taken to Comply with Task | Task Completed | Remarks | Environmental Compliance |
|--|--------------------------|--|----------------------------------|----------------|---------|--------------------------|
| <p>NATURAL COMMUNITIES (cont.) Site design BMPs would be used to control construction and post-development runoff, erosion potential, and contaminant generation. Construction-related BMPs would include:</p> <ul style="list-style-type: none"> • Installing erosion and sediment control devices such as silt fences, fiber rolls, bonded fiber matrix, mulching, and gravel bags in appropriate locations. • Placing temporary filters at storm drain inlets (e.g., gravel bags/filter fabric). • Stabilizing construction entrances. • Designating containment areas for material storage (e.g., covering/berming of soil stockpiles). • Providing containment areas for solid waste storage and concrete washout. • Using energy dissipators in appropriate locations. | | <p align="center">Construction and Post-Construction</p> | | | | |
| <p>Proposed post-construction BMPs would include the use of appropriate devices/techniques such as landscaping/revegetation, and vegetated swales/grass strips. Energy dissipators would reduce the velocity and downstream erosion potential of runoff leaving the Project area and would help maintain pre-development velocity rates. All site design BMPs would reduce long-term urban contaminant generation by minimizing runoff volumes and velocities, removing accumulated contaminants, and increasing infiltration.</p> | | <p align="center">Post-Construction</p> | | | | |

**ENVIRONMENTAL COMMITMENTS RECORD (cont.)
I-5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION PROJECT**

| Task and Brief Description | Responsible Branch/Staff | Timing/Phase | Action Taken to Comply with Task | Task Completed | Remarks | Environmental Compliance |
|--|--------------------------|------------------------------------|----------------------------------|----------------|---------|--------------------------|
| <p>NATURAL COMMUNITIES (cont.) Bioswales would be planted with appropriate species. Slopes adjacent to developed urban areas would be vegetated with native and drought tolerant non-invasive species selected by the landscape architect in coordination with the biologist and others. Interchanges located in urban areas would be landscaped with native or ornamental non-invasive species. Drainage from the construction area and new and proposed developed areas in and adjacent to the preserve would not drain directly into the MHPA. Topography of the site is such that MHPA lands directly adjacent to the Project are at a higher elevation. The Project would use biofiltration to treat road runoff prior to discharge into receiving water bodies. The use of structural and non-structural Best Management Practices and the restriction of grading and paving activity during significant rain events would reduce potential impacts associated with construction. The Project design would comply with the Caltrans Municipal Stormwater Permit criteria of the State Water Resources Control Board and the Clean Water Act Section 401 Water Quality Certification issued by the Regional Water Quality Control Board for the Project. Erosion and sediment control devices used for the proposed Project, including fiber rolls and bonded fiber matrix, would be made from biodegradable materials such as jute, with no plastic mesh, to avoid creating a wildlife entanglement hazard.</p> | | <p align="center">Construction</p> | | | | |

**ENVIRONMENTAL COMMITMENTS RECORD (cont.)
I-5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION PROJECT**

| Task and Brief Description | Responsible Branch/Staff | Timing/Phase | Action Taken to Comply with Task | Task Completed | Remarks | Environmental Compliance |
|--|--------------------------|-------------------|----------------------------------|----------------|---------|--------------------------|
| NATURAL COMMUNITIES (cont.) | | | | | | |
| Energy dissipaters would be used to reduce the velocity and downstream erosion potential of runoff leaving the Project area and would help maintain pre-development velocity rates. | | Post-Construction | | | | |
| WETLANDS AND OTHER WATERS | | | | | | |
| Environmentally sensitive areas, including jurisdictional areas and the freshwater marsh (including disturbed), southern willow scrub (including disturbed), open water, and emergent wetland communities located outside the direct impact areas, would be fenced with orange plastic snow fencing, and no personnel, debris, or equipment would be allowed in the environmentally sensitive areas. | | Construction | | | | |

**ENVIRONMENTAL COMMITMENTS RECORD (cont.)
I-5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION PROJECT**

| Task and Brief Description | Responsible Branch/Staff | Timing/Phase | Action Taken to Comply with Task | Task Completed | Remarks | Environmental Compliance |
|--|--------------------------|--------------|----------------------------------|----------------|---------|--------------------------|
| WETLANDS AND OTHER WATERS (cont.) Mitigation for both temporary and permanent impacts to southern willow scrub is proposed at a 3:1 ratio. Temporary impact areas would be revegetated after construction; however, all impacts are mitigated as permanent due to the proposed I-5 North Coast Corridor project that would likely impact the area again. Therefore, the temporary impact area would be mitigated as permanent under this project and mitigation would be complete for this area. The off-site mitigation for southern willow scrub (including disturbed) would be completed at the Pardee (Deer Canyon) Mitigation Parcel as part of a 5.0 ha (12.3 ac) wetland creation site. Approximately 1.46 ha (3.60 ac) of southern willow scrub is required for mitigation for impacts to southern willow scrub and drainage/streambed. Mitigation would include creation of southern willow scrub along either side of the existing cobble channel, without impacting the channel itself within the Pardee (Deer Canyon) Mitigation Parcel. | | Construction | | | | |
| Mitigation for temporary and permanent impacts to drainage/streambed under Corps jurisdiction is proposed at a 1:1 ratio. Mitigation for temporary and permanent impacts to southern willow scrub (1.42 ha [3.51 ac]) under CDFG jurisdiction is described above for southern willow scrub. | | Construction | | | | |

**ENVIRONMENTAL COMMITMENTS RECORD (cont.)
I-5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION PROJECT**

| Task and Brief Description | Responsible Branch/Staff | Timing/Phase | Action Taken to Comply with Task | Task Completed | Remarks | Environmental Compliance |
|--|--------------------------|--------------|----------------------------------|----------------|---------|--------------------------|
| <p>ANIMAL SPECIES All native vegetation, trees, and large shrubs shall be cleared outside the breeding season of southern California rufous-crowned sparrow, northern harrier and other raptors, and other migratory birds (February 15 through August 31) to avoid breeding birds. If Project construction occurs during the breeding season, pre-construction surveys and avoidance of nesting birds would be required. If nesting southern California rufous-crowned sparrow, northern harrier or other raptor, or other migratory birds are observed/detected within the Project limits, construction would not be permitted to commence until the conclusion of the breeding season (August 31), or until all young have fledged. No direct impacts to nests are allowed during the breeding season. All lighting, including night lighting for Project construction, installed in the vicinity of the MHPA, native vegetation communities, and other open space would be directed away or shielded to prevent light overspill. Streetlights would be low-intensity and shielded to minimize illumination of the adjacent MHPA. Night lighting of construction areas would be of the lowest illumination necessary for human safety, selectively placed, shielded and directed away from natural habitats.</p> | | Construction | | | | |
| | | Construction | | | | |
| | | Construction | | | | |

**ENVIRONMENTAL COMMITMENTS RECORD (cont.)
I-5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION PROJECT**

| Task and Brief Description | Responsible Branch/Staff | Timing/Phase | Action Taken to Comply with Task | Task Completed | Remarks | Environmental Compliance |
|---|--------------------------|--------------|----------------------------------|----------------|---------|--------------------------|
| <p>THREATENED AND ENDANGERED SPECIES All native vegetation, trees, and large shrubs shall be cleared outside the coastal California gnatcatcher and migratory bird breeding season (February 15 through August 31) to avoid breeding birds. If ornamental vegetation clearing occurs during the breeding season, pre-construction nesting bird surveys and avoidance of nesting birds would be required by a biologist approved by USFWS. If nesting gnatcatchers are observed/detected within a proposed impact area, on-site clearing would be suspended until the end of the breeding season (August 31), or until all young have fledged. No direct impacts to nests are allowed during the breeding season.</p> | | Construction | | | | |
| <p>The clearing and grubbing of native habitats for the I-5/Genesee Interchange Reconstruction Project would occur from September 1 to February 14 to avoid the gnatcatcher breeding season (or sooner than September 1 if a biologist approved by the CFWO ["Project Biologist"] demonstrates to the satisfaction of the CFWO that all nesting is complete). (The designated Project Biologist for this measure should be experienced in gnatcatcher biology and ecology.) Caltrans would submit the biologist's name, address, telephone number, and work schedule on the Project to the CFWO at least five working days prior to initiating Project impacts.</p> | | Construction | | | | |

**ENVIRONMENTAL COMMITMENTS RECORD (cont.)
I-5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION PROJECT**

| Task and Brief Description | Responsible Branch/Staff | Timing/Phase | Action Taken to Comply with Task | Task Completed | Remarks | Environmental Compliance |
|--|--------------------------|--------------|----------------------------------|----------------|---------|--------------------------|
| <p>THREATENED AND ENDANGERED SPECIES</p> <p>The Project Biologist would be on site during: (a) initial clearing and grubbing; and (b) weekly during project construction within 500 ft (152.4 m) of off-site gnatcatcher habitat to ensure compliance with all conservation measures. The Project Biologist would be familiar with the habitats, plants, and wildlife in the project area to ensure that issues relating to biological resources are appropriately and lawfully managed. The biologist would perform the following duties:</p> <ol style="list-style-type: none"> Perform a minimum of three focused surveys, on separate days, to determine the presence of gnatcatchers in the project impact footprint. Surveys would begin a maximum of 30 days prior to performing vegetation clearing/grubbing and one survey would be conducted the day immediately prior to the initiation of remaining work. If any gnatcatchers are found within the Project impact footprint, the Project Biologist would direct construction personnel to begin vegetation clearing/grubbing in an area away from the gnatcatchers. In addition, the Project Biologist would walk ahead of clearing/grubbing equipment to flush birds towards areas of coastal sage scrub to be avoided. It would be the responsibility of the Project Biologist to ensure that gnatcatchers would not be injured or killed by vegetation clearing/grubbing. The Project Biologist would also record the number and location of gnatcatchers disturbed by vegetation | | Construction | | | | |

**ENVIRONMENTAL COMMITMENTS RECORD (cont.)
I-5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION PROJECT**

| Task and Brief Description | Responsible Branch/Staff | Timing/Phase | Action Taken to Comply with Task | Task Completed | Remarks | Environmental Compliance |
|---|--------------------------|------------------------------------|----------------------------------|----------------|---------|--------------------------|
| <p>THREATENED AND ENDANGERED SPECIES</p> <p>clearing/grubbing. Caltrans would notify the CFWO at least seven days prior to vegetation clearing/grubbing to allow the CFWO to coordinate with the Project Biologist on bird flushing activities;</p> <p>b. Oversee installation of and inspect the construction fencing and erosion control measures within or up-slope of adjacent native habitat areas a minimum of once per week to ensure that any breaks in the fence or erosion control measures are repaired immediately;</p> <p>c. Periodically monitor the work area to ensure that work activities do not generate excessive amounts of dust;</p> <p>d. Train all contractors and construction personnel on the biological resources associated with the Project and ensure that training is implemented by construction personnel. At a minimum, training would include: (1) the purpose for resource protection; (2) a description of the sensitive resources and their habitats; (3) the conservation measures that should be implemented during Project construction to conserve the sensitive resources, including strictly limiting activities, vehicles, equipment, and construction materials to the fenced project footprint to avoid sensitive resource areas in the field (i.e., avoided areas delineated on maps or on the project site by fencing); (4) environmentally responsible construction practices; (5) the protocol to resolve conflicts that may arise</p> | | <p align="center">Construction</p> | | | | |

**ENVIRONMENTAL COMMITMENTS RECORD (cont.)
I-5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION PROJECT**

| Task and Brief Description | Responsible Branch/Staff | Timing/Phase | Action Taken to Comply with Task | Task Completed | Remarks | Environmental Compliance |
|---|--------------------------|------------------------------------|----------------------------------|----------------|---------|--------------------------|
| <p>THREATENED AND ENDANGERED SPECIES</p> <p>e. at any time during the construction process; and (6) the general provisions of the Endangered Species Act, the need to adhere to the provisions of the Endangered Species Act, and the penalties associated with violating the Act;</p> <p>f. Halt work, if necessary, and confer with the CFWO to ensure the proper implementation of species and habitat protection measures. The Project Biologist would report any violation to the CFWO within 24 hours of its occurrence;</p> <p>g. Submit monthly email reports (including photographs of impact areas) to Caltrans and the CFWO during clearing of gnatcatcher habitat and Project construction. The monthly reports would document that authorized impacts were not exceeded and general compliance with all conditions. The reports would also outline the location of construction activities, the type of construction that occurred, and equipment used. These reports would specify numbers, locations, and sex of gnatcatchers (if observed), observed gnatcatcher behavior (especially in relation to construction activities), and remedial measures employed to avoid and minimize impacts to gnatcatchers. Raw field notes should be available upon request by the CFWO; and</p> | | <p align="center">Construction</p> | | | | |

**ENVIRONMENTAL COMMITMENTS RECORD (cont.)
I-5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION PROJECT**

| Task and Brief Description | Responsible Branch/Staff | Timing/Phase | Action Taken to Comply with Task | Task Completed | Remarks | Environmental Compliance |
|--|--------------------------|--------------|----------------------------------|----------------|---------|--------------------------|
| <p>THREATENED AND ENDANGERED SPECIES</p> <p>h. Submit a final report to the CFWO within 120 days of project completion that includes: photographs of habitat areas that were to be avoided, and other relevant summary information documenting that authorized impacts were not exceeded and that general compliance with all conservation measures was achieved. As-built construction drawings with an overlay of habitat that was impacted and avoided would be provided as well once they have been completed.</p> | | Construction | | | | |
| <p>Uses in or adjacent to the MHPA should be designed to minimize noise impacts. Gnatcatchers that occupy habitats adjacent to the existing I-5 freeway are subjected to existing noise and vibration and continue to occupy the habitat. Ambient noise levels range from 61.1 dB(A) L_{eq} and 66.4 dB(A) L_{eq}. Once construction is complete, Project operations are anticipated to result in a minimal increase in existing noise levels of 2 dB(A) or less. To minimize construction noise impacts to nesting gnatcatchers, all pile driving for the Project that would occur near habitats that support gnatcatchers would be conducted between September 1 and February 14 to avoid the gnatcatcher breeding season (or sooner than September 1 if the Project Biologist demonstrates to the satisfaction of the CFWO that all nesting is complete).</p> | | Construction | | | | |

**ENVIRONMENTAL COMMITMENTS RECORD (cont.)
I-5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION PROJECT**

| Task and Brief Description | Responsible Branch/Staff | Timing/Phase | Action Taken to Comply with Task | Task Completed | Remarks | Environmental Compliance |
|---|--------------------------|-------------------|----------------------------------|----------------|---------|--------------------------|
| THREATENED AND ENDANGERED SPECIES | | | | | | |
| Permanent and temporary impacts to gnatcatcher habitat totaling 2.7 ha (6.7 ac) would be offset through restoration and preservation of 5.4 ha (13.4 ac) of Diegan coastal sage scrub at the Pardee (Deer Canyon) property. Temporary impacts would be offset the same as permanent impacts because revegetation of these areas is anticipated to be temporary, as documented under Natural Communities, above. | | Post-Construction | | | | |
| INVASIVE SPECIES | | | | | | |
| A qualified biologist would review the Project landscape concept plans to ensure that no invasive species (as listed in the California Invasive Plant Inventory) are included. | | Construction | | | | |
| A biological monitor would educate construction crews (prior to construction) on the benefits of cleaning equipment prior to ingress and egress. | | Construction | | | | |
| Upon completion of grading, all areas of temporary disturbance would be revegetated with native species or ornamental landscaping to limit colonization by invasive species. | | Construction | | | | |
| Following installation of revegetation and landscaping, such areas would be monitored and maintained to minimize invasive species. | | Construction | | | | |

**ENVIRONMENTAL COMMITMENTS RECORD (cont.)
I-5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION PROJECT**

| Task and Brief Description | Responsible Branch/Staff | Timing/Phase | Action Taken to Comply with Task | Task Completed | Remarks | Environmental Compliance |
|---|--------------------------|------------------------------------|----------------------------------|----------------|---------|--------------------------|
| <p>INVASIVE SPECIES (cont.) In compliance with EO 13112, and subsequent guidance from the FHWA, the landscaping and erosion control included in the Project would not use species listed as noxious weeds. In areas of particular sensitivity, extra precautions would be taken if invasive species are found in or adjacent to the construction areas. Such precautions could include the inspection and cleaning of construction equipment and eradication strategies to be implemented should an invasion occur.</p> | | <p align="center">Construction</p> | | | | |

LIST OF ACRONYMS AND ABBREVIATIONS

**APPENDIX G
LIST OF ACRONYMS AND ABBREVIATIONS**

| | |
|------------|---|
| AADT | annual average daily traffic |
| AB | Assembly Bill |
| ac | acre(s) |
| ADA | Americans with Disabilities Act |
| ADL | aerially deposited lead |
| ADT | average daily traffic |
| AMSL | above mean sea level |
| APCD | Air Pollution Control District |
| APE | area of potential effect |
| APZ | Accident Potential Zone |
| ARB | California Air Resources Board |
| ASR | Archaeological Survey Report |
| ASTM | ASTM International (formerly known as American Society for Testing and Materials) |
| AtF | Altamont Clay, 30 to 50 percent slopes |
| | |
| B | boron |
| Basin Plan | Water Quality Control Plan for the San Diego Basin |
| BMI | benthic macroinvertebrate |
| BMPs | best management practices |
| BNSF | Burlington, Northern, and Santa Fe |
| BSA | Biological Study Area |
| | |
| CAA | Clean Air Act |
| CAAQS | California Ambient Air Quality Standards |
| Caltrans | California Department of Transportation |
| CCC | California Coastal Commission |
| CCR | California Code of Regulations |
| CDFG | California Department of Fish and Game |
| CDP | Coastal Development Permit |
| CEQ | Council on Environmental Quality |
| CEQA | California Environmental Quality Act |
| CERCLA | Comprehensive Environmental Response, Compensation and Liability Act of 1980 |
| CERFA | Community Environmental Response Facilitation Act of 1992 |
| CfB | Chesterton Fine Sandy Loam, 2 to 5 percent slopes |
| CfC | Chesterton Fine Sandy Loam, 5 to 9 percent slopes |
| CFR | Code of Federal Regulations |
| cfs | cubic foot (feet) per second |
| CgC | Chesterton Urban Land Complex, 2 to 9 percent slopes |
| CGS | California Geologic Survey (formerly California Division of Mines and Geology) |
| CHIN | Caltrans Highway Information Network |
| CHP | California Highway Patrol |
| City | City of San Diego |
| CkA | Chino Silt Loam, 0 to 2 percent slopes |
| Cl | chlorine |
| cm | centimeter(s) |

| | |
|-----------------|--|
| cms | cubic meter(s) per second |
| CMP | Congestion Management Program |
| CNDDB | California Natural Diversity Database |
| CNPS | California Native Plant Society |
| CO | carbon monoxide |
| CO ₂ | carbon dioxide |
| COC | constituent of concern |
| COD | chemical oxygen demand |
| CO “hot spot” | exceedance of the CO standard |
| Community Plan | University Community Plan |
| CO Protocol | Caltrans ITS Transportation Project-Level Carbon Monoxide Protocol |
| Corps | United State Army Corps of Engineers |
| COZEEP | Construction Zone Enhanced Enforcement Program |
| CsB | Corralitos Loamy Sand, 0 to 5 percent slopes |
| CsC | Corralitos Loamy Sand, 5 to 9 percent slopes |
| CTM | Construction Traffic Manager |
| CWA | Clean Water Act |
| CZMA | Coastal Zone Management Act of 1972 |
| | |
| dB | decibel(s) |
| dBA | A-weighted decibel(s) |
| DE | diesel exhaust |
| DEH | County of San Diego Department of Environmental Health |
| DOT | U.S. Department of Transportation |
| DSA | disturbed soil area |
| DTM | District Traffic Manager |
| | |
| EB | eastbound |
| EB L | eastbound left |
| EB R | eastbound right |
| EB T | eastbound through |
| EO | Executive Order |
| ESA | Endangered Species Act |
| ESL | Environmentally Sensitive Lands |
| | |
| F | fluoride |
| F+I | fatality plus injury |
| Fe | iron |
| FE | federally endangered |
| FEMA | Federal Emergency Management Agency |
| FHWA | Federal Highway Administration |
| FIFRA | Federal Insecticide, Fungicide, and Rodenticide Act |
| FIRM | Flood Insurance Rate Map |
| ft | foot (feet) |
| ft ² | square foot (feet) |
| FT | federally threatened |
| | |
| g | acceleration due to gravity |
| General Plan | City of San Diego Progress Guide and General Plan |
| GHG | greenhouse gas |

| | |
|------------------|--|
| gpd | gallons per day |
| Greenbook | Greenbook Committee of Standard Specifications for Public Works Projects |
| H ₂ S | hydrogen sulfide |
| ha | hectare(s) |
| HA | hydrologic area |
| HAP | hazardous air pollutant |
| HCM | Highway Capacity Manual |
| HEI | Health Effects Institute |
| HELIX | HELIX Environmental Planning, Inc. |
| HMP | Habitat Management Plan |
| HOV | High Occupancy Vehicle |
| HPSR | Historic Property Survey Report |
| hr | hour |
| HrC ₂ | Huerhuero Loam, 5 to 9 percent slopes |
| HU | hydrologic unit |
| I-5 | Interstate 5 |
| I-805 | Interstate 805 |
| IBC | International Building Code |
| ILV | intersection lane vehicle |
| ILV/hr | intersection lane vehicle per hour |
| in | inch(es) |
| IRIS | Integrated Risk Information System |
| ISA | Hazardous Waste Initial Site Assessment |
| IS/EA | Initial Study/Environmental Assessment |
| ITS | Institute of Transportation Studies |
| KHA | Kimley-Horn and Associates |
| km | kilometer(s) |
| km ² | square kilometer(s) |
| km/h | kilometer(s) per hour |
| KP | kilometer post |
| kV | kilovolt(s) |
| L _{eq} | equivalent sound level |
| lbs/day | pounds per day |
| LCP | Local Coastal Program |
| LOS | level(s) of service |
| LRDP | Long Range Development Plan |
| LRT | light rail transit |
| m | meter(s) |
| m ³ | cubic meter(s) |
| MBAS | Methylene Blue Activated Substances (e.g., commercial detergent) |
| MCAS | Marine Corps Air Station |
| MCE | Maximum Credible Earthquake |
| MEP | maximum extent practicable |
| mg | milligram(s) |
| mg/kg | milligrams per kilogram |

| | |
|-------------------|--|
| mg/l | milligrams per liter |
| mg/m ³ | milligrams per cubic meter |
| MHPA | Multi-Habitat Planning Area |
| mi | mile(s) |
| mi ² | square mile(s) |
| min | minute(s) |
| MLD | Most Likely Descendant |
| MLS | mass loading station |
| Mn | manganese |
| mph | mile(s) per hour |
| MPO | Metropolitan Planning Organization |
| M.S. | Master of Science |
| MSAT | Mobile Source Air Toxics |
| MSCP | Multiple Species Conservation Program |
| N | nitrogen |
| N/A | not applicable |
| Na | sodium |
| NAAQS | National Ambient Air Quality Standards |
| NAC | noise abatement criteria |
| NAHC | Native American Heritage Commission |
| NATA | National Air Toxics Assessment |
| NB | northbound |
| NB L | northbound left |
| NB R | northbound right |
| NB T | northbound through |
| NCCP | Natural Communities Conservation Program |
| NCTD | North County Transit District |
| NDIR | Non-Dispersive Infrared Spectroscopy |
| NE | narrow endemic |
| NEPA | National Environmental Quality Act |
| NES | Natural Environment Study |
| NHPA | National Historic Preservation Act of 1966, as amended |
| NIOSH | National Institute of Occupational Safety and Health |
| No. | Number |
| NO ₂ | nitrogen dioxide |
| NO ₃ | nitrate |
| NO _x | nitrogen oxides |
| NOAA | National Oceanic and Atmospheric Administration |
| NOP | Notice of Preparation |
| NPDES | National Pollutant Discharge Elimination System |
| NPPA | Native Plant Protection Act |
| NRCS | U.S. Natural Resources Conservation Service (formerly the Soil Conservation Service) |
| NTU | Nephelometric Turbidity Unit |
| O ₃ | ozone |
| OHWM | ordinary high water mark |
| OSHA | Occupational Safety & Health Administration |

| | |
|-------------------|---|
| P | phosphorus |
| PA | Section 106 Programmatic Agreement |
| PA/ED | Project Approval/Environmental Document |
| Pb | lead |
| pc/mi/ln | passenger cars per mile per lane |
| PCB | polychlorinated biphenyls |
| PCMS | portable changeable message sign |
| PE | permanent easement |
| Ph.D. | Doctor of Philosophy |
| PM | post mile |
| PM _{2.5} | fine particulate matter with a diameter of 2.5 microns or less |
| PM ₁₀ | respirable particulate matter with a diameter of 10 microns or less |
| PM Guidance | Transportation Conformity Guidance for Qualitative Hot-spot Analysis in PM ₁₀ and PM _{2.5} Nonattainment and Maintenance Areas |
| ppm | parts part million |
| PQS | Professionally Qualified Staff |
| PRC | California Public Resources Code |
| PR/ED | Project Report/Environmental Document |
| Project | I-5/Genesee Interchange Reconstruction Project |
| Protocol | Transportation Project-Level Carbon Monoxide Protocol |
| PS&E | Plans, Specifications, and Estimates |
| PSR | Project Study Report |
| PUC | Public Utilities Commission |
| PVC | polyvinyl chloride |
| RCRA | Resource Conservation and Recovery Act of 1976 |
| RCP | Regional Comprehensive Plan for the San Diego Region |
| ROG | reactive organic gas |
| R/W | right-of-way |
| rpm | revolutions per minute |
| RSA | Resource Study Area |
| RTIP | Regional Transportation Improvement Program |
| RTP | Transportation Plan for the San Diego Region (Mobility 2030) |
| RWQCB | San Diego Regional Water Quality Control Board |
| SANDAG | San Diego Association of Governments |
| SB | southbound |
| SB L | southbound left |
| SB R | southbound right |
| SB T | southbound through |
| SCAQMD | South Coast Air Quality Management District |
| SCIC | South Coastal Information Center |
| SCS | Soil Conservation Service |
| SDAB | San Diego Air Basin |
| SDG&E | San Diego Gas & Electric Company |
| SDP | Site Development Permit |
| SDNR | San Diego Northern Railway |
| SE | state endangered |
| sec/veh | seconds per vehicle |
| SER | Standard Environmental Reference |
| SHPO | State Historic Preservation Officer |
| SIP | State Implementation Plan |
| SO ₂ | sulfur dioxide |
| SO ₄ | sulfate |

| | |
|-----------------------|--|
| SO _x | sulfur oxides |
| SSC | California Species of Special Concern |
| ST | state threatened |
| STLC | soluble threshold limit concentration |
| STIP | State Transportation Improvement Program |
| Storm Water Standards | Storm Water Management and Discharge Control Ordinance |
| SUSMP | Standard Urban Storm Water Mitigation Plan |
| SWAMP | Surface Water Ambient Monitoring Program |
| SWDR | Storm Water Data Report |
| SWMP | Statewide Storm Water Management Plan |
| SWPPP | Storm Water Pollution Prevention Plan |
| SWRCB | State Water Resources Control Board |
| | |
| TAC | toxic air contaminant |
| TCE | temporary construction easement |
| TDS | total dissolved solids |
| TMC | Traffic Management Center |
| TMDL | total maximum daily load |
| TMP | Traffic Management Plan |
| TMT | Traffic Management Team |
| TSCA | Toxic Substances Control Act |
| TSM | Transportation System Management |
| TSS | total suspended solids |
| TTLC | total threshold limit concentration |
| Turb | turbidity |
| | |
| UCL | upper confidence level |
| UCSD | University of California, San Diego |
| USC | United States Code |
| USEPA | United States Environmental Protection Agency |
| USFWS | United States Fish and Wildlife Service |
| USGS | United States Geological Survey |
| UTC | University Towne Centre |
| | |
| v/c | volume-to-capacity ratio |
| VMT | vehicle miles traveled |
| | |
| WB | westbound |
| WB L | westbound left |
| WB R | westbound right |
| WB T | westbound through |
| WET | waste extraction test |
| WMA | Watershed Management Area |
| WUS | Waters of the United States |
| | |
| yd ³ | cubic yard(s) |
| VMT | vehicle miles traveled |
| | |
| µg/m ³ | micrograms per cubic meter |
| % | percent, percentage of |
| > | greater than |
| < | less than |
| ≥ | greater than or equal to |
| ≤ | less than or equal to |

APPENDIX H

CITY OF SAN DIEGO
ENVIRONMENTAL ANALYSIS SUMMARY

**APPENDIX H
CITY OF SAN DIEGO
ENVIRONMENTAL ANALYSIS SUMMARY**

The proposed I-5/Genesee Interchange Reconstruction Project (hereafter referred to as the "Project") is a joint project by the California Department of Transportation (Caltrans) and the Federal Highway Administration (FHWA), and is subject to state and federal environmental review requirements. Project documentation has been prepared in compliance with both the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). FHWA's responsibility for environmental review, consultation and any other action required in accordance with NEPA and other applicable Federal laws for the Project is being, or has been, carried out by Caltrans, under its assumption of responsibility pursuant to 23 USC 327. Caltrans is the lead agency under both CEQA and NEPA.

The Project also requires approvals by the City of San Diego (City). The City, as a Responsible Agency under CEQA, will be required to certify the environmental document. This appendix provides additional environmental information requested by the City as an aid to City decision-makers. The Initial Study/Environmental Assessment (IS/EA) provides all information required by CEQA pertaining to environmental impacts. This appendix is a supplement to the IS/EA and is intended to better help the City understand how the Project would relate to City standard CEQA significance thresholds (City Development Services, Significance Determination Thresholds, January 2007) that are not specifically mentioned in the IS/EA. All impacts associated with the Project are reduced to below a level of significance based on design measures incorporated into the Project, as well as mitigation measures.

It is reiterated that Caltrans is not subject to City of San Diego significance determination thresholds. This appendix is for informational purposes only and is not intended to have any effect on the IS/EA. This appendix is a stand alone document that is provided at the request of the City and is entirely separate from and not a part of the IS/EA.

Discussion of Significance of Impacts

Agricultural Resources

Per the City's Significance Determination Thresholds (2007), the Project would result in a significant impact to agricultural resources if it would convert a substantial amount of farmland to non-agricultural use or conflict with existing zoning for agricultural use or Williamson Act contract.

As stated at the beginning of Chapter 2.0 of the IS/EA, the Project site is not located on land under a Williamson Act contract, and no agricultural resources are located in the vicinity. The Project would not convert any farmland (Prime, Unique, Important or otherwise), including land zoned for agricultural use or farmlands currently under Williamson Act Land Conservation Contracts, to non-agricultural uses. Accordingly, no impacts to agricultural resources would occur.

Air Quality and Odor

According to the City's Significance Determination Thresholds (2007), impact analysis for air quality should ensure that current air quality regulatory compliance attainment status is not

adversely affected by stationary sources of emission from new development. The Project should be designed to include measures that reduce project-related ozone and particulate matter. In addition, creating objectionable odors affecting a substantial number of people would be significant.

The Project would not conflict with or obstruct implementation of the State Implementation Plan (SIP; San Diego Air Pollution Control District [APCD] 2007), as stated in Subchapter 2.13, Air Quality, of the IS/EA.

Construction activities would lead to emissions of respirable particulate matter (PM₁₀), fine particulate matter (PM_{2.5}), carbon monoxide (CO), sulfur dioxide (SO₂), nitrogen oxides (NO_x), volatile organic compounds (VOCs), and toxic air contaminants (TACs), such as diesel exhaust particulate matter. The Project would comply with Department's Standard Specifications (Sections 7 and 10) to minimize emissions during construction. With the implementation of these minimization measures, air quality impacts related to construction emissions would be less than significant.

Subchapter 2.13, Air Quality, of the IS/EA addresses potential impacts associated with buildout of the Project. Long-term effects of the Project generally would be positive, as congestion and related idling, with associated CO impacts, would be reduced. Predicted CO concentrations would be substantially below the 1-hour and 8-hour National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) for CO. Therefore, no exceedances of the CO standard are predicted, and the Project would not cause or contribute to a violation of this air quality standard.

The Project would not be a project of air quality concern for PM_{2.5} and PM₁₀ emissions, because the Project would not result in increases in the number of diesel vehicles utilizing the interchange, nor is the San Diego Air Basin (SDAB) in violation of the federal PM_{2.5} or PM₁₀ standard.

Overall, Project air quality impacts would be less than significant.

During construction, diesel equipment operating at the site may generate some nuisance odors; however, due to the temporary nature of construction, odors associated with Project construction would be less than significant. The Project would result in less idling of vehicles on Project roadways; therefore, odors associated with buildout of the Project would not be significant.

Biological Resources

Per the City's Significance Determination Thresholds (2007), biological resources impacts are assessed by City staff through review of the Project's consistency with Environmentally Sensitive Lands regulations, the Biology Guidelines (July 2002) and Multiple Species Conservation Program (MSCP) Subarea Plan.

The biological resources subchapters of the IS/EA (Subchapter 2.15, Natural Communities; Subchapter 2.16, Wetlands and Other Waters; Subchapter 2.17, Plant Species; Subchapter 2.18, Animal Species; Subchapter 2.19, Threatened and Endangered Species; and Subchapter 2.20, Invasive Species) analyze the impacts to vegetation communities (including wetlands), as well as sensitive plants and animals.

The Project would significantly impact sensitive vegetation communities, including freshwater marsh (including disturbed), southern willow scrub (including disturbed), open water, Diegan coastal sage scrub (including disturbed, coyote brush scrub, and non-native grassland (refer to Tables 2.15-1 and 2.16-1 of the IS/EA). Such impacts would be considered significant. Mitigation in the form of revegetation, restoration, enhancement and/or creation would mitigate these direct vegetation community impacts to below a level of significance.

Project implementation would result in impacts to a small portion of upland habitats in the Multi-Habitat Planning Area (MHPA). Specifically, 0.4 acre of Diegan coastal sage scrub; less than 0.1 acre of coyote brush scrub, non-native grassland (including disturbed), eucalyptus woodland, and disturbed habitat; and 0.2 acre of developed land within the MHPA would be temporarily impacted during Project construction, for a total of 0.6 acre of temporary impacts to the MHPA. Following construction, the temporarily impacted MHPA area would be revegetated. The developed portion of the MHPA consists of an existing roadway, which is an allowable use within the MHPA. Permanent impacts to upland habitats include 0.9 acre of Diegan coastal sage scrub; less than 0.1 acre of coyote brush scrub; 0.2 acre of eucalyptus woodland; and 0.3 acre of disturbed habitat and developed land, for a total of 1.8 acres of permanent impacts to the MHPA. An MHPA boundary adjustment is not required for public facilities, including roadways, since they are an allowed use in the MHPA. Therefore, encroachment into the MHPA is not considered significant for the Project. Impacts to habitats in the MHPA would be mitigated at appropriate ratios. Potential indirect impacts to the MHPA would be mitigated by designating all sensitive habitat outside the impacts areas as environmentally sensitive, using watering or chemical palliatives on active construction areas and unpaved surfaces, restricting hydroseed mix and landscaping to contain only native species, and including best management practices (BMPs) to reduce water quality impacts. Please refer to Section 2.15.4 and Appendix E of the IS/EA for the specific avoidance, minimization, and mitigation measures applicable to the Project.

Project jurisdictional (U.S. Army Corps of Engineers [Corps] and California Department of Fish and Game [CDFG]) impacts would include southern willow scrub, drainage, and streambed. Alternatives to avoid wetland impacts (mostly resulting from the buttress fill slope) were carefully considered and rejected due to feasibility concerns. Impacts would be mitigated through habitat revegetation, restoration, enhancement and/or creation. Mitigation would require a minimum 1:1 creation component to ensure no net loss of wetlands. The proposed wetland mitigation is consistent with typical City requirements. To avoid indirect impacts, wetlands located outside the direct impact area would be designated as environmentally sensitive lands and fenced with orange plastic snow fencing. Personnel, debris, or equipment would be prohibited from entering. In addition, BMPs would be incorporated into the Project to reduce potential water quality impacts that could affect biological resources. Specific avoidance, minimization, and mitigation measures designed to avoid and/or minimize temporary and permanent impacts to wetland and riparian habitats are detailed in Section 2.16.4 and Appendix E of the IS/EA.

The Project would not impact any sensitive plant species as none occur within the proposed alignment. Sensitive animal species that could be significantly impacted include orange-throated whiptail (*Cnemidophorus hyperythrus beldingi*), southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), northern harrier (*Circus cyaneus*), yellow warbler (*Dendroica petechia brewsteri*), yellow-breasted chat (*Icteria virens*), northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*), San Diego black-tailed jackrabbit (*Lepus californicus bennettii*), and San Diego desert woodrat (*Neotoma lepida intermedia*), southern mule deer (*Odocoileus hemionus*), and raptor species. Impacts to all of these species would be mitigated through the aforementioned habitat mitigation, which is also detailed in Section 2.18.4

and Appendix E of the IS/EA. In addition, pre-construction surveys for raptor nests would be required. If nesting raptors are observed within the development footprint, the trees would not be removed until the young have fledged or the breeding season has ended.

The Project also would significantly impact the habitat (coastal sage scrub) of the coastal California gnatcatcher. This impact would be mitigated through the aforementioned habitat mitigation, and through the completion of a pre-construction survey. These mitigation measures are detailed in Section 2.19.4 and Appendix E of the IS/EA. If nesting coastal California gnatcatchers are discovered during the pre-construction survey, construction activities would be suspended until all young have fledged.

The vast majority of the biological study area (BSA) is not anticipated to function as a viable wildlife corridor, because of the highly developed setting and the lack of connectivity of most habitats with large areas of habitat outside the BSA. Therefore, no significant impact would occur.

The Project would have potentially significant impacts associated with the colonization of invasive plant species. Mitigation measures to reduce this potential impact to below a level of significance include a biological monitor during construction and the exclusion of invasive species in landscaping. These mitigation measures are detailed in Section 2.20.4 and Appendix E of the IS/EA.

In summary, Project impacts to the MHPA, vegetation communities, wetlands, and sensitive species and have been avoided, minimized, and/or mitigated consistent with City biology guidelines and the MSCP to below a level of significance.

Geologic Conditions

As stated in the City's Significance Determination Thresholds (2007), the Project would result in significant impacts if it would expose people or structures to geologic hazards, substantially increase erosion, or be located on an unstable location.

As stated in Subchapter 2.10, Geology/Soils/Seismic/Topography, of the IS/EA no known active faults are located within or adjacent to the Project study area; therefore, the Project would not be subject to significant seismic ground rupture hazards and/or related effects such as lurching. The estimated peak ground acceleration level for the study area and vicinity is similar to the majority of the southern California region. The Project incorporates several site-specific geotechnical avoidance and minimization measures to avoid any significant impacts. The potential for liquefaction is considered low. Nonetheless, standard measures would be included to reduce the risk of liquefaction. The Project includes a slope buttress and design measures to avoid impacts associated with an existing landslide area. No seismic-related impacts related to tsunamis are expected. Please refer to Section 2.10.4 and Appendix E of the IS/EA for the specific avoidance, minimization, and mitigation measures applied to the Project. In summary, with the inclusion of avoidance and minimization measures, no significant impacts associated with geologic conditions are anticipated.

Growth Inducement

Per the City's Significance Determination Thresholds (2007), the Project would result in a significant impact if it would induce substantial population growth in the area; substantially alter the planned location, distribution density, or growth rate of population; or include extensions of

road or other infrastructure not assumed in the community plan or adopted Capital Improvements Project list.

As discussed in Subchapter 2.2, Growth, of the IS/EA, the Project consists of roadway improvements to existing roadway and freeway facilities. Typically, growth is not induced through improvements to existing facilities because access to the area is already provided. Since the improvements proposed as a part of the Project are to existing facilities and are proposed in response to growth (i.e., growth accommodating), it is not reasonably foreseeable that the Project would induce growth. Therefore, no significant impacts associated with growth would occur.

Health and Safety

The City's Significance Determination Thresholds (2007) for Health and Safety discuss the following issue areas: hazardous materials/public safety; human health (vector control, electromagnetic fields, wireless telephone facilities and hazardous materials near schools); and brush management (wildland fires).

The Project would not expose people to wildland fires, as the Project site is within an urban setting with no wildlands nearby. Vector control, electromagnetic fields, and wireless telephone facilities are not part of the proposed Project.

University of California, San Diego is located adjacent to the Project site. As stated in Subchapter 2.12, Hazardous Waste/Materials, of the IS/EA, the Project would have the potential to disturb hazardous building materials, such as asbestos-containing material, treated wood, and lead-based paint. Potentially significant impacts would be mitigated through proper handling and disposal of hazardous materials, as detailed in Section 2.12.4 and Appendix E of the IS/EA.

The existing Genesee Avenue overcrossing would continue to carry traffic during construction of the new overcrossing. Construction of the Project may require complete closures of the freeway mainline in one direction for approximately 10 nights and closure of ramps for 1 day. Safe alternate travel routes would be provided to compensate for any temporary roadway closures, should they be necessary, and are not expected to substantially inconvenience emergency services. The only likely effect would be a long-term positive one, as service response times may be marginally improved as a result of Project improvements.

A search and review of federal, state, and regional environmental regulatory agency databases was conducted for the area within 0.25 mile of the Project boundary. It is noted that the site is not located on any hazardous waste sites listed under Section 65962.5 of the Government Code (Cortese list).

In summary, with regard to health and safety, no significant impacts would occur.

Historical Resources

As per the City's Significance Determination Thresholds (2007), historical resources include all properties eligible or potentially eligible for the National Register of Historic Places, as well as those that may be significant pursuant to state and local laws and registration programs. Impacts would be significant if the Project would alter a prehistoric or historic building, structure, object, or site; impact existing religious or sacred uses; or disturb human remains.

As stated in Subchapter 2.7, Cultural Resources, of the IS/EA, no archaeological or historical resources are located within the Project's area of potential effect (APE). Given the highly disturbed nature of the APE, there also is little potential for buried cultural deposits to occur. As such, implementation of the Project would not impact known cultural resources. There is the potential to encounter unknown subsurface resources during Project construction, but significant impacts are not anticipated. The Project would include minimization measures to reduce any potential impacts to unknown buried cultural resources or human remains, including the diversion of construction activities if such resources are discovered. These minimization measures are detailed in Section 2.7.4 and Appendix E of the IS/EA.

Hydrology

As per the City's Significance Determination Thresholds (2007), the Project would result in significant impacts to hydrology if it would result in a substantial increase in impervious surfaces and associated increased runoff or substantial alteration to drainage patterns.

As stated in Subchapter 2.8, Hydrology and Floodplain, of the IS/EA, implementation of the Project would result in the generation of approximately 4.76 ha (11.76 ac) of new impervious surfaces (pavement). This additional impervious area would reduce on-site infiltration capacity, and increase runoff volumes and velocities both within and from the site. This projected increase in existing flow would be reduced by the proposed use of vegetated swales (and associated infiltration). Avoidance and minimization measures include appropriate sizing and location of proposed and existing (upgraded) drainage facilities, using appropriately sized energy dissipation structures at all drainage outlets to reduce flow velocities prior to discharge, minimizing Project encroachment into mapped floodplains, and matching existing curb and pavement grades for proposed improvements within floodplains. Please refer to Section 2.8.4 and Appendix E of the IS/EA for the specific avoidance and minimization measures applicable to the Project. Impacts related to hydrology would be less than significant.

Land Use

As stated in the City's Significance Determination Thresholds (2007), the Project would result in significant impacts if it would require a deviation or variance that would result in a physical impact to the environment; conflict with environmental goals, objectives, and recommendations of the community plan; conflict with provisions of the MSCP Subarea Plan; physically divide an established community; or result in land uses not compatible with an adopted airport Comprehensive Land Use Plan.

The Project site is located within the University Community Planning Area. The University Community Plan anticipates improvements to the I-5/Genesee Avenue interchange and Genesee Avenue. The Project would be consistent with the applicable elements of the Community Plan, as detailed in Subchapter 2.1, Land Use, of the IS/EA.

With regard to the MSCP, Project implementation would result in impacts to a small portion of upland habitats in the MHPA, as described previously under Biological Resources. An MHPA boundary adjustment is not required for public facilities, including roadways, since they are an allowed use in the MHPA. In addition, because the Project is adjacent to the MHPA, it is appropriate to analyze the Project's consistency with the MHPA Adjacency Guidelines. These guidelines address potential indirect impacts to the MHPA, such as decreased water quality, fugitive dust, lighting, noise, and invasive species. The Project has been designed to minimize indirect impacts to the MHPA due to adjacency concerns by the implementation of Project

design measures, and avoidance and minimization measures identified in Section 2.15.4 and Appendix E of the IS/EA.

Implementation of the Project would not physically divide a community, as the roadways and freeway proposed for improvement already exist. In addition, the Genesee Avenue overcrossing, as well as other overcrossings in the area, provides access to either side of I-5.

In summary, no significant land use impacts are assessed.

Mineral Resources

As noted in the City's Significance Determination Thresholds (2007), a project could cause a potentially significant impact to mineral resources (aggregate resources) if it resulted in the loss of availability of a known mineral resource that would be of value to the region.

The Project site and general vicinity is within Mineral Resource Zone 1 (MRZ-1) and Mineral Resource Zone 3 (MRZ-3) for aggregate minerals, as classified by the California Department of Conservation, Division of Mines and Geology (1982). MRZ-1 includes areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that a little likelihood exists for their presence. MRZ-3 includes areas containing mineral deposits, the significance of which cannot be evaluated from available data. The Project site is not currently used for mineral resource extraction, nor would it be practical to conduct mineral extraction operations at the Project site, due to its urbanized location and current use. The Project site are currently designated and zoned for residential, commercial, industrial, and public facility/institutional uses, as well as open space. Mineral extraction would not be practical in the land use designations or zoning of the Project site. Because the Project site and vicinity are currently within a developed, urbanized area, mineral resource extraction at the site is not a feasible activity, regardless of whether the Project is constructed. The Project, therefore, would not result in the loss of an available known mineral resource of value to the region or state residents, and no significant impacts would occur.

Noise

The City's Significance Determination Thresholds (2007) related to noise include: a significant increase in the existing ambient noise levels; exceedance of the City's adopted noise ordinance; and exposure of people to current or future transportation noise levels which exceed General Plan standards.

There is no property zoned residential that has residences within the City limits adjacent to the Project site, except for within the University of California, San Diego (UCSD) boundary, which has its own noise thresholds. Therefore, noise from construction would not exceed the sound level limits within the City Municipal Code. Both the City's and UCSD's threshold for construction noise is 75 dBA averaged over a 12-hour period at noise sensitive receptors. The balconies on the East Campus Housing buildings are not considered to be noise sensitive due to their size and observed use. As detailed in Section 2.14.4 and Appendix E of the IS/EA, construction noise control measures would be implemented to avoid unnecessary annoyances from construction noise.

The noise sensitive locations in the Project area were evaluated based on future predicted noise levels. Generally, an increase of 3 dBA or less is not a perceptible change to the human ear. The Project site, however, is located in an existing noise environment next to a major freeway

and close to other major roadways. Given the existing noise environment of the Project setting, increases in noise levels slightly greater than 3 dBA may not be perceptible.

Refer to the NEPA noise analysis for the Project construction noise conditions within Subchapter 2.14, Noise, of the IS/EA. Noise thresholds used for construction impacts under CEQA are identical to those used previously for NEPA. Therefore, the impact conclusions are identical; noise from construction would not exceed the sound level limits.

Table 2.14-4 of the IS/EA shows the measured peak hour noise levels for 18 receptor locations associated with the Project. As seen in the table, no noise levels would increase more than 3 dBA from the No Build Alternative to the Proposed Project conditions. Therefore, noise level changes would not be perceptible and impacts would be less than significant.

Paleontological Resources

As per the City's Significance Determination Thresholds (2007), impacts to paleontological resources may occur through grading activities associated with project construction. Impacts would be significant if the Project would require over 1,000 or 2,000 cubic yards of excavation in a high or moderate (respectively) resource potential formation.

As stated in Subchapter 2.11, Paleontology, of the IS/EA, grading and excavation activities associated with the Project could potentially impact previously undisturbed portions of geologic formations that have a moderate to high sensitivity for paleontological resources, including the Lindavista, Scripps, and Ardath Shale formations. Under the City's CEQA significance thresholds, such impacts would be considered potentially significant. Avoidance, minimization and mitigation measures, as identified in Section 2.11.4 and Appendix E of the IS/EA, would include monitoring by a qualified paleontological monitor. With implementation of the identified mitigation, impacts would be reduced to less than significant levels.

Public Services and Facilities

According to the City's Significance Determination Thresholds (2007), the Project would result in a significant impact to public services and facilities if it would have an effect upon or result in a need for new or altered governmental services in police or fire/life safety protection, libraries, parks or other recreational facilities, schools, or the maintenance of public facilities (including roads).

As stated previously under Health and Safety, the existing Genesee Avenue overcrossing would continue to carry traffic during construction of the new overcrossing. Construction of the Project may require complete closures of the freeway mainline in one direction for approximately 10 nights and closure of ramps 1 day. Safe alternate travel routes would be provided to compensate for any temporary roadway closures, should they be necessary, and are not expected to substantially inconvenience emergency services. The only likely effect would be a long-term positive one, as police and fire/life safety services response times may be marginally improved as a result of Project improvements. Accordingly, no significant impact would occur.

The Project would not affect libraries, schools, parks, or other recreational facilities. The Project would improve roadways and a freeway interchange within the City.

Public Utilities

Typical public utility concerns identified by the City's Significance Determination Thresholds (2007) include: electrical power and natural gas (energy), solar energy, communication systems, solid waste generation/disposal, water and sewer, and water conservation.

The Project would not result in a need for need for new utilities, as it is a roadway improvement project. Some utility lines would be relocated during construction of the Project; however, utility relocations would be designed to minimize potential interruptions in service and avoid peak use hours in coordination with utility providers. The Project may require limited amounts of water for landscaping; however, these demands would be less than significant and the Project could potentially use recycled water. Design requirements, as detailed in Section 2.6.4 and Appendix E of the IS/EA, include drought-tolerant and sustainable landscape palettes. The Project would generate solid waste from construction activities (i.e., demolition). Debris from construction would be recycled, as appropriate, to reduce waste. The Project would not generate waste over the long term. Therefore, no significant impact is assessed.

During the construction period, energy would be used during manufacturing of materials for road/structures construction, as well as construction of the proposed improvements. Construction would result in delays for vehicles traveling within the Project site and vicinity. This would increase idling time and thus would result in an increased use of gasoline by the idling vehicles. Post-construction operational energy uses of the facilities associated with the Project would include the use of gasoline by vehicles utilizing the proposed facilities. The Project and related improvements would increase the rate of traffic movement in the Project site and vicinity, and therefore would be beneficial to energy consumption, as vehicles would spend less time idling. When balancing energy used during construction and operation against energy saved by reducing congestion and other transportation efficiencies, the Project would not result in significant energy impacts.

The Project would not result in any potentially significant impacts to public utilities.

Transportation/Circulation and Parking

The City's Significance Determination Thresholds (2007) focus primarily on the potential for addition of traffic that results in degradation of traffic flow on a street segment, intersection, or freeway. Other potential issues include: increased demand for parking or effects to existing parking; impacts to planned transportation systems; impacts to present circulation movements that affect public access; increase in traffic hazards for vehicles, bicyclists, or pedestrians; and conflicts with adopted policies, plans, or programs supporting alternative transportation models.

The Project would not generate traffic. Instead, it would help accommodate existing and projected levels of traffic within the region in accordance with planned circulation systems. Please refer to Subchapter 2.5, Traffic and Transportation/Pedestrian and Bicycle Facilities, of the IS/EA for a detailed analysis of the impacts related to traffic/transportation. Such impacts have been determined to be less than significant with implementation of the avoidance, minimization, and mitigation measures included in Section 2.5.4 and Appendix E of the IS/EA.

The Project would not require any additional parking. The Project would, however, result in the permanent loss of 71 parking spaces, as well as the temporary loss of 3 spaces. These spaces are associated with UCSD, Scripps Hospital Medical Center, and a business park. Impacts to parking spaces at UCSD (34 spaces permanently and 3 spaces temporarily) would not be

significant because parking within the school campus is available at other locations. Currently, the UCSD campus provides 15,400 on-campus parking spaces and, according to the 2004 Long Range Development Plan (LRDP), a total of 27,200 spaces would be provided by the 2020-2021 academic year. With regard to the 23 parking spaces of Scripps Hospital Medical Center, parking would be provided in the surrounding lots and garages within the Scripps Hospital Medical Center. In addition, Scripps Medical Center currently has plans to replace the affected area with a new parking lot that would be located outside the grading limits of the Project. The new parking lot is expected to be constructed prior to construction of the proposed improvements to Voigt Drive, and thus Project impacts would be avoided. With regard to the business park lot (14 spaces), the parking lot is part of a larger business park along Campus Point Drive and Campus Point Court. Parking would be provided at surrounding surface lots within the business park. Accordingly, impacts to parking would be less than significant.

Planned improvements at the Genesee Avenue interchange would aid in decreasing the accident rate at the study intersections along Genesee Avenue at the I-5 on- and off-ramps. The proposed improvements to the interchange include adding additional storage on the off-ramps. This additional storage may decrease the queue lengths and may reduce the back up onto the freeway during the peak hours. Thus, rear-end collisions on the mainline may be slightly reduced. The number of northbound off-ramp rear-end accidents may be reduced with the increase in storage length for the queues. Queue lengths, particularly in the AM peak hour, could be reduced substantially. This reduced queue length would provide for an increase of the stopping distance that exiting drivers would have prior to meeting the back of the queue. This could reduce rear-end collisions. Similar to the northbound off-ramp improvements, the southbound off-ramp also would have additional storage. This additional storage, particularly in the PM peak hour, could reduce the queue and may reduce the rear-end collisions. Additionally, the merge on the southbound off-ramp would be removed with Project buildout. Removal of this merge point would reduce driver confusion and may reduce accidents on the ramp. Bike lanes occur on both sides of Genesee Avenue within the study area and a sidewalk occurs on the north side of the roadway. Currently, free right-turns at the interchanges create unsafe conditions for both pedestrians and bicyclists. The widening and improvement of Genesee Avenue and the interchanges would include retention of the sidewalk on the north side of the roadway, as well as bike lanes on both sides of the roadway. All existing free-right turns would be eliminated and would be replaced by signalized intersections. This change could result in safer facilities for pedestrian and bicycle traffic. The overall effect of the Project on motorists, pedestrians, and bicyclists would be beneficial. Accordingly, no significant impact would occur as a result of the Project.

As discussed in Section 2.5.4 and Appendix E of the IS/EA, the Project would include the implementation of a Traffic Management Plan (TMP). One of the goals of the TMP is to maintain existing transit operations. Therefore, with implementation of the TMP, transit operations would not be adversely affected and no significant impact is assessed.

The Project would not conflict with any adopted policies, plans, or programs supporting alternative transportation (e.g. bus turnouts, bicycles racks).

Visual Effects and Neighborhood Character

According to the City's Significance Determination Thresholds (2007), a project would result in a significant impact if it would substantially obstruct a vista or scenic view from a public viewing area identified in the community plan; be incompatible within surrounding development;

substantially alter the existing or planned character of the area; substantially change an existing landform; or create substantial light or glare.

As discussed in Section 2.6, Visual/Aesthetics, the Project area consists of I-5 from Sorrento Valley Road to La Jolla Village Drive, and portions of Genesee Avenue, Voigt Drive, and Gilman Drive. The portion of I-5 within the study area consists of an eight-lane divided freeway with a vegetated median (oleanders) and vegetated slopes on either side. The few buildings that are located nearest Genesee Avenue in this area are screened from the roadway by trees and slopes. Genesee Avenue is a four-lane divided roadway surrounded by vegetated slopes on the western leg and by landscaping, structures, and parking lots on the eastern leg. Voigt Drive consists of a two-lane roadway that is bordered by parking lots, buildings, landscaping, and a grass field. Gilman is bordered by landscaping to the east and structures, a grassy field, and parking lots to the west. Overall, the Project area has a “suburban parkway” character. The site is not indicated as a scenic vista by the University Community Plan and I-5 is not a California Scenic Highway; however, adjacent natural areas and canyons (Sorrento Valley) are considered scenic elements by the University Community Plan.

The hillsides bordering the freeway predominately are landscaped or vegetated with naturalized species. The Project site is located in a deeper section of a large canyon where the scale of the vegetated slopes is equally as dominant as the overcrossings, paving, and highway features. These slopes limit views from the freeway toward the mesa tops in the landscape unit.

Public viewpoints of the Project area consist of views from I-5 and local roadways. Viewers of the Project site mainly are motorists, both on I-5 and local roadways, as well as bicyclists and pedestrians along local roadways and bicyclists on I-5. Some views also are available from UCSD and local office and medical buildings within the viewshed. Motorists on I-5 and local roads would only experience brief views of the Project site, while pedestrians and bicyclists on local streets would have views of the site for a longer time period. It is also noted that there are approximately 155,000 viewers on I-5, while viewers on local streets range from 38 to 60,000.

The Project proposes to replace the existing Genesee Avenue four-lane overcrossing with a new six-lane overcrossing, reconstruct of the I-5/Genesee Avenue interchange and related improvements to the freeway, construct 16 retaining walls, and provide landscaping. These improvements would not significantly change the existing character on site because the Project area already consists of a freeway and roadways. While grading and retaining walls are proposed, landform would not significantly be altered. The Project would not block views of or significantly alter scenic resources. While the Project would increase the bulk/scale of the freeway ramps and overcrossing, this increase is not substantial and is considered to be less than significant. The Project does not propose significant new source of light or glare, as the site already contains safety lighting for the freeway and roadways. As detailed in Section 2.6.4 and Appendix E of the IS/EA, avoidance, minimization and/or mitigation measures incorporated into the Project include: enhanced landscape plantings in front of walls; techniques to visibly blend retaining walls with graded slopes; architectural features on structure design consistent with I-5 corridor wide design themes; and color and texture treatments on visible sections of retaining walls consistent with I-5 corridor wide design themes. Overall, public views would not be significantly affected by the Project.

Climate Change

Greenhouse gas (GHG) emissions associated with the Project would be attributable to vehicular emissions and emissions from construction equipment and vehicles.

Emissions of GHGs associated with construction would be temporary. Based on emission estimates from the OFFROAD and EMFAC2007 models for heavy construction equipment and vehicles, respectively, total GHG associated with construction are estimated at 16,502 tons of CO₂ total for the duration of construction. These GHG emissions are considered a very small fraction of the total estimated GHG emissions for California and the Project would be compliant with “business as usual” emission standards. Therefore, construction impacts to global climate change are considered less than significant.

The Project operation would not result in an increase in vehicular emissions within the air basin, as the Project would not generate traffic and would reduce congestion. Due to the reduction in vehicle hours traveled and improved traffic flow, CO₂ emissions should be reduced. As detailed in Section 2.22.3 of the IS/EA, the Project would include measures to reduce the GHG emissions and potential climate change impacts to the extent that it is applicable or feasible and through coordination with the Project Development Team. Therefore, operational impacts to global climate change are less than significant.

Mandatory Findings of Significance

As previously discussed under Biological Resources, sensitive biological resources including vegetation communities, wetlands, and animals would be directly impacted by the Project. The Project, however, would include mitigation that would reduce impacts to less than significant levels. Mitigation specific to this Project is presented in Subchapter 2.15, Natural Communities; Subchapter 2.16, Wetlands and Other Waters; Subchapter 2.18, Animal Species; Subchapter 2.19, Threatened and Endangered Species; and Subchapter 2.20, Invasive Species of the IS/EA.

As previously discussed under Historical Resources, no archaeological or historical resources are located within the Project’s APE. However, there is the potential to encounter unknown subsurface resources during Project construction. The Project would include minimization measures to reduce any potential impacts to unknown buried cultural resources or human remains, including the diversion of construction activities if such resources are discovered.

Cumulative impacts have been analyzed in Subchapter 2.21, Cumulative Impacts, of the IS/EA for visual/aesthetics and biological resources. In summary, due to the current urbanized condition of the area, presence of large buildings, and mitigation proposed by the Project, project-related contributions to visual change would not be cumulatively considerable. The Project would not result in substantial cumulative impacts to biological resources due to the implementation of the MSCP, conformance with BMPs for jurisdictional areas, and compliance with regulatory controls. Cumulative impacts would be less than significant.

As all significant impacts related to the Project would be mitigated to below a level of significance, the Project would not result in substantial adverse effects.

APPENDIX I

UTILITY CONFLICTS

| Appendix I UTILITY CONFLICTS | | | | | |
|---------------------------------|---------------------------------|-------------------|--|---|--|
| I.D. | Facility | Agency Contact | Location | Potential Conflict | Recommendation |
| 1 | Storm Drain | UCSD | 474+20 – 475+00 "11-SD-5" Line | Retaining wall west of Gilman Drive | Relocate |
| 2 | Water 203mm (8") | UCSD | 475+20 "11-SD-5" Line | Retaining wall west of Gilman Drive | Relocate |
| 3 | Electric 12kV | UCSD | 476+00 "11-SD-5" Line | Gilman Drive realignment | Pothole – Protect in Place |
| 4 | Gas | Scripps | 478+50 - 479+00 NB "11-SD-5" Line | Wall north of Voigt and east of Interstate 5 | Relocate |
| 5 | Electric 102 (4") Conduit | SDG&E | 478+80 NB "11-SD-5" Line | Wall north of Voigt and east of Interstate 5 | Relocate |
| 6 | Gas 51mm (2") HP | SDG&E | 11+00 - 16+00 "VD1" Line, Voigt Drive OC | Crosses I-5 in Voigt Overcrossing which is being removed and replaced | Relocate into new Voigt Overcrossing |
| 7 | Electric 102 mm (4") Conduit | SDG&E | 11+00 - 16+00 "VD1" Line, Voigt Drive OC | Crosses I-5 in Voigt Overcrossing which is being removed and replaced | Relocate into new Voigt Overcrossing |
| 8 | Water (406mm) (16") | City of San Diego | 11+00 - 16+00 "VD1" Line, Voigt Drive OC | Crosses I-5 in Voigt Overcrossing which is being removed and replaced | Relocate into new Voigt Overcrossing |
| 9 | 2-305mm (12") Chilled Water | UCSD | 11+00 - 16+00 "VD1" Line, Voigt Drive OC | Crosses I-5 in Voigt Overcrossing which is being removed and replaced | Relocate into new Voigt Overcrossing |
| 10 | 3-203mm (8") Heated Water | UCSD | 11+00 - 16+00 "VD1" Line, Voigt Drive OC | Crosses I-5 in Voigt Overcrossing which is being removed and replaced | Relocate into new Voigt Overcrossing |
| 11 | Telecomm 4-102mm (4") Conduits | AT&T | 11+00 - 16+00 "VD1" Line, Voigt Drive OC | Crosses I-5 in Voigt Overcrossing which is being removed and replaced | Relocate into new Voigt Overcrossing |
| 12 | Gas | SDG&E | 108+00 - 112+00 "GEN" Line | Crosses I-5 in Genesee Overcrossing which is being removed and replaced | Relocate into new Genesee Overcrossing |
| 13 | Electric 2 - 127mm (5") Conduit | SDG&E | 108+00 - 112+00 "GEN" Line | Crosses I-5 in Genesee Overcrossing which is being removed and replaced | Relocate into new Genesee Overcrossing |

| Appendix I UTILITY CONFLICTS | | | | | |
|---------------------------------|---|-------------------|----------------------------|---|--|
| I.D. | Facility | Agency Contact | Location | Potential Conflict | Recommendation |
| | | | | removed and replaced | |
| 14 | Water 610mm (24") | City of San Diego | 108+00 - 112+00 "GEN" Line | Crosses I-5 in Genesee Overcrossing which is being removed and replaced | Relocate into new Genesee Overcrossing |
| 15 | Reclaimed Water 610mm (24") | City of San Diego | 108+00 - 112+00 "GEN" Line | Crosses I-5 in Genesee Overcrossing which is being removed and replaced | Relocate into new Genesee Overcrossing |
| 16 | Telephone | UCSD | 108+00 - 112+00 "GEN" Line | Crosses I-5 in Genesee Overcrossing which is being removed and replaced | Relocate into new Genesee Overcrossing |
| 17 | Telephone | PacBell | 108+00 - 112+00 "GEN" Line | Crosses I-5 in Genesee Overcrossing which is being removed and replaced | Relocate into new Genesee Overcrossing |
| 18 | Telecom 102mm (4") Conduit carrying MFS Quad-Duct | Verizon | 108+00 - 112+00 "GEN" Line | Crosses I-5 in Genesee Overcrossing which is being removed and replaced | Relocate into new Genesee Overcrossing |
| 19 | Telecomm | Time Warner | 108+00 - 115+00 "GEN" Line | Crosses I-5 in Genesee Overcrossing which is being removed and replaced and also conflict with wall south of Genesee Avenue | Relocate into new Genesee Overcrossing |
| 20 | 69kV OH (Pole No's: z203356 & z203357) | SDG&E | 108+40 - 111+60 "GEN" Line | Current encroachment permit to cross I-5 overhead | Place in new Genesee Overcrossing |
| 21 | Fiber Optic Feed | Scripps | 113+15 "GEN" Line | Wall south of Genesee Avenue | Pothole – Protect in Place |
| 22 | Electric - 12kV | SDG&E | 113+80 "GEN" Line | Retaining wall south of Genesee Avenue | Pothole – Protect in Place |
| 23 | Electrical | SDG&E | 114+80 "GEN" Line | Retaining wall south of Genesee Avenue | Pothole – Protect in Place |

APPENDIX J

AIR QUALITY CONFORMITY DETERMINATION



U.S. Department
of Transportation
**Federal Highway
Administration**

California Division

June 22, 2011

650 Capitol Mall, Suite 4-100
Sacramento, CA 95814
(916) 498-5001

In Reply Refer To:
HDA-CA
EA: 11-022330

Laurie Berman, District Director
California Department of Transportation
District 11
4050 Taylor Street, M.S. 242
San Diego, CA 92110

Attention: Ms. Shay Lynn M. Harrison
Environmental Analysis Branch C Chief

Dear Ms. Harrison:

SUBJECT: FHWA Project Level Conformity Determination for the I-5/Genesee Avenue Interchange Reconstruction Project

On May 26, 2011, the California Department of Transportation (Caltrans) submitted to the Federal Highway Administration (FHWA) a request for a project level conformity determination for the I-5/Genesee Avenue Interchange Reconstruction Project in San Diego County. The project is in an area that is designated Nonattainment for Ozone and Maintenance for Carbon Monoxide (CO).

The project level conformity analysis submitted by Caltrans indicates that the transportation conformity requirements of 40 C.F.R. Part 93 have been met. The project is included in the San Diego Association of Governments (SANDAG) *2030 Regional Transportation Plan (RTP)* and the *2010 Regional Transportation Improvement Program (RTIP)*. The latest conformity determinations for the RTP and RTIP were approved by FHWA and the Federal Transit Administration (FTA) on December 14, 2010. The design concept and scope of the preferred alternative has not changed significantly from those assumed in the regional emissions analysis.

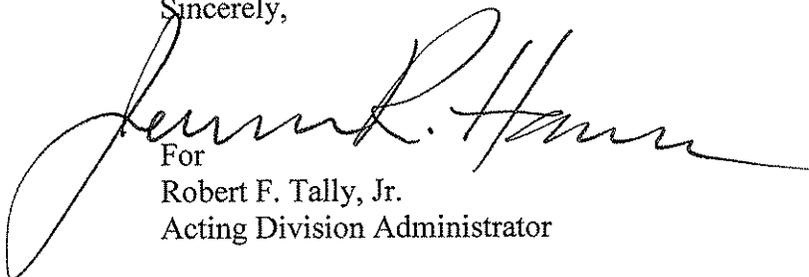
As required by 40 C.F.R. 93.116 and 93.123, the localized CO analysis are included in the documentation. The CO hotspot analysis was conducted using the *Transportation Project-Level Carbon Monoxide Protocol*. The analysis demonstrates that the project will not create any new violation of the standards or increase the severity or number of existing violations.

Based on the information provided, FHWA finds that the Conformity Determination for the I-5/Genesee Avenue Interchange Reconstruction Project in San Diego County conforms to the State Implementation Plan (SIP) in accordance with 40 C.F.R. Part 93.



If you have any questions pertaining to this conformity finding, please contact Stew Sonnenberg, FHWA Air Quality Specialist, at (916) 498-5889 or by email at Stew.Sonnenberg@dot.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert F. Tally, Jr.", written in a cursive style. The signature is positioned above the typed name and title.

For
Robert F. Tally, Jr.
Acting Division Administrator

cc: (email)
M. Brady, Caltrans HQ
M. Dungan, D-11
J. Hannon, FHWA

SSonnenberg/km